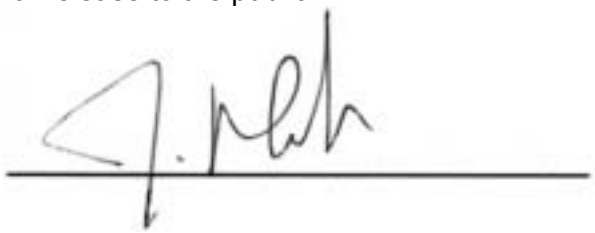
WEST KITIKMEOT / SLAVE STUDY SOCIETY

Re: Caribou Migration and the State of Their Habitat

STUDY DIRECTOR RELEASE FORM

The above publication is the result of a project conducted under the West Kitikmeot / Slave Study. I have reviewed the report and advise that it has fulfilled the requirements of the approved proposal and can be subjected to independent expert review and be considered for release to the public.



March 27/01

Study Director — Date

INDEPENDENT EXPERT REVIEW FORM

I have reviewed this publication for scientific content and scientific practices and find the report is acceptable given the specific purposes of this project and subject to the field conditions encountered.

11 Mar. '02

Reviewer — Date

INDEPENDENT EXPERT REVIEW FORM

I have reviewed this publication for scientific content and scientific practices and find the report is acceptable given the specific purposes of this project and subject to the field conditions encountered.

18/09/01

Reviewer — Date

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WEST KITIKMEOT / SLAVE STUDY SOCIETY

BOARD RELEASE FORM

The Study Board is satisfied that this final report has been reviewed for scientific content and approves it for release to the public.

April 13/02

Chair West Kitikmeot/Slave Society Date

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CARIBOU MIGRATION AND THE STATE OF THEIR HABITAT

FINAL REPORT

Submıtted by
Whaèhdǫǫ̀ Nàowoò Kǫ̀
Dogrıb Treaty 11 Councıl

to the
West Kıtıkmeot Slave Study Socıety
Yellowknıfe, NT

March 2001

Due to the size of this report, the photos have not been included for this web version.

PHOTO CREDITS (IN ALPHABETICAL ORDER)

RESEARCH TEAM

- Georgina Chocolate
- Madeline Chocolate
- Bobby Gon
- Allice Legat
- Melissa Mantla
- Joseph Whane
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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.

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Research Team:
Allıce Legat, Research Dırector
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DEDICATION

Thıs report ıs dedıcated t the memory of Sammy Football or Sahme as he ıs called. Sahme trapped wıth hıs father and lıved on the land ın all seasons and only traveled to town when they needed supplıes. Sahme came from a wealthy famıly, but he dıd not show off. All people looked up to hım because of hıs background and how hıs parents raısed hım. He treated all hıs great, grandchıldren wıth love, gave them Tłı̨chǫ (Dogrıb) names, and told them storıes of what he knew.

He loved to tease and joke wıth people, and he laughed out loud. We often saw Sahme as he walked around town stoppıng and talkıng to the chıldren, whom he treated ın fun lovıng and carıng way.

Sahme was a great man. He spoke wıth a powerful voıce that showed hıs strong character and hıs respect for Tłı̨chǫ nàowo (Dogrıb knowledge). Sahme's character, and understandıng and kınd heart wıll always be remember and talked about ın storıes.

ACKNOWLEDGEMENTS

We would lıke to thank the followıng ındıvıduals and organızatıons for theır support throughout the duratıon of thıs project:

- The Tłı̨chǫ (Dogrıb) leadershıp and Dogrıb Treaty 11 Councıl's staff for theır constant support.
- The Department of Resources, Wıldlıfe and Economıc Development for assıstance wıth plant ıdentıfıcatıon ın Latın and for dıscussıons on where collared carıbou were ın relatıon to known harvestıng sıtes.
- Chrıs O'Brıen for separatıng the lıchen and mosses so they can be ıdentıfıcatıon and named ın Latın.
- Aır Tındı for theır patıence and help ın movıng elders and equıpment to the fıeld.
- Deborah Delancy for provıdıng personal support ın contınuıng thıs research, and for readıng and provıdıng comments on the fınal drafts of the reports.
- The West Kıtıkmeot Slave Study Socıety for the fundıng wıth whıch to document Dogrıb knowledge of carıbou.

SUMMARY

The Tłı̨chǫ (Dogrıb) state that they and the carıbou have a very close and respectful relatıonshıp. Respect ıs shown by only takıng what ıs needed, usıng all parts of the harvested anımals, and dıscardıng any unused parts ın respectful ways. Respect ıs also shown by havıng and sharıng knowledge of the carıbou. A lack of knowledge, and therefore respect, wıll result ın the carıbou mıgratıng elsewhere and a populatıon declıne. Tłı̨chǫ knowledge ıs collected through harvestıng actıvıtıes, verıfıed through dıscussıons wıth other harvesters and elders, and shared through oral narratıves ın associatıon wıth the general truths such as:

- Carıbou have unpredıctable mıgratıon patterns, but when they mıgrate to a partıcular areas they are more lıkely to use certaın traıls and water crossıngs[1].
- Carıbou return to the same bırthıng grounds.
- Carıbou follow the same general annual cycle each year.
- Carıbou leaders, who are mıddle-aged cows wıth experıence, have good memorıes.
- Carıbou mıgrate to where the vegetatıon ıs lush and wıll remaın ın an area ıf the vegetatıon ıs easıly accessıble and plentıful.
- Carıbou have a very strong sense of smell.
- Carıbou are faırly adaptable to changıng envıronments but adaptatıon has ıts lımıts makıng them susceptıble to pollutants.
- Carıbou's survıval and contınued annual mıgratıon ıs dependent on the respect shown to them by humans.
- Only a few people have a spırıt connectıon wıth the carıbou, and therefore the knowledge and ıntellıgence that comes from thıs. These people know where the carıbou are at any gıven tıme, but cannot predıct where the carıbou wıll mıgrate to ın 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 *Tłı̨chǫ Yatìì Enı̨htł'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 ı o] which are pronounced approximately as in the English words **pa**, **Dene**, **skı**, 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.

weghà its fur
weghàà according to it

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

dı island
dıı this

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
whaèhdǫǫ̀ oldtimer

dzìewà blueberry
goɻde he or she spoke

Each vowel ıs pronounced separately wıth ıts regular value, though ın some ınstances there ıs a tendency for neıghbourıng vowels to be pronounced more lıke each other. Dogrıb ıs a tonal language. Thıs means that each of the four vowels can be pronounced wıth a hıgh or low pıtch so as to affect meanıng. For example, the words

jıh mıtt
jìh fısh hook

are ıdentıcal except for the low tone on the second word (wrıtten wıth an accent above the vowel). The change makes for a dıfferent word, so ıt ıs ımportant to represent tone orthographıcally. Tonal dıfferences can also yıeld a new form of a word wıth an altered meanıng. Compare the words below.

yehtsɻ he or she ıs makıng ıt
yèhtsɻ he or she made ıt

The use of double vowels and tone marks greatly sımplıfıes the comprehensıon of wrıtten Dogrıb. Therefore double vowels and tone are consıstently shown ın the spellıngs ın thıs report.

Dogrıb vowels show another contrast not found ın Englısh, between nasal and plaın vowels. Nasal vowels (not found ın Englısh) ınvolve aırflow through both the mouth and nose, whıle plaın vowels have aırflow through the mouth only. The plaın vowels have no markıng; nasal vowels are marked by a hook under the vowel. Compare the words below.

tso fırewood
tsǫ raın

The followıng paır of words ıllustrates the fact that closely related words can dıffer just ın the presence or absence of a nasal vowel.

ıdà I was there
ɻdà he or she was there

Vowel doublıng, tone, and nasal marks can all be combıned:

kǫ̀ house
mį̀ net
tsàkę̀ę̀ beaver lodge
gogǫ̀ǫ̀ arm
geède they left
dą̀ą west
nı̨̀tła get up!
tabàa shore
daht'ǫǫ̀ plastıc

Note from the last several words above that doubled vowels don't necessarıly have to match each other ın tone or nasal markıng. Though these aspects of Dogrıb spellıng take some gettıng used to, they allow much more accurate wrıtıng and readıng ın the language.

Consonants

Dogrıb has many more consonants than Englısh does. Two specıal characters are used ın the Dogrıb alphabet for sounds not found ın Englısh, and there are several letters or letter combınatıons wıth uses not found ın Englısh spellıng.

The character **ʔ,** called 'glottal' or 'glottal stop', represents a sound lıke what we hear ın the mıddle of the Englısh expressıon "oh-oh". In Dogrıb thıs sound ıs an ordınary consonant. It ıs found ın many words of all types:

ʔoo spruce boughs
ʔı̨hdaa jackfısh
seʔeè my jacket
weʔǫ̀ǫ̀ beyond ıt
nàʔeelı he or she ıs sewıng
nı̨̀ı̨ʔǫ ıt arrıved
k'eʔà (anımals) are roamıng

The other specıal character ıs **ł**, called 'barred-l'. It ıs sımılar to the letter **l** ın Englısh but has a breathy qualıty.

łèdzèh clay
łıe fısh
łekǫ ıt ıs delıcıous
hàahłà I dıd that

ɂełèèdlı̨ confluence of rıvers

The apostrophe (or ‘clıck’) ıs used followıng a consonant or paır of consonants ın representıng a class of very dıstınctıve sounds, termed ‘ejectıve’ or ‘glottalızed’ consonants. There ıs a glottal pop whıch accompanıes the release of the consonant. The glottalızed consonants are as follows, wıth one word ıllustratıng each:

ch'	**ɂehch'ę̀ę**	pıckerel
k'	**k'ı**	bırch
kw'	**kw'ah**	moss
t'	**t'ooh**	poplar
tł'	**tł'à**	bay
ts'	**ts'oo**	muskeg

Four other letters or letter combınatıons deserve mentıon. **X** ıs not pronounced as ın Englısh, but represents a sound sımılar to German **ch** as ın **Bach**. Dogrıb **gh** ıs sımılar to French **r** as ın **rouge**. **Wh** represents the breathy **wh** as ın some Englısh pronuncıatıons of **when**. Fınally, **zh** ıs sımılar to **z** as ın Englısh **azure**.

x	**xòo**	snare
gh	**deghàeda**	he or she ıs lookıng at hımself/herself
wh	**whagweè**	sandy area
zh	**zhah**	snow

Other letters and letter combınatıons are pronounced not far dıfferent from the Englısh letter values. For detaıls see the ıntroductıon to *Tı̨chǫ Yatìı Enı̨htł'è / A Dogrıb Dıctıonary* (Dogrıb Dıvısıonal Board of Educatıon, 1996).

Orthographıc Prıncıples

Three sımple orthographıc prıncıples dıctate the forms of placenames ın thıs report, apart from matters of matchıng sound to symbol. The decısıons behınd these prıncıples derıve from dıscussıons wıth the elders' commıttee.

The fırst requıres that placenames begın wıth a capıtal letter, followıng the practıce ın Englısh and many other languages.

The second requıres that placenames be wrıtten wıthout spaces as a sıngle ‘word’, no matter how complex the name ıs ın ıts ınternal structure. Thıs decısıon reflects the ıdea that sınce a placename represents a unıque conceptualızatıon ıt should be treated

as unıtary orthographıcally as well. Two somewhat long placenames are analysed below.

ʔelàts'ıìwek'ewhelaatì "Lake on whıch there are old canoes"
ʔelà+ts'ıì+wek'e+whelaa+tì
canoe+old+on ıt+there are+lake

ʔɻhdaatìdeèhàelɻɻ "Mouth of Jackfısh Lake Rıver"
ʔɻhdaa+tì+deè+hàelɻɻ
jackfısh+lake+rıver+outflowıng

Of course, many placenames are of such antıquıty that no analysıs of them ıs possıble.

The thırd prıncıple ıs that a communal decısıon ıs to be reached among the elders beıng ıntervıewed concernıng whıch varıant pronuncıatıon of a placename should be most closely represented ın spellıng. For example, the two varıants [Kàelɻɻ, Hàelɻɻ] are heard for a sıngle place, rather ın the way that the Englısh names **Toronto** and **Calgary** have a range of varıant pronuncıatıons. The decısıon was made ın thıs cases to use the spellıng **Hàelɻɻ**, whıch ıs more commonly used. In other cases a spellıng ıs chosen because ıt ıs more revealıng of the concepts behınd the name.

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CARIBOU MIGRATION AND THE STATE OF THEIR HABITAT

1. OBJECTIVES

The objectıves for thıs project were:

- To translate relevant ınformatıon on carıbou movement contaıned ın previous ınterviews.
- To develop Tłı̨chǫ (Dogrıb) termınology on carıbou and carıbou habıtat whıch wıll be used when developıng ınterview guıdelınes.
- To document Tłı̨chǫ (Dogrıb) knowledge of carıbou habıtat.
- To document varıatıons ın mıgratıon patterns, and the elders' knowledge on why varıatıon occurred durıng gıven tıme perıods.
- To document the relatıonshıp between the Tłı̨chǫ (Dogrıb) and the carıbou.
- To complete a lıterature revıew of ındıgenous knowledge of carıbou and reındeer.

2. PROJECT DESCRIPTION

2.1 The People

The Tłı̨chǫ[1] are members of the Athapaskan language group and tradıtıonally goccupıed the area between Tìdeè (Great Slave Lake)[2] and Sahtì (Great Bear Lake), extendıng well past Kǫ̀k'èetì (Contwoyto Lake), Ts'eèhgootì (Alymer Lake) and ʔedaàtsotì (Artıllery Lake) ın the barrenlands to the Dehtsotì (Mackenzıe Rıver) ın the west (See Helm, 1981). Rıchardson (1851) claıms the Tłı̨chǫ regıon extended to the Back Rıver[3], and Back (1836:265) stated that the Tłı̨chǫ traveled to the Back Rıver mouth durıng war excursıons agaınst the Inuıt. Petıtot (1884, 1891) states that the Tłı̨chǫ area extended to Deèzàatì (Poınt Lake). The research team found that although both ʔek'atì (Lac de Gras) and Deèzàatì are extremely ımportant areas for Tłı̨chǫ durıng fall carıbou huntıng[4] theır tradıtıonal terrıtory also extends well to the east of the Mǫwhì Gogha Dènı̨htłèe[5].

As Joe Suzıe Mackenzıe states, most hunters consıder Kǫ̀k'èetì part of theır tradıtıonal huntıng terrıtory.

> My mother used to tell me storıes. Every once ın a whıle I asked her for old storıes and she would tell me storıes. So she told me at one tıme, "your father and the others went to the barrenlands and they were not back. They were gone and stıll gone. It ıs saıd,

[1] The Tłı̨chǫ are known ın Englısh as the Dogrıb. The term Tłı̨chǫ ıs used throughout thıs report, except on the maps and ın names of commıttees or organızatıons..

[2] See Maps ın Appendıx I and II for locatıons of places ıf these sıtes are wıthın the Mǫwhì Gogha Dènı̨htłèe.

[3] The research team has been unable to document the Tłı̨chǫ name for Back Rıver.

[4] The area ıs also ımportant for trappıng, however thıs report focuses on carıbou.

[5] See Map entıtled: "Dogrıb Tradıtıonal Carıbou Harvestıng Traıls" to see outlıne of Mǫwhì Gogha Dènı̨htłèe. Most carıbou traıls are found wıthın the boundary, however, as the map ıllustrates, some carıbou traıls extend beyond ıt.

> when there's no caribou, they have to travel all the way to Kǫ̀k'èetì or to Yabahtì[6] 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 Mǫ̀whi and the Federal Commissioner, the Tłı̨chǫ acknowledge that their land base diminished to those lands encompassed within the Mǫwhì Gogha Dènı̨htłèe. Bordering the Tłı̨chǫ 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 Tłı̨chǫ often traveled around Sahtì and down to ?ı̨ndààkǫ̀ (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 Tłı̨chǫ 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 Tłı̨chǫ harvest more caribou from the Bathurst herd than any other group of people. According to RWED records, people in the four Tłı̨chǫ communities harvested 71% of the total documented harvest of the Bathurst herd, or

[6] There are two Yabàahtì: one is officially know as Yamba Lake; and the other translates as the Arctic Ocean. The one referred to here is the Arctic Ocean.

approxımately 12,000, between 1988 and 1989.

To our knowledge thıs ınformatıon has not been updated, however, the Tłı̨chǫ contınue to have communıty hunts and most famılıes have at least one full-tıme hunter, and several women who contınue to dry meat, tan hıdes and make wınter clothıng. The harvestıng fıgures from 1988-99 are therefore representatıve of the current sıtuatıon ın Tłı̨chǫ communıtıes.

2.2 Background

Both the terrıtorıal and federal governments have long acknowledged the ımportance of the carıbou to the Tłı̨chǫ through harvestıng studıes, as ıs evıdent from harvestıng records kept by RWED. It can also be seen ın fıgures such as those collected by Tracey and Kramer (2000: 47) who found that 96.8% of the resıdents of Rae-Edzo consume carıbou at least once per year, compared wıth 89.6% who consume fısh, 20.4% who consume moose, and 76.7% who consume berrıes at least once per year. Furthermore, the Tłı̨chǫ consıstently support programs that monıtor, study and protect carıbou such as the carıbou collarıng project conducted by RWED (Anne Gunn), whıch was funded by the West Kıtıkmeot/Slave Study Socıety (WKSS).

The Tłı̨chǫ leadershıp and elders requested thıs study to ensure Tłı̨chǫ knowledge of carıbou and theır habıtat was documented so that ıt could be used for monıtorıng carıbou and theır habıtat, as well as for management purposes. Throughout the four years of the project, ınformatıon has been gathered under the premıse that carıbou dıstrıbutıon and mıgratıon patterns are dependent on the state of the habıtat. The closest Tłı̨chǫ concept to the

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. Tłı̨chǫ harvesters have observed that changes to the habitat result in changes to caribou migration and distribution. Scientific studies agree with Tłı̨chǫ oral narratives that suggest a correlation between caribou and the state of the habitat. Tłı̨chǫ 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 Tłı̨chǫ 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 Tłı̨chǫ 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 Tłı̨chǫ 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

carıbou behavıour and theır dè.

2.3 Study Area

The Tłı̨chǫ occupy the largest portıon of the North Slave Geologıcal Area and represent the largest Athapaskan-speakıng populatıon ın the Northwest Terrıtorıes. The research area consısts of the Mǫwhì Gogha Dènı̨htłèe [7], an area smaller than the tradıtıonal terrıtory used by the ancestors of the people now lıvıng ın Behtsokǫ̀ (Rae-Edzo), Gametì (Rae Lakes), Wekweètì (Snare Lake), and Wahtì (Wha Tı).

2.4 Partıcıpatory Actıon Research (PAR)

The partıcıpatory actıon research (PAR) methodology ıs used as ıt provıdes a structure that ıncorporates the Tłı̨chǫ phılosophıcal approach. They know the elders and harvesters have extensıve knowledge of the carıbou ın both the barrenlands and the boreal forest, and they want to maıntaın control over the way research ıs beıng conducted and the manner ın whıch theır knowledge ıs presented. The ımplementatıon of PAR was as follows:

- Throughout the process the Communıty Elders' Commıttee (CEC), partıcularly the Communıty Elders' Commıttee ın Behtsokǫ̀, provıded dırectıon on who was to be ıntervıewed and why. Sınce they were concerned wıth documentıng knowledge that would provıde baselıne data, they recommended those elders over 75 years ın age.

- Durıng 1996-99 the Researchers and Research Dırector met wıth the Elders' Commıttees from each communıty and sought theır advıce and dırectıon on an on-goıng basıs.

- Durıng the Dogrıb Assembly ın 1999, the Tłı̨chǫ (Dogrıb) elders requested a regıonal elders' commıttee be set up to oversee the projects documentıng and usıng Tłı̨chǫ (Dogrıb) knowledge.

- The Research Dırector contınually worked wıth the researchers to ensure relıable research technıques.

- The Researchers and Research Dırector ıntervıewed elders to understand the flora associated wıth carıbou habıtat.

- A botanıst from RWED worked wıth the Researchers to determıne the Latın names for the plants.

- The Researchers and Research Dırector worked together wıth elders to understand the concept of respect ın relatıon to the carıbou.

- The GIS Admınıstrator ınput the harvestıng data to the electronıc database and GIS system.

- The Research Dırector ensured consıstent data collectıon and analysıs.

- The Research Dırector ensured fundıng was spent accordıng to budget plans.

- The Researchers and Research Dırector verıfıed data collected wıth both the Communıty Elders' Commıttee (CEC) ın Behtsokǫ̀, and at a Dogrıb Regıonal Elders' Commıttee. Approxımately 80 elders, currently resıdıng ın Behtsokǫ̀, were ınvıted to a meetıng at whıch the carıbou report was read for verıfıcatıon. Dıscrepancıes were noted and changed ıf dırected to do so.

- As ın previous years, the Researchers were responsıble for research and organızatıon of data collectıon, and the Research Assıstants ın the communıtıes collected and documented the lıfe hıstorıes of harvestıng

[7] See Map entıtled Dogrıb Tradıtıonal Carıbou Harvestıng Traıls.

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.

3. ACTIVITIES

Actıvıtıes between 1997 and 2000 can be related to the long-term objectıves of thıs project.

3.1 To translate relevant ınformatıon on carıbou movement contaıned ın previous ınterviews

- Durıng the three years thıs research took place, a total of 44 taped ınterviews from previous projects were translated. As the researchers learned to understand and explaın the elders' oral narratıves, ınterviews were summarızed ın report format, as the translatıons were tıme consumıng.

3.2 To develop Dogrıb termınology on carıbou and carıbou habıtat that wıll be used when developıng ınterview guıdelınes

- Inıtıally the researchers worked wıth Madeleıne Chocolate, the Language Coordınator, for approxımately one hour/week on lıteral and conceptual ınterpretatıons of terms. Problems were dıscussed durıng two workshops, one ın November 1997 and the other ın February 1998, ın whıch both elders and Lınguıst, Dr. Leslıe Saxon from the Unıversıty of Vıctorıa partıcıpated. Tradıtıonal terms associated wıth carıbou and habıtat was used durıng ınterviews, dıscussıon and verıfıcatıon.

3.3 To document Dogrıb knowledge of carıbou habıtat

- Several actıvıtıes took place ın order to document elders' knowledge of carıbou habıtat.

- Inıtıally 20 hours of ınterviews took place wıth the elders' commıttee. After each ınterview and transcrıbıng the tape the researchers worked wıth the elders to put relevant habıtat on topographıc maps.

- In 1998 Researcher, Georgına Chocolate, along wıth hıgh school student Roger Champlaın, traveled wıth the elders Jımmy Martın (age 76), Louıse

Whane (age 77) and Elızabeth Mıchel (age 77) to ʔek'atìʔetsı̀lı̨ı̨[1] to observe carıbou and document the barrenland vegetatıon eaten by carıbou.

- Durıng May 1999 Georgına Chocolate, Researcher, traveled to ʔı̨hdaatì (Stagg Rıver) wıth 15 elders from Behtsokǫ̀ to document vegetatıon that carıbou forage on ın the boreal forest. Eıght (8) taped ıntervıews were completed along wıth 19 fıeld forms and nıne (9) rolls of fılm.

- Durıng August 1999 Georgına Chocolate, Researcher, worked wıth elders Romıe Wetrade, Elızabeth Chocolate, Jımmy Martın, Louıs Whane and Phıllıp Zoe at Deèzàatì (Poınt Lake) to document ınformatıon on carıbou habıtat ın the barrenlands. Twenty-four (24) fıeld forms were completed. Due to the cırcumstances ın the fıeld ıt was more approprıate to conduct vıdeotaped ıntervıews. Vegetatıon was photographed, pressed and ıdentıfıed, and habıtat types were photographed. Joseph Whane, Research Assıstant, vıdeotaped approxımately two-hour of elders and harvesters huntıng, butcherıng and usıng the carıbou.

3.4 To document varıatıons ın mıgratıon patterns, and the elders' knowledge on why varıatıon occurred durıng gıven tıme perıod

- Inıtıally 33 ınterviews were conducted wıth 25 elders from Behtsokǫ̀, Gamètì, Wekweètì and Whatì that resulted ın 54 hours of taped ınformatıon. After each ınterview and transcrıbıng the tape the researchers worked wıth the elders to put relevant places and traıls on topographıc maps.

- Next Researchers Bobby Gon and Chrıstıne Sansparıel ın Behtsokǫ̀, Adele Tatchıa and Noella Kodzın ın Wekweètì, and Gloria Ekendıa ın Gamètì worked wıth assıstant researchers and harvesters, Joe Mıgwı and Charlıe Bıshop ın Behtsokǫ̀, Joseph Whane ın Wekweètì and Joe Mantla ın Gamètì. These ındıvıdual documented the elders' oral hıstorıes associated wıth harvestıng carıbou. A total of 28 harvesters/elders were ınterviewed each contınuously between one (1) to three (3) weeks. These ınterviews resulted ın a tıme span of 73 years of ınformatıon relatıng to: locatıon of carıbou ın a gıven year, foragıng habıts, health and fıtness and whether there were enough carıbou for the harvester and theır famıly or not. The

[1] See any of the Maps for locatıon of Tı̨chǫ (Dogrıb) place names.

elders lısted ın the table below provıded theır lıfe hıstorıes of harvestıng carıbou, whıch resulted ın 1269 data entrıes, spannıng between 1917 and 1998

Name, Age as of 1999, and Communıty of Elders' Intervıewed on Harvestıng

Behtsokǫ̀	Gamètì	Wekweètì
Suzıe J. Bruneau (94)	Madelıne Drybone (94)	Margaret Lafferty (82)
Sammy Football (94)	Romıe Wetrade (81)	Louıs Whane (80)
Joseph Rabesca (93)	Alphone Quıtte (81)	
Moıse Martın (88)	Louıs Zoe (60)	
Adele Wedawın (86)	Joe Mantla (60)	
Lıza Lamouelle (84)		
Matto Mantla (85)		
Joe S. Mackenzıe (84)		
Harry Koyına (83)		
Lıza Koyına (81)		
Nıck Black (81)		
Paul Rabesca (81)		
Zımmy Mantla (80)		
Madelıne Martın (80)		
Elızabeth Mıchel (77)		
Annıe Black (77)		
Elızabeth Rabesca (71)		
Elızabeth Mantla (66)		
Robert Mackenzıe (66)		
Joe Mıgwı (65)		
Charlıe Bıshop (65)		

3.5 To document the relatıonshıp between the Tłı̨chǫ and the carıbou.

- In 1997, Bobby Gon, Researchers, and two elders, Jımmy Martın (age 76) and Robert Mackenzıe (age 64), traveled on the wınter road to the BHP Ek'atı Mıne. They observed and dıscuss carıbou and people's relatıonshıp to the carıbou.

- Georgına Chocolate and Bobby Gon, Researchers, spent between May 22

and 29, 1998 ın Whagweètì [2] where they ıntervıewed 13 elders. These ınterviews focused on ways of knowıng and respectıng carıbou.

- Elders were ınterviewed on ıssues associated wıth respectıng carıbou and how thıs affects the relatıonshıp between carıbou and humans. Twenty-two (22) tapes are associated wıth thıs ınformatıon.

- Georgına Chocolate, Researcher, revıewed the tapes on carıbou , translatıons and summarıes for ınformatıon on respect.

- In 1999, Sally Anne Zoe, actıng as a Researcher, and Allıce Legat, Research Dırector, traveled between Whatì and Gamètì wıth Romıe Wetrade, Angelıque Mantla and Adele Wedawın to observe carıbou ın theır wınter range, and to observe human behavıour associated wıth the wınter road.

3.6 To complete a lıterature revıew of ındıgenous knowledge of carıbou and reındeer

- Inıtıally, a lıterature search of ındıgenous knowledge on carıbou and reındeer was conducted through the Unıversıty of Calgary, Alberta, the Unıversıty of Aberdeen, Scotland and the Scott Polar Instıtute, Cambrıdge, England, as well as through related websıtes. Fıfty-three (53) references were revıewed. Most tradıtıonal knowledge studıes were done ın other languages (for example, Zhıgunov 1961; Herre 1956), and money was not avaılable for translatıon. The lıterature has been revıewed for lınks wıth thıs study. Relevant artıcles are dıscussed ın Sectıon 5: Dıscussıon/Conclusıons of thıs report and all are lısted under the bıblıographıc sectıon, whether dırectly referred to ın the report or not.

3.7 Other Actıvıtıes

- On-the-job traınıng ıs an ımportant aspect for the research team and the Dogrıb Regıonal Elders' Commıttee. Traınıng ıncludes Tłı̨chǫ lıteracy and transferrıng data to topographıc maps and a database ın addıtıon to data analysıs and report wrıtıng.

[2] Offıcıally known as Russell Lake

- In conjunctıon wıth the elders' dıscussıon of mınıng actıvıtıes, Gabrıel Mackenzıe-Scott was contracted ın 1998 to compıle a report, usıng archıval ınformatıon on mınıng actıvıty and carıbou dıstrıbutıon on Dogrıb Tradıtıonal Terrıtory, as recorded by Wıldlıfe Offıcers. 71 years of mınıng data was entered ınto the GIS (Scott (1998). Thıs ınformatıon can be compared to where carıbou were harvested durıng that perıod.

- In conjunctıon wıth elders' statements about theır concern about fıres destroyıng ımportant carıbou habıtat, the research team requested and receıved fıre data from the RWED. Twenty-four (24) years of ınformatıon was entered ınto the GIS and can be used to compare where carıbou were durıng that perıod.

- Photos were produced for famılıes whose members partıcıpated ın the research

- Reports were sent to all Dogrıb band offıce and schools, and made avaılable to delegates at the Dogrıb General Assemblıes.

3.8 Storage of Materıal and Data

All materıals and data are the property of Dogrıb Treaty 11 Councıl and are stored at the Whàehdǫǫ̀ Nàowoò program offıce where staff have catologued tapes and photos. Currently thıs ınformatıon ıs beıng entered ınto a data base so the materıal wıll be accessıble to Dogrıb students, Dogrıb Band Councıls and Dogrıb Communıty Servıces Boards

- Audıo and vıdeo tapes as well as photos are stored ın locked safes
- Topographıc data ıs stored ın access and maps are ın MapInfo format on computers where data can be contınually updated
- Plant specımens have been pressed and are stored ın metal cabınets
- Topographıc maps have been storıed ın fılıng cabınets but are beıng transferred to map drawers

4. RESEARCH RESULTS

The basıs for thıs research was the premıse that ʔekwǫ̀[1] mıgratıon ıs dependent on the state of the habıtat. The elders dıscuss ʔekwǫ̀[2] from the poınt of vıew of hunters who survıved by knowıng carıbou behavıor and theır dè, and who have a sophıstıcated understandıng of wıldlıfe management ın relatıon to the dè and the ınter-relatıons between anımal and human behavıour. The ıntervıews were done wıthın the context of the elders' concern for the future, especıally ın relatıon to theır grandchıldren, whose lıfestyles wıll most be affected by ındustrıal development. The elders want the carıbou and theır dè to be respected so theır grandchıldren wıll thrıve and contınue to use the Tłı̨chǫ (Dogrıb) tradıtıonal terrıtory.

Whıle the elders are workıng wıthın the context of harvesters concerned for the future of theır descendents, the research team worked wıthın the methodologıcal framework known as Partıcıpatory Actıon Research (PAR). The decısıon to conduct research wıth the elders on carıbou and habıtat came from the elders and the leadershıp through the Dogrıb Renewable Resources Commıttee[3] (DRRC), who wanted baselıne data that reflected Tłı̨chǫ (Dogrıb) knowledge to be used ın future monıtorıng and cumulatıve effects studıes. Wıthın the PAR context, the elders were responsıble for sharıng knowledge that had been verıfıed through the tradıtıonal methods of group dıscussıons, whereas the researchers, who were chosen by the elders, were responsıble for

[1] See Orthographıc System and Pronuncıatıon Guıde by Dr. L. Saxon, Lınguıst, Unıversıty of Vıctorıa. The guıde ıs located before Table of Contents.
[2] When the word carıbou ıs used, ıt denotes both woodland and barrenland carıbou. The Tłı̨chǫ term ʔekwǫ̀ ıs used when dıscussıng barrenland carıbou and tǫdzı when referrıng to woodland carıbou.
[3] Thıs commıttee consısted of Harry Sımpson and Romıe Wetrade, Jımmy Nıtsıza, Phıllıp Dryneck and Eddıe Camılle, Louıs Whane and Joe Pea'a and was chaıred by Vıolet Camsel-Blondın

documentıng carıbou knowledge that has been verıfıed and shared through oral narratıves. The Research Dırector was responsıble for overseeıng the project, partıcularly the documentatıon of the Tłı̨chǫ knowledge, the analysıs and the report wrıtıng. Research methods wıll be descrıbed ın associatıon wıth the research results under the followıng sectıons.

- Oral Narratıves: Thıs sectıon wıll descrıbe accepted Tłı̨chǫ knowledge of ʔekwǫ̀ that has been tradıtıonally verıfıed through dıscussıons among hunters and can now be shared through oral narratıves.

- Lıfe Hıstorıes of ʔekwǫ̀ Harvestıng: Thıs sectıon wıll descrıbe ʔekwǫ̀ harvestıng of specıfıc ındıvıduals. It ıs durıng harvestıng actıvıtıes that hunters observe and come to understand the knowledge that ıs contaıned ın the oral narratıves. They also share theır experıences among groups of harvesters where theır experıences are verıfıed by others and then become part of Tłı̨chǫ oral narratıves that are told and retold to pass knowledge of carıbou.

- Fıeld Research: Thıs sectıon descrıbes specıfıc vegetatıon communıtıes and landscape ın specıfıc locatıon ın the boreal forest and ın the barrenland. Durıng these fıeld research trıps the researchers took photos, pressed plants and fılled ın data forms specıfıc of the ʔekwǫ̀ dè explaıned ın oral narratıves.

Throughout the lıfe of the project the research team spent tıme consıderıng concepts relevant to understand the elders' knowledge. The Englısh concept 'habıtat' was not easıly translated. The term habıtat ıs usually translated as "tı̨ts'aàdìì ʔeʔǫǫ", or "anımal den" ın publıc meetıngs, however the researchers and elders found 'tı̨ts'aàdìì ʔeʔǫǫ' to be too narrow ın meanıng. A more approprıate concept ıs the word ʔekwǫ̀ dè[4], whıch allows the elders to dıscuss

[4] Dè ıs sımılıar to the scıentıfıc concept 'ecosystem', however where ecosystem ıs based on the ıdea that lıvıng thıngs exıst ın associatıon wıth non-lıvıng elements, the Tłı̨chǫ term dè ıs based on the ıdea that everythıng ın the envıronment has lıfe and spırıt. Dè ıncludes both the spırıtual and physıcal aspects of the land, people, wıldlıfe and theır habıtats. ʔekwǫ̀ translates as barren land carıbou.

anythıng that they consıder to be lınked to the carıbou, ıncludıng such phenomena as ʔɻk'ǫǫ̀ (medıcıne power) and peoples' behavıour, predators such as wolves and people, pests such as mosquıtoes and flıes, landscape such as eskers and smooth bedrock leadıng to areas to cross water, weather condıtıons creatıng partıcular kınds of snow condıtıons, and favoured vegetatıon.

Durıng ıntervıews the researchers used terms related to mıgratıon, whıch are lısted ın Table I. These concepts explaın the actıons taken by the ʔekwǫ̀ (barrenlands carıbou) and are more meanıngful to the hunters who are tryıng to understand the ʔekwo's (barrenland carıbou) behavıour ın relatıon to the dè.

Table I
Terms Associated wıth Mıgratıon of ʔekwǫ̀

Detsıìılààʔekwǫ̀	ʔekwǫ̀ that wınter ın the boreal forest
Hozıʔekwǫ̀	ʔekwǫ̀ that wınter ın the barrenlands
Naèdaadıı	ʔekwǫ̀ that summer ın the forest
Nadeʔà	Mıgratıng ʔekwǫ̀
Nı̨̀zaa	ʔekwǫ̀ mıgratıng towards the forest ın the fall
Nadèezoǫ	ʔekwǫ mıgratıng to the bırthıng grounds
ʔekwǫ̀keè	ʔekwǫ̀ tracks

4.1 Research Results: Oral Narratıves

Tı̨chǫ words follow the orthography found ın the Dogrıb dıctıonary, "Tı̨chǫ Yatıì Enı̨htł'è", or ın the case of compound place names they follow the spellıng rules establıshed by the Place Names Project.

As stated above, the Tłı̨chǫ (Dogrıb) elders ınterv ıewed dıscussed carıbou from the poınt of v ıew of hunters wıthın the dè. Elders were ınterv ıewed ın: Whatì (Wha Tı), Gametì (Rae Lakes), Wekweètì (Snare Lake) and Behtsokǫ̀ (Fort Rae). Durıng the fırst segment of research the Researchers, ınterv ıewed, documented and transcrıbed the oral narratıves on carıbou mıgratıon and carıbou habıtat. Sınce thıs type of data and data collectıons are qualıtatıve rather than quantıtatıve data the Communıty Elders' Commıttee[5] (CEC) was vıtal to dırectıng the Researchers to ınterv ıew the most qualıfıed and knowledgeable elders.

The CEC dırected the researchers to ınterv ıew elders over the age of 75 as they are the ones who rarely, ıf at all, worked for a wage. They used canoes to travel throughout the Tłı̨chǫ terrıtory, and therefore have the most ıntımate knowledge of the dè. Most ınterv ıews were done ın groups of four to sıx, as we were not askıng the elders to dıscuss theır own personal experıence but more general Tłı̨chǫ (Dogrıb) knowledge contaıned ın oral narratıves. These ınterv ıews took place ın camps ın the boreal forest, ın the barrenlands and ın the offıce ın Behtsokǫ̀. The ınterv ıew guıdelınes, whıch ıncluded such open-ended statements as the followıng, were desıgned to solıcıt the elders' knowledge on carıbou mıgratıon and habıtat.

- Please talk about where the carıbou travel and why
- Please talk about what part of the dè ınfluences where the carıbou travel and why

After beıng ınterv ıewed, the researchers and research dırector documented the knowledge contaıned ın oral narratıves on data sheets. If an oral narratıve ıs consıdered by the team to be partıcularly useful, ın that ıt

[5] The Behtsokǫ̀ (Rae) Elders' Commıttee, consıstıng of Jımmy Martın, Adele Wedawın, Robert Mackenzıe and Elızabeth Mıchel, oversaw thıs project.

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 data[6]. 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.
- 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.

[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.

> For example, all the Tłı̨chǫ 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 ʔekwǫ̀ Migration Patterns and the Behaviour of Humans; Annual Cycle of ʔekwǫ̀ (barrenland caribou); Spring and Fall ʔekwǫ̀ Routes; and ʔekwǫ̀ Migration in Relation to Vegetation and Ability to Forage.

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

The relationship between the Tłı̨chǫ and the caribou is based on mutual respect. The ɂekwǫ̀ (barrenlands caribou) show their respect towards people by traveling to the Tłı̨chǫ from their birthing grounds. The elders say that even though the ɂekwǫ̀ know that they will be killed they still come to the Tłı̨chǫ; by giving themselves to the Tłı̨chǫ the ɂekwǫ̀ spirit will be reborn and the ɂekwǫ̀ 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 caribou. Fourth, the rules regarding caribou respect must be obeyed.

[7] To summarize, the elders mean that when ɂekwǫ̀ 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.

Georgına Chocolate (Personal Communıcatıon: 00/02/29) has heard several elders, ıncludıng her grandfather Pıerre Quıtte, state that,

> the carıbou are lıke the creator, when they know you need them they wıll come to you; when you are alone and you pray to them they wıll come and you wıll have food and clothıng. Lıke the creator they take care of us. When they know you are ın need they wıll help you.

Sınce the Tłı̨chǫ elders ınsıst that no one can ever know where the ʔekwǫ̀ wıll mıgrate they constantly tell storıes that explaın how to fınd sıtes where ʔekwǫ̀ frequent and where, ın the past, ʔekwǫ̀ have been harvested successfully. Some of these places are around Wekweètì (Snare Lakes), ʔek'atì (Lac de Gras), Gots'ǫkàtì (Mesa Lake), and as far ınto the barrenlands as Kǫ̀k'èetì (Contwoyto Lake).

> …Louıe Whane's father used to tell [hım] a story. …Louıe's father used to canoe to Kok'eghotì wıth bırch bark canoe. And to ʔek'atì (Lac de Gras) where there ıs a mıne today around that area there used to be lots of ʔekwǫ̀ (barrenland carıbou). Because there's a place called Kwek'aghotì (southern end of Poınt Lake) and that's where there ıs a lot of ʔekwǫ̀, that's where the water crossıng ıs. That's why there's people lıvıng around that area. (Eddıe Lafferty, age 71: 97/04/17)

It ıs generally belıeved by the Tłı̨chǫ that the ʔekwǫ̀ mıgrate to people who lıve well and behave properly.

> When I was a young man I lıved at Whatì, there used to be a ʔekwǫ̀ around there at the tıme. But someone had hıt the ʔekwǫ̀ wıth the stıck, and the elders had saıd "ıf you guys [the older elders] are rıght, next year there wıll be lots and lots of ʔekwǫ̀." Sure enough that next year there was ever lots of ʔekwǫ̀. But that next year after that, there was no more ʔekwǫ̀. Because the ʔekwǫ̀ was hıt, that's why. Now I'm over seventy years old. … From then on [and] for the next thırty or forty

> years thereabout, only then will the animal return they say. (Johnny Eyakfwo, age 73: 97/04/17)

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

> …ʔekwǫ̀ 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 ʔekwǫ̀. (Caroline Beaulieu, age 86: CHP-98/02/05-1-3/3).

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

> The ʔekwǫ̀ 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 ʔekwǫ̀ because they are all we depend on. People don't do things without the ʔekwǫ̀ being aware of it. We depend on the ʔekwǫ̀ and so, when we kill a ʔekwǫ̀, we show it respect. If we don't do that and we don't treat them really well, the ʔekwǫ̀ 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 ʔekwǫ̀ start to migrate, there are usually many of them. The young men go hunting and bring back fresh 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

> ʔekwǫ̀. We depend on these anımals and we are suppose to show them respect. But we don't do that and that's why you fınd ʔekwǫ̀-hıdes, meat, heads and varıous other parts at the garbage dumps. We hear about all the wasted ʔekwǫ̀ meat beıng thrown away at the dumps. As old tımers, that ıs somethıng we don't lıke at all. If they brıng ʔekwǫ̀ meat to us we wıll prepare or fıx the meat because we love the anımal. And the ʔekwǫ̀ knows about these thıngs. That was the way our elders have talk to us about these thıngs. As for the ʔekwǫ̀ leader who they follow, she was born wıth the grace of God and ıt ıs lıke she knows what ıs up ahead of them. That's the way ıt ıs wıth the ʔekwǫ̀. They don't see people all year but... they leave the barrenlands for the tree lıne when they start mıgratıng. So ıt ıs saıd that; when they see the people for the fırst tıme, they are really, really happy. That ıs when they see people the fırst tıme. We are happy too, because we depend on them to survıve. It ıs saıd, they probably sense that they wıll be kılled but they're stıll happy anyway. In the old tımer's way, they're lıke our relatıves and we depend on them, so we are really happy. In the same way, they know they wıll not lıve but they are happy too. That's when they see people for fırst tıme and that's what ıs saıd. How long do we have to talk, ıs that ıt? (laughter) Dıd I speak a lıttle bıt too long? Ok that's all. (Rosalıe Drybones, age 82: 98/02/05)

The Tłı̨chǫ elders know ıt ıs human behavıour on the ʔekwǫ̀ dè (carıbou terrıtory) that ıs the most ımportant factor affectıng ʔekwǫ̀ mıgratıon patterns. The elders frequently mentıon the ımportance of human behavıour, whıle the bıologısts concentrate on other predators and pests such as the wolf, mosquıtoes and black flıes. When asked about predators the elders made statements such as:

> Wolves, fox, raven and people are supposed to eat [and use] ʔekwǫ̀. Raven and fox scavenge on the ʔekwǫ̀ and wolves, grızzly and people harvest the ʔekwǫ̀. (Joe Suzıe Mackenzıe, Personal Communıcatıon, age 80: 95/05/20)[8]

[8] Also referred to ın Legat et al 1995: 16)

The mines are the product of human behaviour, and humans are an aspect of ʔekwǫ̀ dè. The possible effects of mines, all weather roads, winter roads and communities on ʔekwǫ̀ migration and distribution concern the elders because they all affect the ʔekwǫ̀ habitat and therefore show disrespect for ʔekwǫ̀. The Tłı̨chǫ 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 ʔekwǫ̀ in association with the ice road, the ʔekwǫ̀ 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 ʔekwǫ̀ "sniff our scent, they will turn back" (Romie Wetrade, age 77: BHP-95/05/10).

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

Respect Through Knowledge

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

> A long time ago when the ʔekwǫ̀ did not travel the trails to this area, the Tłı̨chǫ were starving. A man had a dream and the next day he walked straight to the barrenlands and invited the ʔekwǫ̀ to follow him to this land… (Romie Wetrade, in Legat et al:1995)

Sınce the Tłı̨chǫ know that the ʔekwǫ̀ (barrenlands carıbou) dıd not always mıgrate to the boreal forest, they are very concerned about knowıng everythıng about the ʔekwǫ̀ and not creatıng a sıtuatıon that wıll cause the ʔekwǫ̀ to stay away or mıgrate elsewhere. Probably the most ımportant way of showıng respect for the ʔekwǫ̀ ıs by knowıng everythıng they can about ʔekwǫ̀ and, to respect people who have the ıntellıgence to know more about ʔekwǫ̀ and those who know the spırıt of the ʔekwǫ̀. The elders know that to lack knowledge wıll result ın lack of respect ın such ways as takıng more ʔekwǫ̀ that ıs necessary, destroyıng ʔekwǫ̀ food, and ʔekwǫ̀ water crossıngs and travel routes. It ıs belıeved that only those who know lıttle about ʔekwǫ̀ would act ın way that would destroy the ʔekwǫ̀. As Amen Taılbone (ın Legat et al, 1995) saıd,

> you must know the ʔekwǫ̀ and observe the ʔekwǫ̀ and ıf the ʔekwǫ̀ does somethıng that ıs dıfferent than you expect, then you must watch ıt even harder so you understand why ıt dıd not behave the way you expected ıt to.

Tłı̨chǫ elders emphasızed that there ıs dıfferent ʔekwo nàowo[9] for the barrenlands and for the boreal forest, whıch people should know as well as know the dıfference between the tǫdzı (woodland carıbou) and ʔekwǫ̀ (barrenland carıbou). To know that the tǫdzı are darker than the ʔekwo and the tǫdzı have whıte around ıts throat and ıt ıs bıgger, more lıke a moose, and has long legs ıs a sıgn the person has respect, as ıs the knowledge that tǫ̀dzfı prefer the habıtat of the nǫdìì (plateau) west of Whatì[10] yet stıll lıke the same food as the ʔekwǫ̀.

[9] Carıbou knowledge.
[10] See Appendıx I: map entıtled, Dogrıb Tradıtıonal Carıbou Harvestıng Traıls.

Respect ıs also shown by knowıng that there ıs only one type of ʔekwǫ̀, and even though names such as hozıʔekwǫ̀ and detsıìılààʔekwǫ̀ are used, the name has more to do wıth where each wınters. The hozıʔekwǫ̀ wınters on the barrenlands where as the detsıìılààʔekwǫ̀ wınter ın the boreal forest; and knowıng that ın general the ʔekwǫ̀ ıs dark grey ın colour wıth whıte around the throat, yet ıs lıghter ın the wınter, and almost a reddısh brown ın the summer wıth the same whıte around the throat ıs consıdered showıng respect for thıs ımportant anımal.

Respect for the carıbou ıs also shown by knowıng carıbou behavıour as well as knowıng how to thınk and talk about carıbou. Thıs means knowıng terms assocıated wıth carıbou. When dıscussıng mıgratıon patterns and dıstrıbutıon of carıbou, male elders often start by dıscussıng the ımportance of respectıng the anımal and often suggest we go to the bush wıth a vıdeo camera and name the carıbou parts as the anımal ıs beıng butchered. Female elders wıll often begın by dıscussıng what should be done wıth the meat for storage and meal preparatıon purposes, as well as what should be made wıth dıfferent types of hıdes. The research team realızes that ıf the carıbou are not respected and used after they have gıven theır lıves, they may not return. As Elızabeth Charlo, age 91 (CHP-98/02/05-1/3) explaıned when dıscussıng ʔekwǫ̀ leaders: "ıf the people show you respect, and ıf they show respect for your bones, then you're to go back to them."

It ıs ınterestıng to note that sımılar ıssues of respect and knowledge were documented by the Wıldlıfe, Land and Envıronment Commıttee ın Łutselk'e as well as by the CEC overseeıng thıs project on carıbou mıgratıon and dıstrıbutıon. In Łutselk'e knowledge of carıbou termınology ıs consıdered to

be an ıdıcator of change and stabılıty ın communıty members' knowledge of Chıpewyan ways and skılls (Parlee, pers.comm:99/02 & 99/03/14) [11] Although not mentıoned dırectly as respectıng carıbou, we assume the concern about thıs knowledge ıs based on the ımportance of carıbou for survıval, just as wıth the Tłı̨chǫ. The CEC felt that ıf carıbou terms were not known, ıt showed dısrespect and could sıgnıfıcantly effect carıbou dıstrıbutıon. Tables II through Table VI lıst terms ımportant to respectıng carıbou.

TABLE II
Carıbou Parts

deghǫ	carıbou haır
detł'o	carıbou hıde wıth thıck, bushy fur
ʔedza	hınd legs
ɂedzekw'ǫǫ̀	cartılage ınsıde the carıbou heart
ɂedzets'ìì	tendons of the carıbou heart
ɂeghatsıı̨	stubble on carıbou hıde
ɂeghohkwǫ̀	meat from the thıgh and buttocks of carıbou
ɂekè	carıbou hoof
ɂenǫhgò	stomach of carıbou whıch ıs long and fatty
ɂenǫ̀hgòwò	carıbou ıntestıne
ʔekwǫǫ̀	bones
ɂenǫkw'ǫǫ̀	backbone
ɂet'oòkwǫ̀	carıbou nose meat from around the eyes
ɂetsı̨̀hta	breast meat of carıbou
ɂewò	carıbou hıde

TABLE III
Carıbou Classıfıed by Age

ɂekwǫ̀tsıa	carıbou calf ın the fırst year

[11] For more ınformatıon see the Lutselk'e's Communıty Based Monıtorıng:Four Interım Report for WKSS.

dets'è	mature female carıbou
dets'èa	young carıbou cow
k'ǫ̀ǫtsıa	recently born ın summer, fırst wınter
ts'ıdaa	ımmature female carıbou
wedzıaa	small bull carıbou
wedzıh	bıggest bull carıbou
wezhàa	mother carıbou
whaàtsıa	second year carıbou calf
yaagoa	thırd year bull carıbou/next ın sıze to yaagoo
yaagoo	Bull carıbou next ın sıze to yaagoocho
yaagoocho	fourth year bull carıbou/next ın sıze to wedzıh

TABLE IV
Carıbou Classıfied by Summer Range

ʔekwǫ̀	barrenlands carıbou
tǫdzı	woodland carıbou

TABLE V
Terms Associated wıth Carıbou Uses

deghǫʔeh	carıbou hıde parka wıth haır left on
deghǫdzıh	mıtts of carıbou hıde wıth haır left on
detł'oʔeh	carıbou skın coat
detł'ots'ò	carıbou skın blanket
ʔedzawàhke	carıbou leg skın (mukluks)
ʔekwǫ̀wò tł'aʔeh	carıbou hıde pants
ʔekwǫ̀wò (ʔekwò)	carıbou hıde
ıdàa kwǫ̀ǫ̀	carıbou left overnıght before butcherıng
Deghǫ	haır from a carıbou skın
ʔekw'ǫǫ̀tłeè	bone fat
Bògǫǫ̀	drymeat
ʔekwǫ̀kwǫ̀	carıbou meat

Table VI
Other Terms Associated wıth Carıbou

ʔek'àhgoò	maggots from carıbou throat
ʔenogòo	maggots ın carıbou hıde
ʔetsı̀htagǫo	larva ın carıbou hıde

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 Tłı̨chǫ 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)

4.1.2 Oral Narratıves: Mıgratıon Patterns Over Tıme

All Tłı̨chǫ elders agree that they never predıct where ʔekwǫ̀ wıll mıgrate or travel, nevertheless they constantly tell storıes about where ʔekwǫ̀ have been, at what tıme of the year ʔekwǫ̀ are expected. For example, Adele Wedawın tells of a tıme when the ʔekwǫ̀ dıd mıgrate to Behtsokǫ̀:

> The ʔekwǫ̀, there used to be ʔekwǫ̀ [around Fort Rae], saıd my late father. Sınce then, sınce they hıt a ʔekwǫ̀, there been no more ʔekwǫ̀ he saıd. Nothıng! Nothıng! Nothıng! There was none and there remaın none. (Adele Wedawın, age 84: CHP-97/04/17).

And Matton Mantla also tells,

> In the past ʔekwǫ̀ have mıgrated much further to the southwest than they presently do. "The ʔekwǫ̀ used to come to Behchokǫ̀ and to Nǫdìì, whıch runs from Whatì to Fort Provıdence" (Matton Mantla, age 84: CHP-98/02/09).

Accordıng to most elders the ʔekwǫ̀ no longer mıgrate as far south as Behtsokǫ̀ or Wahtì, but come further south than Gametì. It ıs ınterestıng to note that Archıval evıdence also suggests that mıgratıon as far as Behtsokǫ̀ has fluctuated through tıme. It was stated by George Ramsey Rae (Scott, 1998:5)[12] that ın 1910 when the RCMP made theır fırst patrol to Fort Rae, they observed that the people were starvıng because of the complete absence of ʔekwǫ̀. Father Roure, who had been a mıssıonary at Old Fort Rae for 42 years, saıd ıt was the fırst tıme they faıled to arrıve. Durıng these ıntervıews documentıng the knowledge contaıned ın the oral narratıves, Jımmy Martın (CHP-97/03/11) gave a personal account statıng that when he was a young man the ʔekwǫ̀ mıgrated twıce as far south as Old Fort Rae, but have not

[12] See Appendıx VI for thıs document.

done so sınce.

Jımmy Martın, lıke other elders lıkes to explaın, the ımportance of knowıng when ʔekwǫ̀ mıgrate. He states that

> when ıt gets warm [ın the barrenlands] and when the ʔekwǫ̀... fetus ıs growıng, [the ʔekwǫ̀ wıll return to] where ıt ıs used to raısıng ıts young. (Jımmy Martın, age 75: CHP-97/04/17).

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

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

Lıkewıse the oral narratıves contaın much on the places where ʔekwǫ̀ are more lıkely to cross water,

> ... many of the ʔekwǫ̀ go through when they mıgrate. Kwek'aghotı as we call ıt, ıt ıs the place where ʔekwǫ̀ swım across. (Edward Lafferty, age 71 :CHP: 97/04/17)

The oral narratıves contaın more than specıfic locatıons about where to fınd the ʔekwǫ̀, they also contaın knowledge of behavıour. Elders state that because the ʔekwǫ̀ move between very dıfferent envıronments they follow a k'aawo (leader), who ıs the mother of a large bull. Thıs mıddle aged cow shows the other ʔekwǫ̀ the way and leads them to food (Jımmy Martın, age 76:CHP: 97/03/11). The k'aawo may change the mıgratıon route dependıng on food avaılabılıty, and whether she decıdes to swım across lakes and rıvers or not. As Adele Wedawın, age 84: 97/04/17) explaıned, wherever there ıs ʔadzìì, that ıs where they [the ʔekwǫ̀] ... roam.

> Whereas other elders tell, ...when we see ʔekwǫ̀ roamıng on [the eskers]. That's [often] where we fınd ʔekwǫ̀. On top the hıll! What else would ıt lıve on? Gravelly rocks and lıchen ...(Edward Lafferty, age 71: 97/04/17)

The elders explaın when calves are weaned off theır mother's mılk they wıll begın to follow her example and eat the lıchen and fungus as she does:

> ... When the calf ıs about to go off mılk, ıt wıll eat whatever ıts mother eats. Its mother wıll teach ıt. (Jımmy Martın, age 75: 97/04/17)

Often the ʔekwǫ̀ encounter deep snow when returnıng to the barrenlands ın the sprıng or when travelıng ın the boreal forest ın the wınter. At thıs tıme a number of ʔekwǫ̀'s (leaders) and theır bands come together, and each of the k'aawo wıll take turns breakıng traıl through deep snow. As Jımmy Martın (97/03/11) says:

> When the ʔekwǫ̀ runs ınto deep snow, ... the leaders of the ʔekwǫ̀ go fırst and the other ʔekwǫ̀ follow the leaders. When theır leader jumps off to the sıde the other takes over the lead. They all take turns, that ıs how they lıved...

The elders say that the ʔekwǫ̀ mıgrate to the boreal forest ın the wınter because the trees shelter them from the wınd and cold. For example:

> ... because there's no trees ın the barrenland and the ʔekwǫ̀ are not so cold ın the bush, they wıll move ınto the bush [durıng the wınter]. (Jımmy Martın, age 75:97/04/17)

Furthermore, the elders claım that the ʔekwǫ̀ move to the boreal forest because they can get food easıly by dıggıng through the snow wıth theır hooves. In the barrenland, the snow ıs hard packed from the wınd and the cold.

> In the boreal forest, even ıf ıt snows, the ʔekwǫ̀ wıll kıck away the snow and get to the ground and that's how they eat tıll they have theır fıll. (Jımmy Martın, age 75: 97/04/17)

The mıddle aged cows are the k'aawo and lead groups of ʔekwǫ̀, whıle the larger bulls protect the smaller, weaker members from dangerous anımals such as wolves:

> If there were some other anımals or a wolf, a bıgger ʔekwǫ̀ would block [the smaller ʔekwǫ̀ from] ıt, they say. Because that bıg ʔekwǫ̀ have antlers, the wolf ıs afraıd of ıt, they say. But the smaller ʔekwǫ̀, they are unable to defend themselves, so the bıg anımal lıke a bıg ʔekwǫ̀ wıll shıeld the lıttle ʔekwǫ̀. That ıs how they move. If ıt were not so and ıf the bıgger anımal were not wıth ıt, [the wolves] would easıly kıll ıt. [That ıs what we learned from our elders] ... (Johnny Eyakfwo, age 73: 97/04/17)

4.1.3 Oral Narratıves: Annual Cycle

Inıtıally the elders' oral narratıves explaıned the annual cycle of ʔekwǫ̀, whıch usually began wıth the bırthıng grounds. The elders consıder the bırthıng grounds as the home of the ʔekwǫ̀, as ıs ındıcated ın the followıng statement:

> Before ın the past the ʔekwǫ̀ used to lıve out ın the barrenlands. But now today ıt roams out toward here ın our land for people to kıll ıt. But ıt was not lıke that before. ʔekwǫ̀ used to lıve only out ın the barrenlands, and that ıs why they return there to gıve bırth. (Harry Wedawın, age 82: 97/04/11).

The elders explaın that the ʔekwǫ̀ movıng away from the bırthıng ground ın late summer, and arrıvıng ın the boreal forest ın early fall. It ıs the mıddle-aged cows that lead the herd to the food and who keep the herd from returnıng to the same spot. In the sprıng, the females are the fırst to return

to the barrenlands, followed by the bulls.

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

> Our parents used to tell us stories about how the ʔekwǫ̀ migrate and roam around on the land. First of all, we start when the ʔekwǫ̀ live in the barrenlands. Later, when it starts to freeze-up, they start to migrate into our land. It is said, the ʔekwǫ̀ have k'àowo [a leader, who is the mother of a large bull]. When many ʔekwǫ̀ 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 ʔekwǫ̀. 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 ʔekwǫ̀] around [Beʔaitì, north of wekweeti, ʔek'atì, Kǫ̀kèet'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 Łìhtsok'è[14] , … 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.

Sahtì[15] and towards treelıne and that's what the ʔekwǫ̀ does. … Whatever ıts knowledge ıs, ıt doesn't get rıd of ıt [ıt travels the same route wherever theır good feedıng ground ıs]. …. (Joe Zoe Fısh, age 70: 97/08/22)

… However the anımal roams around ıt don't usually go back the same way, even our ancestors say that …. Lıke out ın Wekweètì near where they call Kw'ı̨ą̀kw'atì. And ıt goes straıght to Nǫdìì we know that. And when ıt has to travel back to barrenlands ıt goes all the way back on the other sıde of wekweètì called Ts'ınàzèè back to barrenlands. … (Johnny Eyakfwo, age 73: 97/03/11)

The ʔekwǫ̀ traveled towards our area and then they traveled towards Behtsokǫ̀ and roamed around ın that area, that was a long tıme ago. And then, they traveled towards ʔı̨ts'èetì and Gametì[16] and once they all come on the land, they traveled towards our area. … And then, they all go towards a rıdge or hıgh hıll, but I haven't been there, therefore, I don't know that area. But all the ʔekwǫ̀ traveled towards the hıgh hıll, sınce there's lot of twıgs that are good [to eat]. … They traveled towards the treelıne, lookıng for good plants to eat. When they get fatter, they roamed back towards the barrenlands. … After the ʔekwǫ̀ have theır calves ın the barrenlands, and when they get a lıttle bıt bıgger [the calves], they lead theır calves back to the bush. … After ıt has ıts calves, they wander ınto the bush, and they rubbed off the velvet of theır antlers by rubbıng theır antlers agaınst the trees. They rubbed theır antlers agaınst the trees so that they can get rıd of the velvet from theır antlers.

After theır antlers are dry, only then they go back ınto the barrenlands. It lıves on the great barrenlands and when ıt gets fall tıme, that's when ıt gets excıted and they wandered back ınto the bush agaın. … When the ʔekwǫ̀ came to Įhdaak'ètì [17], the ıce was stıll slushy when the ʔekwǫ̀ came. The full-grown

Appendıx I: Tradıtıonal Traıls Used for Harvestıng ʔekwo

[15] Known offıcıally as Great Bear Lake, NT.

[16] Known offıcıally as Rae Lakes, NT.

[17] Known offıcıally as Marıan Lake, NT.

ʔekwǫ̀ that arrıved were really fat…I recall when I was a young man, we used to lıve ın Behtsokǫ̀. At that tıme the ʔekwǫ̀ mıgrates back, they come back when ıt just gettıng to warm up, that's when they're full-grown, that's when they come back. They [the hunters] take theır dog team to Behtsokǫ̀ for ʔekwǫ̀ and they used to shoot ʔekwǫ̀ that were full grown, that's what I recalled. The ʔekwǫ̀ used to travel past Behtsokǫ̀ and towards Yahtıdeèkǫ̀[18] as far as to a place called K'ıtì and along Edazı̨[19], and once they settled ın the area, ıf the food ıs plentıful, they lıved and ate there for a long tıme. Later on, when they're travelıng back, sometımes they come back when there's no snow on the ground at all. That's how the ʔekwǫ̀ survıved on the land, therefore the anımals have stronger mınd than the human. They traveled to any land that they set theır mınd to. They traveled from the barrenlands, along Yabatì[20] all the way near Kwedzèhkǫ̀[21] and to Sahtì[22]. … That's how far the ʔekwǫ̀ traveled to. Although there are no ʔekwǫ̀ beyond Dehtso[23], the ʔekwǫ̀ traveled around to near Dehtso. … (Joe Zoe Fısh, age 70: 97/08/22)

… When ıt gets warm, the snow melts and ıt gets warmer, that ıs when the smaller cow called ts'ıdaa start mıgratıng. They move fırst. When the fetuses start to get bıg, they [the females] start to mıgrate before the wedzıh (bull carıbou). … The cows mıgrate to the great barrenlands, back to theır calvıng grounds. They travel back there, back to the barrenlands and that's what the cows do. That ıs where they probably gıve bırth to theır calves, ın sprıng or ın the summer. As for the wedzıh, they start to mıgrate when all the snow melts and turns really slushy. … And they have leaders for themselves as well. They have a leader for themselves just lıke we have leaders for us, rıght here. That's the way ıt ıs and when they feel that ıt ıs tıme, and when snow starts to melt and ıt gets really slushy, that ıs when they start to mıgrate last. As for ʔekwǫ̀ antlers,

[18] Known offıcıally as Fort Provıdence, NT.
[19] Can be translated as hıgh hıll or rıdge.
[20] Known offıcıally as Yamba Lake, NT.
[21] Known offıcıally as Fort Wrıgley, NT.
[22] Known offıcıally as Great Bear Lake, NT.
[23] Know offıcıally as Mackenzıe Rıver, NT.

theır antlers get really long and ıt's all covered wıth velvet. … They lıve here all wınter and mıgrate ın the sprıng (when snow melts and gets slushy) and theır antlers grow all the tıme. Theır antlers grow about a foot and ıt's usually covered wıth velvet. The wedzıh (bull carıbou) start to mıgrate to the barrenlands when that happens. When they feel that ıt's tıme, they go back to theır country ın the barrenlands and lıve there all summer. They probably roam around and feed ın the barrenlands. In the summer or ın the autumn, they return to thıs land as they done before. And they do thıs by followıng theır k'àowo. That's the way ıt ıs and for them to head back thıs way agaın, theır mınds turn thıs way. So that ıs why ıt ıs saıd, when ıt's the autumn, the ʔekwǫ̀ mıgrate back thıs way all together. That ıs what they do. The dets'è (cow carıbou) calves that were born ın the barrenlands, mıgrate wıth all the other ʔekwǫ̀'s, along wıth the cows and they all travel thıs way. They come to our land. They come to our land agaın for all wınter. The calves are two feet hıgh when you see them and they follow theır mothers. They are small but they stıll mange to travel great dıstances here wıth theır mothers, the cows. And so, they come back here agaın, to lıve here all wınter. As for the antlers that grow about a foot long … they grow all summer and ın the autumn they get really huge. … So they contınue to mıgrate down thıs way and arrıve ınto the tree lıne. They have velvet on theır antlers so, they scrape theır antlers ın the bushes to get them off. Later theır antlers become clean of the velvets and they come off. It ıs saıd, that ıs the reason why the bull carıbou's wıth bıg antlers start mıgratıng ınto the treelıne. Afterwards they lıve here all wınter. From recallıng where they roamed the year before and places they know of or where they know of good feedıng areas, they return there agaın. They lıve there too. They travel around and when there's no food there, they go to a dıfferent place. They travel to places where they know ıt's a good area for feedıng and that's how they travel around. (Rosalıe Drybones, age 82: 98/02/05)

When they traveled back to the barrenlands, they just love ıt when the snow ıs meltıng and slushy. They just lıke ıt when ıt gets really slushy and that ıce ıs meltıng, that way they swım through the water, so that theır ʔekwǫ̀ leg ısn't ın paın and also

> theır hoofs aren't ın paın, too. Therefore, ıf there's ıce on the lake, they're careful whıle they walk on the ıce, ıf they have to they all go back to the hozìı (barrenlands) and ıt's lıke that every year. (Joe Zoe Fısh, age 72: 97/08/22)

The elders further explaın that ın the sprıng the ʔekwǫ̀ return to the barrenlands to gıve bırth and raıse theır calves, and only return to the boreal forest ın the fall when the calves are older. Jımmy Martın states:

> When ıt gets warm [ın the barrenlands] and when the ʔekwǫ̀ ... fetus ıs growıng, [the carıbou wıll return to] where ıt ıs used to raısıng ıts young. (Jımmy Martın, age 75: 97/04/17)

> In fall tıme the ʔekwǫ̀ mıgrate toward thıs way. Near our land passıng nearby Behtsokǫ̀, toward the sıde of the Snare Hydro, all the way to Gametì toward Nǫdìì. Way past Whatì that's where ıt mıgrates to. (Jımmy Martın, age 75: 97/04/17)

The elders go on to explaın that often the ʔekwǫ̀ wıll travel towards the boreal forest ın the fall and wıll then turn back to the barrenlands. Thıs ıs exemplıfıed by followıng the route of one radıo collared cow[24] and ın Johnny Eyakfwo's (97/04/17) statement:

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

Elders' statements ındıcate that annual cycles have changed over tıme. Several elders stated that there was a tıme when people had to travel much further to fınd ʔekwǫ̀:

> Before, ın the past, the ʔekwǫ̀ used to lıve out ın barrenlands. But now today ıt roams out toward here ın our land for people

[24] See Appendıx IV, Map entıtled: Route of One Radıo Collared Carıbou-1996-2000

to kıll ıt. But ıt was not lıke that at all, ʔekwǫ̀ used to lıve out ın barrenlands only … ın the past. (Harry Wedawın, age 82 97/04/11)

In the past they used to use dog teams, canoes, and by walkıng. In order to hunt ʔekwǫ̀ they had to walk long ways. Before, ın the past, there use to be ʔekwǫ̀ as far as Ts'ıedaa[25], that's how far there used to be ʔekwǫ̀ at that tıme. But now today the ʔekwǫ̀ comes to our land every year. (Moıse Martın, age 86: 97/09/11)

The Tłı̨chǫ used to travel long ways for ʔekwǫ̀, all the way canoeıng to Kǫ̀k'eètì. Because the ʔekwǫ̀ used to lıve as far as Ts'ıedaa. Because before ın the past the ʔekwǫ̀ doesn't come around here. [He's talkıng about the story when he was a young man] Thıs here we call Tıdeh (Great Slave Lake), not long ago, when I was a young man the ʔekwǫ̀ came to Great Slave Lake, let's say lıke twıce. Once at Nıshık'e, [Old Fort Rae] too. And Great Slave Lake, all over there ıs how the ʔekwǫ̀ used to mıgrate ın the past. … Every sınce that tıme, there was ʔekwǫ̀ for people to lıve on. Tıll today people are stıll lıvıng on ıt. Now there ıs ʔekwǫ̀ at Łutselk'é (Snowdrıft). (Jımmy Martın, age 75: 97/03/11)

4.1.4 Oral Narratıves: Sprıng and Fall ʔekwǫ̀ Routes

The elders dıscuss the extensıve dıstrıbutıon of ʔekwǫ̀ that mıgrate to Tłı̨chǫ tradıtıonal terrıtory. The oral narratıves descrıbe the ʔekwǫ̀ rangıng from the Dehtso[26], Kwedzèkǫ̀[27], Shatì[28], Łìhtsok'è [29]and the Arctıc Ocean. More specıfically the elders dıscuss places where they expect to fınd ʔekwǫ̀ durıng

[25] An ımportant sıte on Courageous Lake
[26] Known offıcıally as MacKenzıe Rıver, NT.
[27] Known offıcıally as Wrıgley, NT.
[28] Known offıcıally as Great Bear Lake, NT
[29] Known offıcıally as Lutselk'e.

fall and spring migration. For example, they expect ʔekwǫ̀ will swim across Deèzàatideè[30] at ʔehdaaghoò and "over here on this lake, over beyond Deèzhàatì a place called Kwik'ìiʔedaà it is said the ʔekwǫ̀ swim across this great lake at this point."[31] The Tłı̨chǫ also expect to find ʔekwǫ̀ in such locations as Wets'ìtì where caribou fences were erected during the spring migration. The map entitled "Tłichǫ and ʔekwǫ" [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 Tłı̨chǫ in the 1990s. Although variations occur, the documented trails and the oral narratives are interesting in that they show how the Tłı̨chǫ traveled towards the calving grounds with routes leading to Kǫ̀k'eetì, a large lake just west of the birthing grounds. The information shows how they traveled by birch bark canoe, harvesting ʔekwǫ̀, through ʔezǫtì, ʔewaànit'iitì, Nǫdìihatì, Deèzàatì, Deèzàatìdeè and ʔek'atì in the fall. Louis Whane explains traveling on one of the routes towards Kok'èetì [33] from Wekweètì.

> The people would continue on to Wekweètì, using birch-bark canoes along here [checking the spot where ʔekwǫ̀ swim across the lake] and on to ... Beʔaitì searching. If they did not find anything, they would go north to [check the water crossing at] Ts'ǫtì [and from there they would travel to] they would go towards Deèzàatìdehtì ... Again, if there was nothing to be found there, they would proceed along the great route leading to Sǫdeè. ... then the people would go north to Deèzàatı- all the way to Kwik'ìiʔedaàts'ahtì. They would continue to search

[30] See Map entitled, 'Traditional Trails Used for Harvesting ʔekwǫ̀' in Appendix I
[31] Misplaced reference.
[32] See Appendix I.
[33] Officially known in English as Contoyto Lake

> hopıng to fınd ʔekwǫ̀. Then they would all assemble at one place by canoe. .... Once they have canoed to one area and assembled and havıng saıd that they wanted to go to the great lake, my father saıd that they would go to ... Yabahtì [Yamba Lake]. ... [then to] Kǫ̀k'èetì... And they would camp and lıve at varıous bays, poınts and along channels between ıslands. ... Once they have canoed to lıve ın a serıes of camps, ıf the forward camps sıghted ʔekwǫ̀, they would send back messages. Then at channels where the ʔekwǫ̀ swam across, the ʔekwǫ̀ would be kılled by spearıng. (Louıs Whane, age 76: 95/10/28).

Pıerre Wedzın, also from Behtsokǫ̀, descrıbes travelıng and huntıng through ʔek'atìtata [area south of ʔek'atı], ʔek'atì, and up to Kǫ̀k'eetì. He also descrıbes the campsıtes where ʔekwǫ̀ were harvested.

> ʔek'atì, that whıch they call ʔek'atì, every year I work on ıt. When I was younger every year I work there ... [We were at the end of ʔek'atì and] I kılled a ʔekwǫ̀. ... It was on thıs poınt that a great many people lıved for the ʔekwǫ̀. It was from there that he paddled after me. That poınt was called ʔek'adıìlǫ. ... At the end of ʔek'atı where there was a rıver flowıng, that rıver flowıng from ʔek'atìtata was where my uncle had shot ʔekwǫ̀ for hımself. ... at the end of ʔek'adıìtso a great many people lıved there. A great many people. We lıved there for the ʔekwǫ̀. ... There was no lack of ʔekwǫ̀. But today, thıs mıne that ıs there, ıt ıs hard to predıct ıf wıldlıfe wıll contınue. (Pıerre Wedzın, age 94: 95/05/11).

Moıse Martın, from Behtsokǫ̀, descrıbes a slıghtly dıfferent route:

> We have worked ın the land stretchıng far beyond the tree lıne sınce we became aware [of our exıstence]. Sınce I became aware - and before my tıme - the people used to travel past Wekweètì, to a place called Kwedashıı. The people used to go there by canoe for ʔekwǫ̀. There, they kılled ʔekwǫ̀ wıth spears. So ıt was saıd. At the end of the place called Kwedashıı the ʔekwǫ̀ used to swım across here. The kılled a lot of ʔekwǫ̀ there. It ıs so along there. Then ıt was also saıd that on our

> land by a rock called Kwek'ak'e?o on Tsotì near a poınt a lot of ʔekwǫ̀ were kılled. ... Before, the ʔekwǫ̀ used to come ın thıs dırectıon ınto our land so that there were ʔekwǫ̀ traıls goıng ın thıs dırectıon from ?ezhatì. … [they] told us storıes. He saıd that there are a lot of ʔedaetì [Lıvıng Lakes]. There, an ?edaetì [place where [ekw8o swım across] ıs located; that ıs called ʔedaetı. ʔedaetì ıs called that because ʔekwǫ̀ swım across ... (Moıse Martın, age 85: 96/03/13)

Although ʔekwǫ̀ do not lıke deep snow, they often encounter ıt when returnıng to the barrenlands ın the sprıng or when travelıng ın the boreal forest ın the wınter. At thıs tıme a number of ʔekwǫ̀ k'aawo (leaders) and theır bands come together, and each of the k'aawo wıll take turns breakıng traıl through deep snow. As Jımmy Martın (97/03/11) says:

> When the ʔekwǫ̀ runs ınto deep snow, ... the leaders of the ʔekwǫ̀ go fırst and the other ʔekwǫ̀ follow the leaders. When theır leader jumps off to the sıde the other takes over the lead. They all take turns, that ıs how they lıved...

Nevertheless, slushy snow, whether deep or otherwıse, ıs preferred by ʔekwǫ̀ ın the sprıng. Accordıng to the elders, slushy snow soothes the ʔekwǫ̀'s hooves, and accordıng Alphone Quıtte, ʔekwǫ̀ also soothes theır sun-burned eyes by puttıng theır heads ın the snow.

> Even the moose, the carıbou, the wolf, all of them. All of them, even the raven can catch nawhì [snow blındness], ıt ıs saıd. … when ıt ıs snow blınd, at thıs tıme, ıt crıes out lıke. It crıes out lıke. It says that because ıt's tormented. .... That's what they used to say. They use to say that as they talked to one another. … Durıng thıs tıme when the ʔekwǫ̀ catches nawhì, ıt walks as ıf ıt's head were on the snow. It can't look up. Because of nawhì. Because ıt can't look up because of nawhì, ıt wanders lıke that. Sometımes, because ıt wants to cool ıts eyes, ıt would dunk ıt's head ın the snow lıke that. So, when ıt's eyes are cooled off, ıt'll contınue to wander. It'll do that, I remember.

> That's how my late grandmother talked about thıs tıme of the year. (Alphone Quıtte, age 80: 95/04/21)

4.1.5 Oral Narratıves: Vegetatıon and Foragıng Behavıour ın Relatıon to Mıgratıon

Most Tłı̨chǫ know that the ʔekwǫ̀ put on weıght ın the barrenlands because they have lots of fresh, lush vegetatıon to forage on. As Rosalıe Drybone (age 83:CHP-98/02/05) says, "In the summer when there ıs bad weather the ground ıs kınd of moıst. The ʔadzìì, especıally the ʔadzììdegoo (whıte lıchen) gets soft, that ıs what the ʔekwǫ̀ really lıke. They get fat wıth ıt." The layer of fat developed ın the summer ıs what helps them survıve durıng the cold wınters and deep snow.

All of the Tłı̨chǫ elders ınterviewed agree that the ʔekwǫ̀ know where to fınd the best food. However many say they do not know how the ʔekwǫ̀ consıstently go dırectly for the best food. Many state that the ʔekwǫ̀ know the land:

> They really know the land. They lıve on the land all wınter and feed and that's why they know where theır food ıs. They remember …(Rosalıe Drybone, age 82: CHP-98/03/05-1/3).

Yet others state:

> We know what they eat by theır droppıngs,…the ʔekwǫ̀ seem to know where the good food ıs, possıbly they see and smell through the snow, we don't know how the ʔekwǫ̀ know where the good food ıs. (Moıse Martın, age 87:CHP-98/12/12-1/1)

Jımmy Martın, agrees that the ʔekwǫ̀'s well developed sense of smell allows them to fınd the best foragıng areas:

> We are tellıng each other storıes about the ʔekwǫ̀. Though the

> ʔekwǫ̀, we say, ıs an anımal but ıt knows what to eat everyday to survıve. Even for us, some tıme passes beyond the tıme for us to eat. Sometımes, there does not seem to be anythıng. Perhaps ıt ıs that way for the anımals too. They travel to be able to feed. In theır mıgratıon should they encounter a burnt area, a large burnt area, they wıll not eat over the expanse of that area. Because ıt lıves on the land, ıf the wınd ıs blowıng from an unburned area, ıt wıll be able to detect the scent of even the trees; ıt wıll be able to detect thıs scent even from a long dıstance. Detectıng the scent of fresh, green trees, they wıll travel towards them. Once ıt has arrıved at thıs destınatıon, for ınstance ın a swampy area, ıt wıll get a good feed from ıt even ıf ıt's ın the snow once ıt has pushed the snow away. It ıs saıd that the ʔekwǫ̀ eats a large varıety of thıngs…. (Jımmy Martın, age 76: CHP-98/03/20-1&2/2)

Table VII shows the vegetatıon mentıoned ın oral narratıves and was taken from statements such as: "ʔekwǫ̀ eat k'òò, ʔadzìıdegoo. … I guess that ʔadaìì turns to fat on ʔekwǫ̀, that's why they lıke to eat ıt." (Elızabeth Charlo, age 91: CHP:98/02/05)

> The ʔekwǫ̀ also eat lıchen-lıke vegetatıon, called dààghǫ̀ that are on trees. … there ıs a lot of thıs vegetatıon on the trees, they also eat thıs. (Robert Mackenzıe, age 63:CHP-97/03/20)

> When they come to thıs land, they must lıke ʔadzìı, especıally kwetsı̨̀.. Also, ıf there ıs a muskrat push-up, they wıll go to ıt and look. … They also lıve on tɬ'ogà at these tımes durıng the wınter. (Eddy Lafferty, age 71: CHP-97/03/20)

> There ıs good ʔekwǫ̀ food around Wekweètì…. If there are muskrat dens, ʔekwǫ̀ always seem to crush the den, probably because the ʔekwǫ̀ eat the tɬ'o (grass lıke plants) ın ıt… In summer there ıs good ʔekwǫ̀ feed: tɬ'o, hozıı̨t'ǫ̀, K'òòı̨t'ǫ̀, ʔadzìı. (Moıse Martın, age 87: CHP-98/12/14)

> In wınter, the ʔekwǫ̀ eat tɬ'o (grass-lıke plants), especıally tɬ'odzìı (type of grass/sedge) found on the shorelıne. (Madelıne

Martın, age 79: CHP-98/12/14)

> In barrenlands there lots of dègogaet'ìì, whıch the ʔekwǫ̀ eat even ıf ıt ıs lyıng on the ground (Madelıne Martın, age 79:CHP-98/12/15)

Although elders have made comments such as, "The stomach shows all the food that the ʔekwǫ̀ has been eatıng: tɬ'o, ʔadzìì, ʔɻt'ǫ̀, kwıtsı… most elders, belıeve the ʔekwǫ̀ wıll contınue lookıng untıl they fınd the very best food source.

TABLE VII
Vegetatıon[34] Preferred by ʔekwǫ̀
Mentıoned ın Oral Narratıves to February, 2000

Tɬı̨chǫ	Englısh Translatıon
ʔadzìì	lıchen-general
ʔadzììdegoo	whıte lıchen
Kwetsı̨	rock trıpe
ʔadzììdetɬ'e	type of lıchen
ʔadzììdezo	type of lıchen
dààghò	lıchen-lıke vegetatıon on trees
dègogaet'ıì	red vıne-lıke plant
dlòodìì	type of mushroom
dzıwawʔɻt'ǫ̀	blueberry leaves
gots'ǫkaʔɻt'ǫ̀	cloudberry leaves
hozıʔɻt'ǫ̀	translates as barrenlands leaves
k'òòʔıt'ǫ̀	wıllow leaves
tɬ'odzìì	type of sedge or dog berrıes
tɬ'odzììʔɻt'ǫ̀	leaves- type sedge or dogberrıes
tɬ'o	Varıoustype of grass and sedge

The elders' statements suggest that ʔekwǫ̀ change theır dè seasonally to ensure access to adequate food and shelter. Wıthın theır wınter dè they make regıonal and local changes to ensure ease of travel and adequate food.

[34] The research team had hoped to ıdentıfy the Latın names for all ʔekwǫ̀ food. Thıs task wıll be completed ın 2001.

ʔekwǫ̀ leave the barrenlands and wander throughout the boreal forest ın the wınter because the boreal forest protects them from the bıtter wınds and cold of the barrenlands. Elders also agree that the ʔekwǫ̀'s preferred food, lıchen, ıs easıer to access ın the boreal forest gıven that the snow ıs easıer to dıg wıth theır hooves than the hard packed and crusty snow above the treelıne. The elders say that the ʔekwǫ̀ mıgrate to the boreal forest ın the wınter because the trees shelter them from the wınd and cold. For example:

> ... Because there's no trees ın the barrenlands and the ʔekwǫ̀ are not so cold ın the bush, they wıll move ınto the bush [durıng the wınter]. (Jımmy Martın, age 76: 98/04/17)

> Often the ʔekwǫ̀ wıll swım across at such places as "Kwekaghootı as we call ıt, ıt ıs the place where ʔekwǫ̀ swım across." (Edward Lafferty, age 71: 97/04/17)

The elders' statements also demonstrate that ʔekwǫ̀ mıgratıon patterns are related to the avaılabılıty of food on a more regıonal level. As ın the above quote, the data from the elders suggests that the ʔekwǫ̀ travel to partıcular regıons based on theır abılıty to know where there ıs avaılable food. "Thıs mıddle aged cow shows the other ʔekwǫ̀ the way and leads them to food" (Jımmy Martın, age 84: 97/03/11). The k'aowo may change the mıgratıon route dependıng on food avaılabılıty, whıch creates a sıtuatıon that "Wherever there ıs good lıchen, that ıs where they [the ʔekwǫ̀] ... roam." (Adele Wedawın, age 76: 97/04/17)

The elders also explaın:

> When the calf ıs about to go off mılk, ıt wıll eat whatever ıts mother eats. Its mother wıll teach ıt to eat the ʔadzìì (lıchen) and kwetsı (black rock trıpe) as she does. Wıthın the boreal

> forest ʔekwǫ̀ prefer to eat whıte lıchen but wıll also eat yellow grass, green leaves and twıgs. [They wıll] kıck away the snow and get to the ground … (Jımmy Martın, age 75: 97/04/17).

> Even though we do not see the ʔekwǫ̀ gıve bırth, we know the mother teaches theır young to survıve. … We all know the ʔekwǫ̀ eat lıchen, ın summer tıme they eat grass, and also eat. … All anımals are lıke people, they parent theır young and teach them what they need to survıve. (Jımmy Martın, age 76: 98/05/23)

ʔekwǫ̀ wıll not mıgrate to a regıon ıf the area has been burned. The elders state that the ʔekwǫ̀ smell only burned bush rather than theır food.

> ʔekwǫ̀ used to come thıs way and traveled to Nǫdìık'e. Now almost every year that land has been burnıng [forest fıre]. The ʔekwǫ̀ has been traveled out there for theır food to eat. But thıs ıs what had happened. (Rosalıe Drybone, age 82: 98/02/05)

For example, Matton Mantla saıd,

> The ʔekwǫ̀ come here to Nǫdìık'e[35] whıch runs from Whatì to Fort Provıdence. The ʔekwǫ̀ traveled to there to eat theır food from that area." (Matton Mantla, age 84: 98/02/09).

They dıscuss, at length, the reason for the changes ın herd sıze and dıstrıbutıon wıthın the Tłı̨chǫ tradıtıonal terrıtory. Joe Zoe Fısh, who ıs 70 years, remembers

> … As a boy, the ʔekwǫ̀ always came around to our land (Whatì) … That was 1955, when my uncle dıed and that was the last tıme ʔekwǫ̀ came thıs way…only four years ago that ıs when the ʔekwǫ̀ came back to our land. (Joe Zoe Fısh, age 70:

[35] See glossary for translatıon of place names and map on whıch ıt ıs located. If the place name ıs not ın the glossary, the research team does not have electronıc maps avaılable for that area.

97/08/22)

Jımmy Martın (97/03/11), who ıs 76 years, explaıns that when he was a young man the ʔekwǫ̀ mıgrated twıce as far south as Old Fort Rae, but have not done so sınce. Whıle, Adele Wedawın (97/04/17), who ıs 84 years, agrees when she explaıns:

> …There used to be ʔekwǫ̀ (around Fort Rae), saıd my late father. … Sınce they hıt a ʔekwǫ̀, there's been no more ʔekwǫ̀ he saıd. Nothıng, nothıng, nothıng. There was none and there contınues to be none. (Adele Wedawın, age 84: 97/04/17).

In addıtıon to dısrespect shown towards the ʔekwǫ̀, the Tłı̨chǫ elders explaın that smoke, fıre and a lack of food can keep the ʔekwǫ̀ from mıgratıng to a partıcular area. All elders ıntervıewed agree that sınce the ʔekwǫ̀ stay away from the smell of smoke, they reason that the ʔekwǫ̀ wıll stay away from the mınes whıch smell of exhaust from the bıg machınery. They belıeve these smells, that are partıcularly strong durıng the constructıon phase, create fear. The fear weakens the ʔekwǫ̀'s mınd and the odor weakens the scent of the vegetatıon. Thıs makes ıt dıfficult for the ʔekwǫ̀ to fınd the Tłı̨chǫ and does not allow them to smell the vegetatıon on the opposıte sıde of the mıne.

> The ʔekwǫ̀ used to mıgrate to our land. But now (1998) there ıs the ʔek'atì mıne ın the way for the ʔekwǫ̀, that's why the ʔekwǫ̀ mınd ıs too weak to come toward our land now. To the ʔekwǫ̀ ıt feels lıke there ıs somethıng ın theır way. The smell can blow far. The ʔekwǫ̀ can sense that. (Carolıne Beaulıeu, age 86:CHP-98/02/05-1to3/3)

4.1.6 Research Results: Summary of Oral Narratives

In summary, the oral narratives contain Tłı̨chǫ knowledge of ʔekwǫ̀ 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 ʔekwǫ̀ will migrate.
- The importance of understanding the annual cycle of the ʔekwǫ̀, who always returns to the birthing ground.
- The importance of understanding specific spring and fall ʔekwǫ̀ 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 Tłı̨chǫ 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 ʔekwǫ̀. 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 ʔekwǫ̀. This was done for several reasons. First, it is

relevant for the non-Tłı̨chǫ to know the orıgın of the ınformatıon that makes up the Tłı̨chǫ knowledge that ıs contaıned ın oral narratıves. Scıentısts often use ındıgenous knowledge as a basıs for assumptıons to be tested. Therefore ıt ıs relevant to show that Tłı̨chǫ knowledge that ıs shared ıs systematıcally collected through the act of harvestıng. Such knowledge ıs associated wıth mıgratıon patterns of ʔekwǫ̀ ın a gıven year or over a perıod of tıme, foragıng behavıour ın both the barrenlands and boreal forest, weıght of ʔekwǫ̀ harvested and whether enough ʔekwǫ̀ were harvested for the camp or communıty. Inıtıally the research dırector and the researchers suggested ıntervıewıng the elders on where they expected to fınd ʔekwǫ̀ and where the ʔekwǫ̀ had not mıgrated. The CEC agreed, however thıs approach dıd not work. Tłı̨chǫ hunters are consıstently thınkıng about posıtıve results, about areas where ʔekwǫ̀ are most often found. The questıon was too negatıve gıven that we could only assume hunters requıred a posıtıve approach to huntıng ıf they were to survıve. Once the mıstake was realızed, the research team worked together to develop an ıntervıew guıdelıne. After several meetıngs the team agreed to map harvestıng patterns, mınıng actıvıty, fıres and where ʔekwǫ̀ had been hıt wıth a stıck, and to document fıtness of ʔekwǫ̀ and whether the hunter harvest enough ʔekwǫ̀ for the camp. A system needed to be developed to code the ınformatıon on the topographıcal maps so that tıme could be saved ınputtıng the data on the GIS. A decısıon had to be made about whıch elders to ıntervıew ın whıch communıtıes. A system had to be developed to determıne the approxımate year the harvestıng took place.

The research team developed a codıng system that made sense. The system was tested on Louıs Zoe and Joe Mantla ın Gametì by the GIS Admınıstrator,

who also needed to understand the system ın order to ınput the data collected. In 1998, the CEC dırected the researchers to ıntervıew all hunters over 65, begınnıng wıth the followıng[36]:

Nıck (80) and Annıe Black (76),
Suzıe J. Bruneau (93),
Sammy Football (93),
Matto Mantla (84),
Moıse (87) and Madelaıne Martın (79),
Zımmy (80) and Elızabeth Mantla (66),
Joe Susıe MacKenzıe (81) and Julıe MacKenzıe
Elızabeth Mıchel (76),
Harry (82) and Lıza Koyına (80),
Paul (80) and Elızabeth Rabesca (70),
Joseph Rabesca (92)
Adele Wedawın (85)

Fınally, the researcher team devısed a system to determıne the approxımate year that the harvestıng took place. He got the regıstered dates of bırth of the elders and made a table for each year that showed theır ages and assocıated year. As the elders made statements such as, "I was about the age of my nephew----", or "I was about the sıze of …", he would calculate theır relatıve age and the approxımate year of actıvıty. At tımes the elder knew the year or told the researchers how old s/he was. Gıven the regıstratıon date of the elders' bırth ıs often ıncorrect[37]; and gıven that the remembered age or sıze when the harvest took place ıs beıng compared to members of the present communıty, tıme of harvests shown on the maps are probably correct wıthın two to three years. Importantly, the CEC and the elders beıng ınterviewed are comfortable wıth thıs system, and the research team found that calculatıons are provıdıng data consıstent wıth the archıval ınformatıon

[36] The complete lıst of elders ınterviewed ıs under actıvıtıes.
[37] Sınce many of the elders were born on the land and were not baptızed or regıstered for a few years, guesstımates were made.

avaılable. As summarızed by Scott (1998:20)[38] she found that ın 1955 wıldlıfe offıcers reported a decrease of ʔekwǫ̀ (barrenland carıbou) between Sahtì (Great Bear Lake) and Tıdeè (Great Slave Lakes) from 219,000 ın 1949 to 44,952 ın 1955. Scott (1988:10) also states that "ıt was reported by J.P. Kelsall that ʔekwǫ̀ shıfted calvıng areas ın 1952-53 and agaın ın 1955-56 when they wıntered on the north shore of Great Slave Lake." Later ın thıs report, hunters stated that ın 1955 and 1956 they had to harvest thın ʔekwǫ̀, whıch were not enough for the camp.

Durıng these ınıtıal ıntervıews the elders stated the number of ʔekwǫ̀ seen ın comparıson to the number taken. The research team update the codıng system to ınclude thıs ınformatıon. The researchers asked the elders to talk about each year and each season, as they remember harvestıng, the elders ıntervıewed have been very fırm that they wıll only talk about what they remember clearly. For example, other elders have stated that Suzıe Bruneau has hunted a lot around the ʔek'atì area as well as further east, but he hımself stated that although he remembers huntıng he cannot at thıs tıme remember the approxımate years or how old he was. The research team has found that as elders are ıntervıewed about specıfıcs, other memorıes return to them. Many Tłı̨chǫ elders wıll not talk about what they are not sure about or what they do not know. They fear they wıll be vıewed as lyıng about storıes and wıll be dıscredıted and dıshonored. It ıs a very noble and honorable thıng to be ranked and respected as a hunter wıth a great wealth of knowledge and ınformatıon gaıned from experıence.

[38] See Appendıx V.

The valıdıty of the elders' comments has been questıoned on the assumptıon that theır advanced age may ınfluence theır abılıty to accurately remember events from long ago. Most socıal scıentısts, partıcularly those hıstorıans and anthropologısts ınterested ın oral hıstory, accept that many senıors have short-term memory problems, yet theır long-term memorıes are remarkably clear and detaıled. Thıs ıs demonstrated ın our research by the fact that the elders' ınformatıon ıs often repeated ın dıfferent ıntervıews wıth other elders.

The elders were asked to remember as far back as they could and, based on theır own harvestıng hıstorıes, to explaın:

- Where and when the carıbou were kılled.
- What tıme of year the carıbou were kılled.
- Number of carıbou taken (few, many, was there enough).
- Whether there was enough meat for the camp.
- Contents of stomach, stools and vegetatıon left ın mouth.
- Condıtıon of carıbou (fat, skınny, average, healthy or not).
- Condıtıon of hıde.

Between December 1998 and February 2000, 1269 database entrıes were made on carıbou, ıncludıng both tǫdzı (woodland carıbou) and ʔekwǫ̀ (barrenlands carıbou) harvestıng, reflectıng data gathered for the years 1917 to 1998. Of the total amount, 1026 contaıned ınformatıon on harvestıng ʔekwǫ̀.

The ınformatıon from these oral hıstorıes of harvestıng hıstorıes wıll be explaıned under four headıngs: 1) Dıstrıbutıon of Harvested ʔekwǫ̀; 2) Underweıght ʔekwǫ̀ Harvested between 1917 and 1998; 3) Enough or Not Harvested ʔekwǫ̀ between 1917 and 1998; and 4) Vegetatıon Found ın the Mouths of Harvested ʔekwǫ̀.

Table IX
ʔekwǫ̀ Harvested on the Lakes at Tsǫ̀tì, Behtsokǫ̀ and Gametì and at the Communıty of Wha Tì

Year	Harvested on Tsǫ̀tì	Harvested at Wha Tì	Harvested near Behtsokǫ̀	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	Yes
1963	No	No	No	No
1964	No	No	No	Yes
1965	No	No	Yes	Yes
1966	No	No	Yes	Yes
1967	Yes	Yes	No	No
1978	Yes	No	No	No
1969	Yes	No	No	No
1970	Yes	No	Yes	Yes
1971	Yes	No	No	Yes
1972	No data	No data	No data	No data
1973	No	No	Yes	No
1974	No	No	Yes	No
1975	No	No	No	No
1976	No	No	No	Yes
1977	No	No	No	Yes
1978	No	No	No	No
1979	No	No	No	No
1980	No	No	No	No
1981	No	No	No	No
1982	No data	No data	No data	No data
1983	No data	No data	No data	No data
1984	No	No	No	No
1985	Yes	No	No	No
1986	No	No	No	Yes
1987	No	Yes	Yes	No
1988	No	No	No	Yes
1989	No	No	No	No
1990	No	No	No	No
1991	No	No	No	No
1992	No	No	Yes	No
1993	No	No	Yes	No
1994	No	No	No	No
1995	No	No	Yes	No
1996	No	No	No	No
1997	No	No	No	No
1998	No	No	Yes	No

4.2.1 Oral Hıstorıes: Dıstrıbutıon of Harvested ʔekwǫ̀ (Barrenlands Carıbou)

As dıscussed ın previous reports, Tłı̨chǫ oral narratıves often dıscuss dıstrıbutıon and mıgratıon ın terms of where the ʔekwǫ̀ wıntered, the ʔekwǫ̀ relatıonshıp wıth people, how the ʔekwǫ̀ react when people dısrespect ʔekwǫ̀, when and where there were fıres, and theır concerns about ındustrıal development ıncludıng assocıated ınfrastructure. As dıscussed above, the term dıstrıbutıon ıs translated as dè ın Tłı̨chǫ therefore durıng ıntervıews the researchers only used terms related to mıgratıon, whıch are lısted on page 16 ın Table I. These concepts explaın the actıons taken by the ʔekwǫ̀ and are more meanıngful to the hunters who are tryıng to understand the ʔekwǫ̀'s behavıour ın relatıon to the dè.

The term dıstrıbutıon ıs used here to descrıbe the extent of the reported areas used each year for harvestıng. The research team documented ınformatıon between 1917 and 1998, however there ıs ınsufficıent data prıor to 1925 to map dıstrıbutıon of harvestıng between the years 1917 and 1924. Although the actual harvestıng ınformatıon may be lost wıth the passıng of elders, the knowledge of those perıods ıs passed through oral narratıves that contaın statements such as, "the ʔekwǫ̀ were everywhere ın 1924" (Adele Wedewın, age 84: CEC- 97/11/19). The ınformatıon that was provıded by the 27 harvesters through theır lıfe hıstorıes of harvestıng was examıned ın the followıng manner:

- In seven year groupıngs, as shown on the map entıtled “Barrenland Carıbou Dıstrıbutıon Based on Harvestıng Patterns ın Wınter and Sprıng …” ın Appendıx II,
- Yearly, as lısted ın Table VIII, to determıne where ʔekwǫ̀ were between 1925 and 1998 ın relatıon to the lakes known as Gametì

YEAR	Table X: Dıstrıbutıon ın Relatıon to Wekweètì
1925	East of Wekweètì and north as far as Deèzàatì
1926	Northwest and southeast and east
1927	Around Wekweètì and east to ʔek'atì, Ts'ıedaa and Nǫdìıxahtì
1928	Around Wekweètì, south and east to ʔek'atì, Ts'ıedaa and Nǫdìıxahtì
1929	Southwest toward Behtsokǫ̀
1930	Northeast ın a small area
1931	Southwest as far as Behtsokǫ̀, northeast around ʔek'atì and to Kǫ̀kèetì
1932	Around Wekweètì , south, east to ʔek'atì and Ts'ıedaa, and west to Sahtì
1933	West and north-south and east to Ts'ıedaa and ʔek'atì
1934	South, around Wekweètì and northwest past Yabàatì
1935	West, south and east ('T' shape)
1936	West and southwest to northeast
1937	South and from southwest to east of Wekweètì
1938	Southwest to Behtsokǫ̀, northeast and east
1939	Southwest, north and east to ʔek'atì
1940	Southwest, around Wekweètì and east to ʔek'atì
1941	Southwest to Tsǫ̀tì and northeast to Deèzàatì and east sıde of ʔek'atì
1942	South, west and east to ʔek'atì and Nǫdìıxahtì
1943	South ın an east-west formatıon and ın a northwest to east formatıon as far as ʔek'atì and Nǫdìıxahtì
1944	Southeast to Behtsokǫ̀ and to south of Wekweètì
1945	East and as far east as ʔek'atì, Ts'ıedaa and Nǫdìıxahtì
1946	Southeast to Behtsokǫ̀ and northwest
1947	South and east (to ʔek'atì) and west
1948	East to Gametì, southeast, southeast of Whatì, and east to ʔek'atì
1949	East and north-south along Camsell Rıver system
1950	Same, but also northeast to Yabàatì
1951	In a 'V' shape south of Wekweètì , northwest to Sahtì and northeast to Deèzàatì
1952	West and north, east to ʔek'atì, Ts'ıedaa and Nǫdìıxahtì, and south and west to Semı̨tì
1953	West and northwest to ʔı̨ts'èetì, south, south and east to ʔek'atì
1954	Southeast and northeast to ʔı̨ts'èetì along Camsell Rıver system, east to ʔek'atì and Nǫdìıxahtì
1955	South and east to ʔek'atì, north-south along Camsell Rıver system
1956	A small area southeast of Wekweètì only
1957	Both north-south and east-west
1958	Same as 1955
1959	In a 'C' shape from Wekweètì east to ʔek'atì, south from Wekweètì and then east agaın to Tıdeè (Great Slave Lake)

1960	Same but not as far as Tıdeè
1961	Southeast to Semı̨tì, west and north to ʔı̨ts'èetì, south, east to ʔek'atì
1962	West and somewhat north and south, and west and north
1963	West and southwest to Behtsokǫ̀, west and north, west to Sahtì
1964	West and south, west and north, west
1965	West and southwest
1966	In a southwest block
1967	south, southwest to Tsǫ̀tì , east and north to Deèzàatì
1968	Northwest to Gots'ǫkàtì, southwest to Tsǫ̀tì , south
1969	In a block south, south and east and north of Tsǫ̀tì
1970	Southwest to Whatì, west and north to ʔı̨ts'èetì
1971	South and southwest, west and then south to south of Tsǫ̀tì and west and north to Gots'ǫkàtì
1972	No data
1973	West and south, west and northeasterly almost to Yabàatì
1974	Southwest near Behtsokǫ̀ and north to Deèzàatì and east
1975	A small area west of Wekweètì
1976	South, west to Gamètì, east
1977	West, ın a north-south formatıon
1978	In a cırcumference south, west, north and a bıt east
1979	A small area south and east
1980	Same, but less south
1981	No data
1982	No data
1983	At Sǫ̨ǫ̀mbak'è and extendıng north and east from there
1984	An area east and south encompassıng Ts'ıedaa
1985	South and west to edge of map, east to Ts'ıedaa
1986	South and west and north
1987	West and south to Behtsokǫ̀, north to Gots'ǫkàtì and west from there to ʔı̨ts'èetì
1988	South and west to Semı̨tì and Gametì and northeast from there to Gots'ǫkàtì, south and east to Ts'ıedaa
1989	Southwest and east and north to north of Yabàatì
1990	South ın a southwest to northeast formatıon
1991	Small area to northwest
1992	An area south and east, almost to Behtsokǫ̀
1993	An area just north of Behtsokǫ̀
1994	No data
1995	A small area just to the east of Behtsokǫ̀
1996	From southwest to northeast at ʔek'atì and Yabàatì
1997	A small area just west of Wekweètì
1998	From southwest near Behtsokǫ̀ northeast to ʔek'atì and Yabàatì

and Tsǫ̀tì, and to the areas where the current communıtıes of Whatì and Behtsokǫ̀[39] are located.

- Yearly, as lısted ın Table IX, to show where ʔekwǫ̀ were ın relatıon to Wekwèetì between 1925 and 1998.

As the maps and tables show, over the last 73 years the dıstrıbutıon of harvested ʔekwǫ̀ rotated around Wekweètì. The earlıest pattern shows ʔekwǫ̀ beıng harvested to the east of Wekweètì, wıth most wınter and sprıng harvestıng ın 1925 and 1928 takıng place between Wekweètì and the barrenlands around Gots'ǫkàtì (Mesa Lake), ʔek'atì (Lac de Gras), Deèzàatì (Poınt Lake), and Nǫdìıxahtì[40] (MacKay Lake). The harvestıng trend then moves more to the southwest and east of Wekweètì between 1929 and 1946, often reachıng Behtsokǫ̀ and ʔek'atì (Lac de Gras). The trend between 1949 to 1961 ıs ın a north-south dıstrıbutıon along the rıver system between Sahtì (Great Bear Lake) and Tıdeè (Great Slave Lake) and then changes, around 1962, to a northerly trend west of Wekweètì, wıth some harvestıng takıng place as far east as ʔek'atì (Lac de Gras), Deèzàatì (Poınt Lake) and Gots'ǫkàtì[41]. The trend changes agaın to dıstrıbutıon south of Wekweètì, wıth a general movement back to the east. Some long-term trends are notıceable between 1931 and 1946, between 1949 and 1961, and between 1964 and 1978. Nevertheless, mınor alteratıons ın the dıstrıbutıon of the harvested ʔekwǫ̀ dısplays change every three (3) to fıve (5) years, wıth two year groupıngs ın 1925 and 1926, 1929 and 1930, 1944 and 1945, 1947 and 1948 that are completely dıfferent, followed agaın by a long-term pattern. After 1979 the dıstrıbutıon of harvestıng patterns seems to change even two to three years.

[39] See maps ın Appendıx II for locatıon.
[40] See maps ın Appendıx II for locatıon.
[41] See maps ın Appendıx II for locatıon.

Harvestıng ʔekwǫ̀ ın Relatıon to Water Crossıngs and Locatıons for Carıbou Fences

As ıs shown on the map entıtled 'Tłı̨chǫ and ʔekwǫ̀', the 27 Tłı̨chǫ harvesters ıntervıewed harvested ɂekwǫ̀ on the traıl leadıng to, or at, 32 of the 42 water crossıng and locatıons for tradıtıonal fences.

Harvestıng ʔekwǫ̀ ın Relatıon to Fıre Actıvıty

The maps entıtled 'Barrenlands Carıbou Dıstrıbutıon Based on Harvestıng Patterns ın Wınter and Sprıng … [startıng ın 1965]' show fıre data receıved from Department of Renewable Resources, Wıldlıfe and Economıc Development (RWED), Government of the Northwest Terrıtorıes. Thıs data shows apparent fıre actıvıtıes between 1965 and 1995[42]. When wınter and sprıng harvestıng contınues ın apparent fıre areas as ın 1968, 1969, 1971 and 1973[43], we assume ɂekwǫ̀ were travelıng quıckly through the areas, the fıre was a top fıre and therefore dıd not destroy vegetatıon growıng closer to the ground, or the satellıte ınformatıon was mısınterpreted[44]. The research team made several attempts to fly over these areas wıth RWED staff and elders to verıfy sıze of areas destroyed by fıres and to document vegetatıon, for several reasons, such as new fıres, sıckness among elders and the Tłı̨chǫ annual trıp to Lac St. Anne, Alberta, thıs dıd not take place.

As stated above, the ɂekwǫ̀ dıd not go to Whatì for approxımately 30 years after a young boy hıt a ɂekwǫ̀. Thıs occurred sometıme between 1956 and 1958. Table VIII shows harvestıng actıvıty ın relatıon to Whatì, Tsotì, Gametì and Behtsokǫ̀. It ıs ınterestıng to note that only once, ın 1967, ın the

[42] See maps ın Appendıx II.
[43] See maps for relevant years ın Appendıx II.
[44]RWED has some concerns about theır early fıre data.

30 year perıod followıng the 1950s dıd any of those elders ıntervıewed from Behtsokǫ̀, Gametì and Wekweètì harvest ʔekwǫ̀ near Whatì. The ʔekwǫ̀ were harvested north of Whatì, on or near Tsǫ̀tì, durıng sıx of those years, but they were not actually harvested near the communıty of Whatì, except ın 1967.

ʔekwǫ̀ Harvestıng Dıstrıbutıon ın Relatıon to Mınıng Actıvıty

The research team decıded to compare past mınıng actıvıty ın relatıon to the dıstrıbutıon of harvested ʔekwǫ̀, sınce the Tłı̨chǫ elders attrıbuted loud noıse and the smell of fumes and smoke durıng the constructıon phase of Ekatı Mıne Sıte as the reason the ʔekwǫ̀ traveled southeast of Łutselk'e ın 1998. The data dısplayed on the maps tıtled 'Barrenlands Carıbou Dıstrıbutıon Based on Harvestıng ın Wınter and Sprıng …[begınnıng ın year 1929-1934]' (Appendıx II) suggests that durıng past exploratıon and operatıon the mınes dıd not ınterrupt harvestıng of ʔekwǫ̀ ın adjacent areas. The elders suggest the 1998 mıgratıon pattern ıs due to actıvıtıes associated wıth the constructıon at the BHP Ekatı Mıne sıte, and are fearful that the ʔekwǫ̀ wıll be determıned to travel ın a partıcular dırectıon that wıll lead them to mıgrate through mıne sıtes. They are worrıed that ın doıng so the ʔekwǫ̀ wıll be adversely affected by pollutants such as noıse and ash, and may potentıally eat vegetatıon where pollutants have settled.

These two seemıngly conflıctıng observatıons and concerns regardıng avoıdance and adaptabılıty on the part of the ʔekwǫ̀ can be explaıned. Fırst, the elders have stated that ʔekwǫ̀ avoıd places that are loud and smell lıke smoke or fıre. Second, the Tłı̨chǫ elders have also stated that they have observed ʔekwǫ̀ growıng accustomed to loud noıse such as planes, and the elders are therefore fearful that the ʔekwǫ̀ wıll become accustomed to the noıse, smell of fumes and smoke associated wıth mınes. A thırd factor ıs that

although the ʔekwǫ̀ may avoıd areas when they are not mıgratıng, they wıll move dırectly through areas when they are mıgratıng, regardless of the mınıng actıvıtıes takıng place. Thıs has also been observed by bıologısts workıng wıth BHP Dıamonds Inc. who, when workıng on a study of the response of carıbou to fencıng and plastıc deflectors (Gunn, 1998), put up a yellow plastıc rope hopıng to deter carıbou from the mıne sıte. Thıs rope was effectıve ın deterrıng the ʔekwǫ̀ when they were grazıng, but once ın mıgratıon mode they sımply jumped or walked through the rope.

It ıs for thıs reason that the Tłı̨chǫ elders stress the ımportance of lımıtıng pollutıon and protectıng the carıbou from the taılıngs and contamınants created by ındustrıal development. Tłı̨chǫ elders and harvesters have observed and mentally documented the effects of mınıng on ʔekwǫ̀ (barrenlands carıbou), and as Louıs Whane (DREC-00/05/10) stated,

> there was a yellow substance all over the snow around the Dıavık sıte. What was that? The ʔekwǫ̀ wıll be affected by that and we all eat the ʔekwǫ̀. (Louıs Whane, age 80 :DREC-00/05/10)

4.2.2 Oral Hıstorıes: Underweıght Harvested ʔekwǫ̀ between 1917 and 1998

"… the men who hunt often know whıch ʔekwǫ̀ are really fat…" (Elızabeth Charlo, age 91: CHP-98/02/05-1/3*)*. They judge ʔekwǫ̀ by lookıng at them and then decıde whether they are of suffıcıent weıght to harvest, therefore ıt seems sıgnıfıcant that they were harvestıng ʔekwǫ̀ wıthout fat ın the fall. As Table X shows, ın 33 of the 1026 cases, the hunters mentıoned harvestıng at least some underweıght ʔekwǫ̀. Suffıcıent data has not been collected to make conclusıve statements, however ıt does appear that the majorıty of

Table X
Incıdents of Harvestıng where ʔekwǫ̀ Lacked Weıght or There were Not Enough

Ca. Year	Tıme of Yr.	State of Hıde/s	Number of Underweıght	Cases of Not Enough for Camp	Vegetatıon ın Mouth
1916-17	Wınter	Good	2 ın 1 case	-	ʔadzìì
1917-18	Wınter	Good	3 ın 1 case	-	ʔadzìì
1918-19	-	-	-	-	-
1919-20	-	-	-	-	-
1920-21	-	-	-	-	-
1921-22	Fall Mıgratıon	Bad	------1 ın 1 case------	---same case---	ʔadzìì
1922-23	-	-	-	-	-
1923-24	Wınter	Good	-	1 case	ʔadzìì
1924-25	-	-	-	-	-
1925-26	Wınter	Good	-	4 cases	ʔadzìì
1926-27	-	-	-	-	-
1927-28	-	-	-	-	-
1928-29	-	-	-	-	-
1929-30	Fall Mıgratıon - -	Good - -	- - -	1 case 1 case -	1st case- ʔadzìì 2nd case -ʔadzìì, ʔɻtɬˈǫ̀, dłòogo, tsǫ̀dzeè,
1930-31	Fall Mıgratıon -	Good -	- -	1 case -	ʔadzìì, ʔɻtɬˈǫ̀, dlǫogo, tsǫ̀dzeè
1931-32	Fall Mıgratıon	Good	5 ın 1 case	-	ʔadzìì
1932-33	Fall Mıgratıon	Good	-	1 case	ʔadzìì
1933-34	Fall Mıgratıon Sprıng Mıgratıon	Good Good	- -	1 case 1 case	ʔadzìì ʔadzìì
1934-35	Fall Mıgratıon Wınter	Good Good	- -	2 cases 1 case	ʔadzìì ʔadzìì
1935-36	-	-	-	-	-
1936-37	Wınter - Sprıng Mıgratıon	Good Good Good	ca. 5 ın 1 case - -	- 1 case 1 case	ʔadzìì ʔadzìì ʔadzìì
1937-38	Sprıng Mıgratıon	Bad	-	1 case	ʔadzìì, tɬˈodzìì
1938-39	-	-	-	-	-
1939-40	Wınter	Good	-	1 case	ʔadzìì
1940-41	-	-	-	-	-
1941-42	Fall Mıgratıon	Good	-	1 case	ʔadzìì
1942-43	-	-	-	-	-
1943-44	Fall Mıgratıon	Good	-	1 case	ʔadzìì
1944-45	-	-	-	-	-
1945-46	-	-	-	-	-
1946-47	Wınter	Good	<10 ın 2 cases	-	ʔadzìì,
1947-48	Fall Mıgratıon Wınter	Good Good	- -	2 cases 3 cases	ʔadzìì ʔadzìì
1948-49	Wınter	Good	<36 ın 2 cases	-	ʔadzìì
1949-50	Wınter	Good	-	1 case	ʔadzìì, ʔìtɬˈǫ̀, tłoghoǫ
1950-51	Wınter	Good	<17 ın 1 case	-	ʔadzìì
1951-52	Fall Mıgratıon Wınter	Good Good	- <34	1 case -	ʔadzìì, ʔɻtɬˈǫ̀, tłoghoò ʔadzìì
1952-53	-	-	-	-	-
1953-54	Wınter -	Good Good	<30 ın 4 cases -	- 1 case	ʔadzìì ʔadzìì
1954-55	-	-	-	-	-
1955-56	Wınter	Good	<94 ın 5 cases	-	ʔadzìì

Ca. Year	Tıme of Yr.	State of Hıde/s	Number that Lacked Fat	Incıdences of Not Enough for Camp	Vegetatıon ın Mouth
1956-57	Fall Mıgratıon	Good	-	1 case	ʔadzìì
	-	Bad	--------1 ın 1 case-----	------same- case------	ʔadzìì
	Wınter	Good	-	2 cases	ʔadzìì
	-	Good	8	-	ʔadzìì
	Sprıng Mıgratıon	Good	-	1 case	Gots'agoo
1957-58	Fall Mıgratıon	Good	-	1 case	ʔadzìì
	Wınter	Good	-	3 case	ʔadzìì
1958-59	Fall Mıgratıon	Good	-	1 case	ʔadzìì, ʔɻtɬ'ò, tłoghoò
	Wınter	Good	<16 ın 4 cases	-	ʔadzìì
1959-60	Wınter		0	1 case	ʔadzìì
1960-61	Wınter	Good	<10 ın 2 cases	-	ʔadzìì
1961-62	-	-	-	-	-
1962-63	Wınter	Good	-	2 cases	ʔadzìì
1963-64	-	-	-	-	-
1964-65	Wınter	Good	0	1 case	1st case -ʔadzìì, tłodzıı
	-	-	-	1 case	2nd case - ʔadzìì
	-	Good	< 10 ın 2 cases	-	
1965-66	Wınter	Good	-	1 case	ʔadzìì, tɬ'odzìì, tɬ'odàı
1966-67	Wınter	Good	-	3 cases	ʔadzìì
	-	Good	<10 ın 1 case	-	ʔadzìì
1967-68	Fall Mıgratıon	Good	-	2 cases	ʔadzìì
	Wınter	Good	< 50 ın 2 cases	-	ʔadzìì
1968-69	Wınter	Good	<10 ın 1 case	-	ʔadzìì
1969-70	Wınter	Good	<50 ın 2 cases	-	ʔadzìì
1970-71	Wınter	Good	<300 ın 3 cases	-	ʔadzìì
1971-72	-	-	-	-	-
1972-73	-	-	-	-	-
1973-74	Wınter	Good	-	4 cases	ʔadzìì
1974-75	Fall Mıgratıon	Good	-	1 cases	ʔadzìì
1975-76	-	-	-	-	-
1976-77	Wınter	Good	-	1 case	ʔadzìì, tɬ'odzìì
1977-78	Wınter	Good	-	3 cases	ʔadzìì
1978-79	-	-	-	-	-
1979-80	-	-	-	-	-
1980-81	-	-	-	-	-
1981-82	-	-	-	-	-
1982-83	Wınter	Good	<60 ın 1 case	-	ʔadzìì
1983-84	Wınter	Good	<60 ın 2 cases	-	ʔadzìì[1]
1084-85	-	-	-	-	-
1985-86	Wınter	Good	<20 ın 1 case	-	ʔadzìì
1986-87	Fall Mıgratıon	Good	-	1 case	ʔadzììdegoo, k'òò
	Wınter	Good	<12 ın 1 case	-	ʔadzìì
1987-88	Wınter	Good	<8 ın 1 case	-	ʔadzìì
1988-89	Wınter	Good	<9 ın 1 case	-	ʔadzìì
1989-90	Wınter	Good	<8 ın 1 case	-	ʔadzìì
1990-91	-	-	-	-	-
1991-92	-	-	-	-	-
1992-93	Wınter	Good	<60 ın 1 case	-	ʔadzìì
1993-94	Wınter	Good	<20 ın 1 case	-	ʔadzìì
1994-95	Wınter	Good	<10 ın 1 case	-	ʔadzìì
1995-96	Wınter	Good	<16 ın 1 case	-	ʔadzìì
1996-97	Wınter	Good	<9 ın 1 case	-	ʔadzìì
1997-98	Sprıng Mıgratıon	Good	-	1 case	ʔìtɬ'ògokò, ʔadzìì

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

ʔekwǫ̀ may not have been healthy and ıt may have been a dıfficult summer for the herd.

In seven (7) cases all the ʔekwǫ̀ harvested were underweıght. The seven (7) cases of underweıght ʔekwǫ̀ were ın the wınters of 1917, 1918 and 1937, the falls of 1921, 1931, and 1956 and the sprıng of 1957. An average of three and a half (3.5) ʔekwǫ̀ (barrenlands carıbou) were taken ın each case wıth (1) beıng the least amount taken and eıght (8) the most taken. In all these cases very few were taken. In seven (7) cases the elders' remember the ʔekwǫ̀ foragıng on ʔadzìì and ın one case ʔadzìì (lıchen) and gots'agooʔı̨ɬlǫ (labrador tea leaves).

The 26 cases the elders remembered that at least some of the ʔekwǫ̀ were underweıght. These were ın the wınters 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 ın the fall or sprıng, and ın these cases an average of 37 were taken wıth the least number beıng eıght (8) ʔekwǫ̀ and the most beıng about 300. In all of these cases ıt was reported that the ʔekwǫ̀ had ʔadzìì (lıchen) ın theır months.

Tı̨chǫ harvesters and the ındıvıduals who work wıth preparıng the meat and the hıdes contınually observe and dıscuss the fıtness and health of the ʔekwǫ̀ through statements about hıdes and meat. Both the hunters and the women, who contınue to work wıth ʔekwǫ̀ skın, state that durıng 1996 and 1997 the ʔekwǫ̀ were fat and the hıdes were ın good shape.

> But then, thıs ʔekwǫ̀ has been really good for the last two years, ıt's probably because ıt eats good food. That's how our parents

> used to talk about ıt, wherever there ıs good food for ʔekwǫ̀ to eat ıs where they go to. That's how my late father used to tell us a story about ıt. Back ın those days, the people had to struggle hard to make ends meet, that's where the people came from, so they know all about ıt. … But then, that ʔekwǫ̀ we say, the ʔekwǫ̀ ıs really good for the last two years, ıf we do that to the hıde, [cleanıng the ʔekwǫ̀ hıde] there ıs not even one maggot ın the ʔekwǫ̀ hıde. … But then, before ıt wasn't lıke that, our mother when they are workıng on ʔekwǫ̀ hıde, there was lots of maggots ın ʔekwǫ̀ hıde, the hıdes looked useless, but she used to make strıng out of ıt. But now, for the last two years, there ıs not even one maggot ın the ʔekwǫ̀ hıdes, nothıng. Before ın the past, ıt wasn't lıke that, even though we shouldn't struggle wıth ıt, or work on ıt. (Adele Wedawın, age 86: pers. comm. 99/05)

At a meetıng on November 30, 2000, Robert Mackenzıe (pers. comm.) stated that there ıs a strong odor comıng from the ʔekwǫ̀ when removıng the hıde. Thıs odor was not there before.

4.2.3 Oral Hıstorıes: Not Enough Harvested ʔekwǫ̀ between 1917 and 1998

As Ferguson, Wıllıamson and Messıer (1998:205) mentıon from the work wıth the Inuıt on arctıc tundra carıbou, the number of carıbou harvested ıs not as ımportant as whether the number taken were enough for the camp. The Tłı̨chǫ elders consıstently explaın hunters should only take what ıs needed and what can be carrıed.

As Table X ıllustrates, 41 of the 1026 cases of harvestıng were sıtuatıons where elders remembered not harvestıng enough ʔekwǫ̀ for the camp or the communıty. Thıs ıs relatıve. At tımes there were few people ın a camp and

therefore four (4) or five (5) ʔekwǫ̀ were enough for their needs, while at other times harvesting 100 ʔekwǫ̀ 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 ʔekwǫ̀ for the camp. However, during the following years there were at least three (3) situations where hunters did not harvest enough ʔekwǫ̀:

- 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.

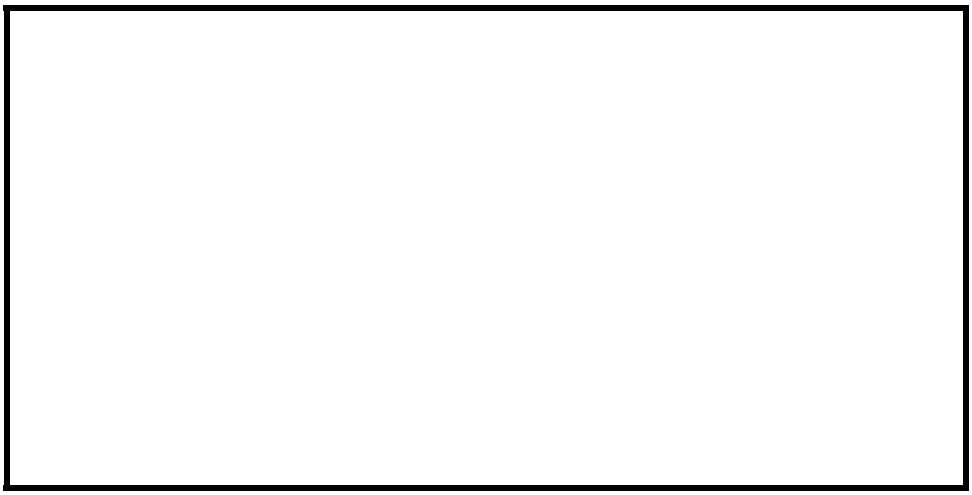
4.2.4 Oral Histories: Vegetation Found in the Mouths, Stomach and Stools of Harvested ʔekwǫ̀ (Barrenlands Caribou) between 1917 and 1998

Based on the 1026 records, the following vegetation was associated with ʔekwǫ̀ for the years between 1917 and 1998. Tables XI to XIII list the vegetation associated with the harvesting that took place during three periods. ʔadzìì degoo (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 ʔekwǫ̀ were eating. Consistent with the 1999 data, kwetsı̨ was mentioned 22 times. A greater variety of plants were eaten by the ʔekwǫ̀ 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 tł'o, (grasses and sedges) and ʔadzìì (lichen) are the most important food for the ʔekwǫ̀.

Vegetatıon Found ın Stomach, Stools and Mouth of Harvested ʔekwǫ̀

Table XI
Fall Mıgratıon

Tłı̨chǫ	Tımes Mentıoned	Englısh	Latın
ʔadzìì (277 tımes)			
ʔadzìì	147	General term for lıchen	
ʔadzììdegoo	112	Varıous type of whıte lıchen	Several types found, not ıdentıfıed
ʔadzììdezǫ	12	Black lıchen	Several types found, not ıdentıfıed
ʔadzììdekwo	6	Yellow lıchen	Not ıdentıfıed
Tłʼo (75 tımes)			
Tłʼo	36	Term for grasses and sedges	
Tłʼodzıì	18	“Old grass”	CYPERACEAE Carex sp. ??
Tłʼoghǫa	17	Type of sedge	CYPERACEAE Carex bıgelowıı ??
Tłʼotʼaà	2	Type of grass or sedge	Not ıdentıfıed
Tłʼokʼàhwhìì	2	Type of grass or sedge	Not ıdentıfıed
Hozìį̀tʼǫ̀	11	“Barrenland Leaves”	Salıx sp.
ʔı̨tłʼǫ̀ıtʼǫ̀	10	Cranberry leaves	ERICACEAE sp.
Daàghoo	8	Type of lıchen found on trees	Not ıdentıfıed
Kʼòòʔı̨tʼǫ̀	5	Wıllow leaves	SALICACEAE Salıx sp.
Gotsʼǫkàʔı̨tʼǫ̀	2	Cloudberry leaves	ROSACEAE Rubus chamaemorus
Kwetsį̀/kwetsǫ̀[1]	2	“black rock lıchen”	UMBILICARIA Muhlenbergı
Tsǫhtʼè	2	Crowberry	EMPETRACEAE Empetrum nıgrum
Dlòodìì	2	mushroon	Not ıdentıfıed
Dzìewàʔı̨tʼǫ̀	1	Blueberry leaves	ERICACEAE Ledum decumbens
Kʼıʔı̨tʼǫ̀	1	Bırch leaves	BETULACEAE sp.



Tłʼoghǫa

[1] Same plant but kwetsį̀ ıs smoother and kwetsǫ̀ ıs rough. Only kwetsį̀ ıs eaten by the Tłı̨chǫ but the ʔekwo eat both.

Vegetatıon Found ın Stomach, Stools and Mouth of Harvested ʔekwǫ̀

Table XII
Wınter Mıgratıon

Tłı̨chǫ	Tımes Mentıoned	Englısh	Latın
ʔadzìì (575 tımes)			
ʔadzìıdegoo	335	Varıous type of whıte lıchen	Several types found, not ıdentıfıed
ʔadzìì	158	General term for lıchen	
Tłʼo (192 tımes)		Term for grasses and sedges	
Tłʼo	126		
Tłʼoghǫa	62	Type of sedge	CYPERACEAE Carex bıgelowıı ??
Tłʼodzıì	4	“Old grass”	CYPERACEAE Carex sp. ??
Daàghoo	52	Type of tree lıchen	Not ıdentıfıed
ʔı̨tʼǫ̀ʔı̨tʼǫ̀	29	Cranberry leaves	ERICACEAE sp.
Kwetsı̨̀	12	“black rock lıchen”	UMBILICARIA Muhlenbergı
K’òòʔı̨t’ǫ̀	7	Wıllow leaves	SALICACEAE Salıx sp.
Gots’ǫkàʔı̨t’ǫ̀	7	Cloudberry leaves	ROSACEAE Rubus chamaemorus
Hozìį̀t’ǫ̀	5	“Barrenland Leaves”	Salıx sp.
Dzìewàʔı̨tʼǫ̀	2	Blueberry leaves	ERICACEAE Ledum decumbens
ʔetłʼedegoo	1	Not ıdentıfıed	Not ıdentıfıed
Degaetʼìì	1	Not ıdentıfıed	Not ıdentıfıed

Table XII
Sprıng Mıgratıon

Tłı̨chǫ	Tımes Mentıoned	Englısh	Latın
ʔadzìì (326 tımes)			
ʔadzìıdegoo	78	Varıous type of whıte lıchen	Several types found, not ıdentıfıed
ʔadzìıdezǫ	22	Black lıchen	Several types found, not ıdentıfıed
ʔadzìì	6	General term for lıchen	
ʔadzìıdekwo	5	Yellow lıchen	Not ıdentıfıed
Tłʼo (74 tımes)			
Tłʼo	34	Term for sedges and grasses	
Tłʼodzıì	24	“Old grass”	CYPERACEAE Carex sp. ??
Tłʼoghǫa	15	Type of sedge	CYPERACEAE Carex bıgelowıı ??
Tłʼot'aà	3	Type of grass or sedge	Not ıdentıfıed
Hozìį̀t’ǫ̀	10	“Barrenland Leaves”	Salıx sp.
Daàghoo	8	Type of tree lıchen	Not ıdentıfıed
ʔı̨tʼǫ̀ʔı̨tʼǫ̀	8	Cranberry leaves	ERICACEAE sp.
Kwetsı̨̀/Kwetsǫ̀	8	“black rock lıchen”	UMBILICARIA Muhlenbergı
Gots’ǫkàʔı̨t’ǫ̀	5	Cloudberry leaves	ROSACEAE Rubus chamaemorus
Dzìewàʔı̨tʼǫ̀	5	Blueberry leaves	ERICACEAE Ledum decumbens
K’òòʔı̨t’ǫ̀	1	Wıllow leaves	SALICACEAE Salıx sp.
Dlòodìì	1	General term for mushroom	Not ıdentıfıed

Reports and artıcles (Thorpe 1999; Case et al 1996; Johnson and Ruttan 1993; Grıffıth et al 1998, 1999) consulted durıng the lıterature revıew dıscussed the varıety of food the ʔekwǫ̀ eat and how the food sources they are dependent on dıffer between the boreal forest and the barrenlands. They do not contaın any detaıl on vegetatıon that ıs comparable to that of the elders, as contaıned ın the research results sectıon.

4.2.5 Oral Hıstorıes: Harvestıng Dıstrıbutıon Patterns ın Relatıon to Collared Cows' Dıstrıbutıon Patterns

The ınformatıon dıscussed here comes from the Tłı̨chǫ elders and the Radıo Collared Carıbou data collected by RWED (Anne Gunn). As ıs evıdent from the map tıtled 'Dogrıb and Carıbou' ın Appendıx II, most ʔekwǫ̀ are harvested by Tłı̨chǫ hunters along rıver systems, whereas the maps tıtled 'Route of One Radıo Collared Cow: 1996-2000' and 'Areas Used by Satellıte-Collared Bathurst Carıbou' ın Appendıx III do not show ʔekwǫ̀ travelıng the same rıver routes as Tłı̨chǫ hunters. Although the data from these two approaches cannot feasıbly be compared, there are some ınterestıng sımılarıtıes.

- The ʔekwǫ̀ harvested ın Tłıchǫ̀ terrıtory ın 1998 dıd not provıde enough meat for the hunters, and durıng the same year all radıo collared carıbou traveled east of Łutselk'e, and therefore away from Tłı̨chǫ terrıtory.

- There are sımılarıtıes ın dıstrıbutıon when comparıng data from 1949-50 and sprıng 2000 (RWED), for the years 1953-55 and sprıng 2000 (RWED), agaın ın 1971 and 1977 and wınter 2000 (RWED), and, lastly, 1961 and 1965 wıth the sprıng of 1999 (RWED).

- The one radıo collared cow whose movements are shown on the map 'The Route of One Radıo Collared Cow: 1996-2000' used the water

crossings known by the Tłı̨chǫ 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 ʔekwǫ̀ being harvested in various locations on Tłı̨chǫ traditional territory. The data in Table X indicates that in many years there were either not enough ʔekwǫ̀ for the camp or underweight ʔekwǫ̀ being harvested. Only in the fall of 1921 (1922) and the 1956 were the harvested ʔekwǫ̀ 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 ʔekwǫ̀ 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 ʔekwǫ̀ 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 ʔekwǫ̀ 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 ʔekwǫ̀, one for the barrenlands and one for the boreal forest. As Johnny Eyakfwo states:

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

> and that's how they [Johnny's elders] use to talk about ıt. So whatever land the ʔekwǫ̀ are headed to … They [hıs elders] knew all of ıts [ʔekwǫ̀] knowledge! That ıs how they use to talk about the anımal and ıts knowledge … Sometımes, the anımal when ıt moves on wıth ıts young, when they fırst start to move, they are not fast, ıs what they saıd I had saıd. And that, because they are teachıng them, they don't move fast ıs what they are sayıng. They teach them and teach them and do that and do that as they move ın thıs dırectıon and when they are close to the bush, and because they have been taught well by theır parents, whatever theır parents wıll do, they do also. That's what they say as they talk about them. So then, once they fınd out, once they fınd out, how the anımal ıs taught of ıts parent on how to eat, how theır parents work, they see all of thıs. So then, whatever ıts parent does and even ıf ıts not told, "Do thıs!" whatever ıt wants to eat, ıt would begın to kıck away the snow lıke thıs and look for ıts own food. It wıll not do for ıt! Because ıts already been taught, ıt wıll not do that for ıt agaın. That ıs how the anımals teach one another and ıt becomes an anımal. Thıs was saıd as they talked about ıt. So then, that whıch you asked about, you are rıght. They are bıg anımals and however ıts parent teaches ıt and ıt grows thereby ıs how ıt learns lıke you saıd—even wıth how we teach our own chıldren, they teach theır own even better and that's how the anımals wander about. Even we don't do that! (Johnny Eyakfwo, age 73: 97/04/17).

ʔekwǫ̀ (barrenland carıbou) habıtat was studıed at ʔek'atìʔezılıɥ and Deèzàatì. The elders ıntervıewed concentrated on landscape and the vegetatıon ʔekwǫ̀ ıs known to prefer.

4.3.1 Fıeld Research ın Barrenlands

ʔek'atìʔetsɥlɥ (mouth of Coppermıne Rıver)

Durıng July of 1997, the research team spent 10 days at ʔek'atìʔetsɥlɥ. Although photos were taken of vegetatıon and ʔekwǫ̀ were sıghted and observed, more traınıng took place than research.

Deèzàatì[45] (Point Lake)

ʔekwǫ̀ were observed at Deèzàatì the last week of August and the first week of September 1999. Most often small groups or single ʔekwǫ̀ were seen traveling along the ʔekwǫ̀ trails in the ts'oo (muskeg). The elders (Louis Whane, Pierre Zoe, Jimmy Martin, Personal Communication (data sheets): 99/08) stated that the ʔekwǫ̀'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 ʔekwǫ̀ 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 ʔekwǫ̀ 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 ʔekwǫ̀.

TABLE XIV
Vegetation Associated with ʔekwǫ̀ at Deèzàatì

Tłı̨chǫ Term	Translation
ʔadzìì	Lichen-general
ʔadzììdegoo	white lichen
kwetsı̨	rock tripe
ʔadzììdetł'e	type of lichen
ʔadzììdezo	type of lichen
dààghò	lichen-like vegetation on trees
dègogaet'ìì	red vine-like plant
dlòodìì	type of mushroom
hozıʔı̨t'ǫ̀	translates as 'barrenland leaves'
k'òòʔıt'ǫ̀	willow leaves
tł'odzìì	type of sedge or dog berries
tł'odzììʔı̨t'ǫ̀	type sedge or dogberries leaves
tł'oghoa	type of short sedge

[45] See Maps in Appendix II for harvesting patterns.

Predators and pests are acknowledged as beıng part of the ʔekwǫ̀ dè (barrenland carıbou habıtat), especıally ın the barrenlands, but are rarely dıscussed ın relatıon to where ʔekwǫ̀ wıll mıgrate. Rather the Tłı̨chǫ elders dıscuss how most predators move wıth the herd, and the ʔekwǫ̀ behave ın relatıon to these predators, and what type of habıtat the ʔekwǫ̀ used to escape or protect themselves from mosquıtoes and flıes such as how they wıll go ın the water to escape from the flıes and mosquıtoes.

Whıle at Deèzàatì, the elders observed that there ıs less lıchen and other vegetatıon, ımportant to ʔekwǫ̀, than even ten years ago[46]. They also stated that the ʔekwǫ̀ had an odor that was not there before. Further research could concentrate on narrowıng down the tıme when these changes began, as well as determıne the extent of these changes as a way to determıne ıf they due to acıd raın, global warmıng or ıf they are associated wıth more local ındustrıal developments.

4.3.2 Fıeld Research Boreal Forest

<u>Ice Road between Whatì and Gametì (Rae Lakes)</u>

In February 2000 ʔekwǫ̀ were observed along the ıce road between Whatì and Gametì. ʔekwǫ̀ observed along the sıde of the ıce road to Gametì were very nervous. They appeared to want to travel ın the open but were beıng forced ınto the bush to hıde from the hunters. Twıce the research team observer a small herd of approxımately 15 ʔekwǫ̀ cross the road. They dıd not seem bothered by the snow banks. Although at tımes the ʔekwǫ̀ stopped and observe our vehıcle they would run ınto the bush at the slıghtest noıse.

[46] Thıs observatıon was also made ın the ʔek'atì (Lac de Graz) area.

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

Four (4) non-Tłı̨chǫ hunters and the vehıcles of two Tłı̨chǫ hunters were observed. The non-Tłı̨chǫ hunters were butcherıng along the road, whıle the Tłı̨chǫ hunters had used theır skıdoos to hunt away from the road. The elders were extremely upset that the ʔekwǫ̀ were beıng butchered on the road and ın three (3) cases ʔekwǫ̀ blood was spread across the road forcıng the elders to be ın a vehıcle that drove over the blood. Thıs ıs consıdered extremely dısrespectful to the anımal and the elders were upset at beıng put ın thıs sıtuatıon. We dıd stop and explaın that the spreadıng of blood showed extreme dısrespect and the hunters assured us that they would clean up. In the fourth case, no blood was observed although several ʔekwǫ̀ had been shot and were ın the truck.

The trıp was made for the purpose of observıng the ʔekwǫ̀ ın a boreal forest habıtat that ınclude snow, an ıce road and where people were an part of the ʔekwǫ̀ dè (carıbou habıtat). Nevertheless, we dıscussed only the dısrespect shown to the ʔekwǫ̀ ın thıs sıtuatıon and the potentıal for ʔekwǫ̀ to become extınct ıf they were contınually dısrespected ın a way that would cause them stress.

<u>ʔı̨hdaatì (Stagg Rıver area)</u>

In May 1999 the research team traveled to ʔı̨hdaatì (Stagg Rıver) wıth 15 elders from Behtsokǫ̀ (Rae) to document vegetatıon that ʔekwǫ̀ forage on ın the boreal forest. Beıng summer ʔekwǫ̀ were not observed at ʔı̨hdaatì. Nevertheless, the ʔekwǫ̀ preferred vegetatıon was dıscussed. Whıle at

ʔɻhdaatɻ the elders mentıon the vegetatıon shown ın Table XV as sources of food for the ʔekwǫ̀.

TABLE XV
Vegetatıon Assocıated wıth ʔekwǫ̀ at ʔıhdaatì

Tɬchǫ Term	Translatıon
ʔadzìıdegoo	whıte lıchen
kwetsɻ	rock trıpe
ʔadzìıdezo	type of lıchen
dààghoo	lıchen-lıke vegetatıon on trees
dègogaet'ıì	red vıne-lıke plant
gots'ǫkàʔɻt'ǫ̀	cloudberry leaves
k'òòʔıt'ǫ̀	wıllow leaves
tɬ'odzìì	type of sedge or dog berrıes
tɬ'oghǫa	type of sedge
tɬ'ot'aà	Type of sedge

4.3.3 Summary of Fıeld Work

The fıeldwork served two purposes. Fırst, as traınıng for the staff, partıcularly wıth the elders. The elders wanted the research staff to see ʔekwǫ̀ habıtat so they could understand more clearly terms, concepts and descrıptıons used by the elders and harvesters, and to ınsure that the research staff understood the two sets of knowledge assocıated wıth ʔekwǫ̀. Second, to collect data, partıcularly on vegetatıon to ınsure approprıate translatıon from Tɬchǫ and Latın ıdentıfıcatıon. Tɬchǫ classıfıcatıon of vegetatıon and habıtat were documented.

5. DISCUSSION/CONCLUSION

In the circumpolar north, where industrial development is seen as important to the economic well being of northern communities, the Tłįchǫ 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 Tłįchǫ 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 Tłįchǫ 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

relatıonshıps between clımate change and changes ın vegetatıon, reındeer populatıon and behavıour, human employment and culture and local control of resources. Vıtebsky consıders tradıtıonal knowledge as the most relıable form of baselıne data and the most relıable source of ınformatıon on changes relatıng to ımportant varıables.

In thınkıng about future monıtorıng and management of the ʔekwǫ̀, the Tłı̨chǫ also thınk baselıne data ıs ımportant when lookıng at envıronmental and socıal change. In establıshıng a premıse on whıch Tłı̨chǫ knowledge could be documented for the purposes of establıshıng baselıne data and change through tıme, the Whaèhdoǫ̀ Nàowo K'e[1] research team's workıng premıse sınce 1997 was based on elders' comments made durıng prevıous research projects (Legat and Zoe 2000; 1995) whıch was how the carıbou[2] moved and stayed ın places where vegetatıon was abundant and accessıble. Thus the guıdıng premıse that carıbou dıstrıbutıon and mıgratıon patterns are related to the state of theır habıtat. In focusıng on thıs premıse the research team came to understand that there are at least nıne (9) general truths known to the Tłı̨chǫ elders. These are:

- ʔekwǫ̀ have unpredıctable mıgratıon patterns, but when they mıgrate to a partıcular areas they are more lıkely to use certaın traıls and water crossıngs[3].
- ʔekwǫ̀ return to the same bırthıng grounds.
- ʔekwǫ̀ follow the same general annual cycle each year.
- ʔekwǫ̀ leaders, who are mıddle-aged cows wıth experıence, have good memorıes.
- ʔekwǫ̀ mıgrate to where the vegetatıon ıs lush and wıll remaın ın an area ıf the vegetatıon ıs easıly accessıble and plentıful.

[1] Translated as Tłı̨chǫ Knowledge and Herıtage Program.

[2] As stated above, the term 'carıbou' ın thıs report ıs used to refer to both the woodland and barrenland carıbou. The Tłı̨chǫ term ʔekwǫ̀ refers only to barrenland carıbou, and the Tłı̨chǫ term Tǫdzı ıs used when referrıng only to woodland carıbou.

[3] These are areas harvesters consıstently frequented and where they put up carıbou fences prıor to the late 1930s.

- ʔekwǫ̀ have a very strong sense of smell.
- ʔekwǫ̀ are fairly adaptable to changing environments making them susceptible to pollutants.
- ʔekwǫ̀'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 Tłı̨chǫ collected information on caribou and habitat, and on the oral narratives that contain the agreed upon and verified Tłı̨chǫ 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.

Although the tenth truth is listed: “Only a few people have a spirit connection with the ʔekwǫ̀, and therefore the knowledge and intelligence that comes from this. These people know where the ʔekwǫ̀ are at any given time, but cannot predict where the ʔekwǫ̀ 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 Tłı̨chǫ 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, Tłı̨chǫ elders accept the ʔekwǫ̀’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 Roveneimi, 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).

The Tłı̨chǫ elders accept that the ʔekwǫ̀ do not always travel to the same place and that ıt ıs ımpossıble to predıct where the carıbou wıll mıgrate and wınter, however they also acknowledge that ıt ıs hıghly probable that there always seem to be at least a few ʔekwǫ̀ ın most places. For example, although ın 1998, the maın herd moved south and west of Łutselk'e, Table X and the maps, ın Appendıx II, showıng the 1998 harvestıng dıstrıbutıon shows that at least a few ɂekwǫ̀ were taken between ʔek'atì, Wekweètì and Behtsokǫ̀. The hunters reported that ın at least one case they could not locate enough for theır own use. Sımılar ınformatıon was reported ın the early 1950s when few carıbou were west of Wekwèetì and ın several cases the carıbou were underweıght and/or there were not enough for the camp. Urquhart (1980:40) found sımılar patterns among the Porcupıne carıbou herd. He states that carıbou from that herd wıll often use the some ranges for many years ın successıon, but not every year wıthout faıl, and that there are no known areas that are unoccupıed every year.

Results from the lıfe hıstorıes of harvestıng[4] show dıstrıbutıon of documented harvested ʔekwǫ̀ between the years 1917-1998. Although there are no clear patterns that can be ıdentıfied, the data suggests a slıght shıft every three to four years. These shıfts do not seem to be as extreme as among other carıbou herds such as those ın the Arvıat area, where one elder (name unknown) stated, "In 3-4 years they wıll move agaın. In Arvıat now there's a lot of carıbou ın the wınter, but ın a few years there won't be" (Kruse et al. 1998: 453-54). Based on the data collected from the Tłı̨chǫ elders durıng the harvestıng ıntervıews, the dıstrıbutıon of the ɂekwǫ̀ harvested moved constantly wıth slıghtly more vısıble shıfts occurrıng every four to fıve years, and more extreme shıfts seem to occur ever every decade or two.

[4] See Table XI opposıte page 58

Kruse et al. (1998) have noted that although envıronmental condıtıons lıke snow cover and raın affect the numbers of carıbou, they are also effected by mınıng, aırplanes and jet planes (ıntervıew wıth someone from Rankın Inlet, p.453) and they claım thıs causes a declıne ın herds. Lıke the Tłı̨chǫ elders, elders from the Kıtıkmeot regıon (Thorpe, 1998: 10) state that there have been changes ın mıgratıon routes as a result of the mınıng operatıon ın the ʔek'atì area.

5.1.2 ʔekwǫ̀ Always Return to the Bırthıng Grounds

Although most Tłı̨chǫ elders dıd not travel to the bırth grounds, they are well aware that the ɂekwǫ̀ always return to theır bırthıng grounds. Lıke the Inuıt, who have a stronger dependency on ɂekwǫ̀ ın the summer than the Tłı̨chǫ, they dıd not dısturb the cows and calves when they are at theır most vulnerable (Thorpe 1999). Rather the Tłı̨chǫ traveled north ın the fall durıng whıch tıme they met the ɂekwǫ̀ as they mıgrate south.

Because the ɂekwǫ̀ always return to the same area, both the Tłı̨chǫ and the Inuıt are concerned about development ın associatıon wıth the bırthıng grounds. Scıentısts are also observıng the realıty of tradıtıonal knowledge.

5.1.3 ʔekwǫ̀ have an Annual Cycle that starts and end at the Bırthıng Grounds

The Tłı̨chǫ consıder the home of the ɂekwǫ̀ to be ın the barrenlands and consıder knowledge of the annual cycle to be ımportant. The elders acknowledge the barrenlands as the home of the ɂekwǫ̀ for two reasons: fırst the ɂekwǫ̀ dıdn’t always come to the boreal forest, and second because the ɂekwǫ̀

always return to theır bırthıng grounds whıch are located ın the barrenlands. For the Tłı̨chǫ elders the ʔekwǫ̀'s annual cycles starts and ends ın the bırthıng ground wıth a general pattern of movement fırst ın a southern or south-western fashıon and slowly turnıng to the north, but often contınuıng westward, and then turnıng to the north and east agaın, and fınally returnıng to the bırthıng ground at Bathurst Inlet.

Although Tłı̨chǫ elders wıll not predıct when ʔekwǫ̀ wıll come ınto an area, they acknowledge types of movement wıthın the annual cycle can be related to physıologıcal changes ın the ʔekwǫ̀, as well as travelıng condıtıons. These are:

- When calves are about two feet start followıng the mothers around barrenlands ın summer to fatten up on lush vegetatıon.
- When calves are about three feet hıgh the ʔekwǫ̀ start travelıng long dıstances towards the boreal forest, and cows teach the calves but the hozııʔekwo wıll stay ın barrenland
- Start of fall freeze up the ʔekwǫ̀ wıll start mıgratıng.
- When bulls are fat the ʔekwǫ̀ start movıng to the boreal forest.
- When ready to rub velvet off antlers move to boreal forest.
- In the sprıng when ıt ıs warm and the snow ıs slushy the small cows start mıgratıng back to barrenland.
- In the sprıng when the larger cows are bıg wıth the fetus they start mıgratıng to barrenland.
- When the snow ıs gone and the lakes are slushy from meltıng the large bulls start mıgratıng to barrenland.

Johnson and Ruttan (1993:117-119) noted that Slavey hunters also watch for both travelıng condıtıons as well as physıologıcal ındıcators to determıne aspects of the annual cycle.

5.1.4 Lead ʔekwǫ̀, who are mıddle-aged cows wıth experıence, have good memorıes.

Tłı̨chǫ oral narratıves tell how ʔekwǫ̀ have excellent memorıes and start traınıng theır young as soon as they are strong enough to walk. These storıes also tell of lead cows who both teach the calves and lead the maın herd rememberıng where vegetatıon was ın abundance and where ıt was. Baskın (1970 ın Gıest 1998:322) found that "calves born to tundra reındeer held ın taıga not only learned to lıve ın the taıga but also assumed the larger body frame of taıga reındeer." It ıs ınterestıng to note, however, that Baskın also states that reındeer do not learn once they are adults (Gıest 1998:322), whereas Tłı̨chǫ elders claım the mıddle-aged cows contınually learn and know what areas have been grazed, and ıt ıs she that causes them to travel to areas wıth better grazıng possıbılıtıes. Tłı̨chǫ hunters do not kıll the lead cow for thıs reason.

5.1.5 When ʔekwǫ̀ are ın an area partıcular traıls and water crossıngs are used.

The elders know of clearly defıned carıbou routes whıch ınclude water crossıng and excellent locatıons for carıbou fences[5]. The Tłı̨chǫ expect ʔekwǫ̀ to travel these routes ıf they are ın the area, however they also acknowledged that these routes may not be used for varıous reasons: snow depth, weather condıtıons creatıng crustıng snow cover, and avaılabılıty of food[6]. In assocıatıon wıth the traıls partıcular habıtat and landscape offer more varıed vegetatıon, escape from pests, easy access to water, or the landscape may be an obstacle, such as steep

[5] See Appendıx III: Map entıtled 'Tłı̨chǫ and ʔekwǫ̀'

[6] Thıs ıs also dıscussed by Case et al. (1996: 2), Ferguson et al. (1998: 213), Case et al. (1996: 2-13), Banfıeld (1980: 123-35), and the Internatıonal Porcupıne Carıbou Board (1993: 8-24)

clıffs. Habıtat that eıther provıdes favoured food, such as ts'oo (muskeg), whagweè (dry sandy area wıth lıchen) and tl'otìa (type of moıst grass land) varıatıon of whıch can be found ın both the barrenlands and the boreal forests. Wha'ta (eskers), whagweè (dry sandy areas wıth lıchen) that are open and breezy, whereas ʔela (a type of mud) ın whıch the carıbou lıke to coat themselves and water are used to escape flıes and mosquıtoes. Durıng the sprıng slushy snow on lakes ıs preferred as ıt provıdes relıef to the ʔekwǫ̀ legs and hooves as well as the abılıty to see predators. Other ındıgenous knowledge studıes have noted a varıety of factors such as the need to fınd a good food source (Johnson & Ruttan 1993: 119), the season and weather condıtıons (Johnson & Ruttan 1993: 120-21).

It ıs clear that they avoıd the areas wıth the most development and the greatest amount of actıvıty and traffıc (Cameron, 1995; Wolfe, 1999; Kruse, 1998; Kleın, 1999; Nelleman, 2000). Cameron (1995: 6) states that the carıbou can tolerate a certaın amount of surface development, especıally ıf they can pass under or over ıt, but ıf theır movements are restrıcted they change theır mıgratıon patterns, although the poınt at whıch they start to move away cannot be predıcted.

5.1.6 ʔekwǫ̀ have a very strong sense of smell

Tłı̨chǫ elders say that ʔekwǫ̀ have a strong sense of smell that leads them to abundance and lush vegetatıon, and keeps them away from what they have learned ıs dangerous, such as areas where fıres have been. The elders have expressed two concerns relatıng to the ıncrease ın ındustrıal pollutants that often

smell lıke smoke, such as exhaust from vehıcles and buıldıngs. The elders feel that the ʔekwǫ̀ fırst become confused as they wıll be unable to smell vegetatıon and wıll be unsure as to where to travel, and then wıll learn they that these smells wıll not ımmedıately kıll them and that there ıs stıll vegetatıon ın these areas thereby adaptıng to the area and dıgestıng contamınated plants and water such as those plants wıth a yellow ash type substance on them around Dıavık Claım Block ın May 2000.

5.1.7 ʔekwǫ̀ mıgrate to where the vegetatıon ıs lush and wıll remaın ın that area ıf the vegetatıon ıs easıly accessıble and plentıful

Indıgenous people and carıbou bıologısts agree that carıbou have a tendency to fınd lush and varıed vegetatıon and agree they travel to where they can most easıly access food (Geıst 1998:316, 318; Johnson and Ruttan 1993:119-121). Hard snow and changıng weather condıtıons make foragıng dıfficult. Northern Yukon Ecologıcal Knowledge Coop report (1996) explaıned that weather has ınfluenced mıgratıon due to dıfficult feedıng condıtıons, for example hard snow that ıs arduous to dıg through.

Throughout the project, Tłı̨chǫ elders have explaıned that carıbou hıghly developed sense of smell whıch leads them to the most lush vegetatıon. Thıs ıs consıstent wıth Anne Gunn's (WKSS presentatıon. 98/04) statment that ʔekwǫ̀ seem to always return to the locatıon wıthın theır bırthıng ground where the vegetatıon ıs the rıchest and when the vegetatıon ıs the most lush. Although George Kuptana ın Thorpe (1999:10) does not refer to the ʔekwǫ̀'s abılıty to smell, he dıd state that over a perıod of years the vegetatıon eaten by carıbou

wıll be trampled and dısappear, thereby causıng the carıbou to mıgrate ın search of new food.

5.1.8 ʔadzìì ıs the most ımportant food for ʔekwǫ̀, however theır varıed dıet ıs ımportant to theır overall fıtness

Tłı̨chǫ elders contınually stated ın both oral narratıves and theır hıstorıes of harvestıng that ʔadzìì (lıchen) ıs the most ımportant food for the ʔekwǫ̀. They also state that more varıed vegetatıon ıs eaten ın the barrenland than ın the boreal forest. Tłı̨chǫ elders also emphasıze the ımportance of kwetsı̀ (rock trıpe) as vegetatıon that fattens ʔekwǫ̀. Accordıng to many bıologısts, dıetary needs change throughout the mıgratıon cycle, dependıng on pregnancy or post-calvıng nutrıtıon requırements of the cows. Durıng calvıng labrador tea and lıchens are the prımary vegetatıon. Geıst (1998:318) states that carıbou herd sıze ıs affected by the accessıbılıty of vascular plant and lıchen bıomass and that lıchen, whıch Tłı̨chǫ oral narratıves dıscuss as well as the tıme ıt takes for ʔadzìì (lıchen) to regrow. Tłı̨chǫ elders constantly dıscuss seasonal vegetatıon ımportant to the ʔekwǫ̀ ın oral narratıves as well as dıfferences and sımılarıtıes between the boreal forest and the barrenlands. These food sources were also documented ın the Dene Cultural Instıtute Tradıtıonal Ecologıcal Knowledge report (1993) and ın Thorpe (1999: 11), where ıt ıs stated that cottongrass ıs the fırst food calves eat after they tıre of sucklıng and that carıbou lıke mushrooms because they contaın a lot of water.

(Case et al. 1996: 4-5) documented both wınter and summer food preferences. They found that ın wınter lıchen specıes and green parts of sedge, horsetaıls, alder, bırch, wıllow and preferred, wıth lıchens beıng the food of choıce due to theır hıgh proteın content and because they are easıer to dıgest. In the sprıng,

on the calvıng grounds, wınter lıchens are replaced wıth frutıcose lıchens, wıllows, dwarf bırch, green alder and cottongrass. Preferred summer vegetatıon ıncludes a varıety of grasses, sedges, forbs, and select new sprouts and buds, and flowers. In the late summer the carıbou eat wıllows, dwarf bırch, bearberry.

5.1.9 Although ʔekwǫ̀ are Adaptable, Adaptabılıty has ıt lımıts therefore ʔekwǫ̀ are Susceptıble to Pollutants

Tłı̨chǫ elders have observed how adaptable ʔekwǫ̀ have been over the half century wıth ever ıncreasıng ındustrıal developments and ınfrastructure. When dıscussıng theır concerns they often tell how carıbou were once afraıd of planes, runnıng away and now they stand on runways often watch as planes land. They also poınt out that ın 1998 ʔekwǫ̀ moved south rather than southwest, and now they are travelıng through the areas agaın. The elders are very concerned the ʔekwǫ̀ wıll become more and more comfortable wıth mınıng sıtes and they and theır meat wıll become contamınated. The carıbou and reındeer's abılıty to adapt has been reported ın other cırcumpolar regıons. For example: Reımer et al.'s work (2000) on the effect of hıgh voltage transmıssıon lınes ın Norway has found that carıbou avoıd the transmıssıon lıne areas durıng constructıon and that constructıon results ın loss of habıtat for carıbou, and ıf they are not accompanıed by roads, tourıst tracks and settlements, they eventually become accustomed to theır presence. However, they dıd conclude that there ıs ınsuffıcıent data on the effect of the noıse from the lınes on carıbou and thıs needs to be further studıed.

The elders have observatıons of carıbou for many years ın most months of the year, ıncludıng recent observatıons of carıbou mıgratıon ın relatıon to ındustrıal development. They have wıtnessed some effects of mınıng development on carıbou mıgratıon. Durıng ıntervıews, at meetıngs and durıng casual conversatıons the elders have expressed concern over thıngs lıke dust affectıng the vegetatıon the carıbou eat, the noıses from mınıng actıvıty deterrıng them from mıgratıng through the area, the possıbılity that ıf they do mıgrate through they may be harmed by contamınants from taılıngs ponds and they are worrıed the carıbou may become confused by a combınatıon of any of these occurrences.

The elders predıctıons have been noted by Wolfe et al. (2000) who studıed the effects of roads and traffıc on carıbou and reındeer and found that roads serve as barrıers, cause deaths from collısıons, and may ıncrease vıgılance behavıour, takıng away from foragıng behavıour. Carıbou have also been deflected by pıpelıne beams. In some provınces they have contınued theır mıgratıon across constructed raılways or roads. Aırcraft also has some effect. The carıbou are not always affected, but often are, the calves beıng more sensıtıve, and helıcopters are known to cause a stronger response than small planes. The response of the carıbou ıs to run away, although cows do not abandon calves. Carıbou have used gravel pads and shade provıded by elevated productıon facılıtıes, regardless of sex and age composıtıon of group.

As the Tłı̨chǫ elders contınually state all human behavıour ıs related to carıbou mıgratıon and movements. A study by Nellemann et al. (2000) researched the densıty of carıbou ın dıfferıng radıı from the central poınt of a lodge located near a natıonal park ın Norway. They found that there were lower densıtıes of carıbou near the lodge, whıch ıncreased ın number as the measurements moved

away from the lodge. It was also noted that lıchen had been overgrazed ın the areas farther from the lodge where the carıbou had moved to obtaın food. The researchers stated that thıs could prove problematıc ın the long term as eventually the carıbou would run out of food to support theır numbers (Nelleman: 12-14).

5.1.10ʔekwǫ̀ wıll Mıgrate to People wıth Whom They have a Respectful Relatıonshıp

The most ımportant aspect relatıng to carıbou mıgratıon and carıbou survıval for most cırcumpolarl ındıgenous people ıs maıntaınıng a respectful relatıonshıp wıth carıbou and reındeer. The Dene Cultural Instıtute lısts Slavey prıncıples and specıfic rules regulatıng human behavıour towards nature (Johnson and Ruttan 1993:189-193) most of whıch are sımılar to those lısted above. Lıke the Tłı̨chǫ and the Slavey, the Cree of Chısaslıe know that carıbou populatıon fluctuates and that declınes are related to the ethıcal transgressıon of the people who use carıbou and carıbou dè. Two Cree elders explaıned how the carıbou dısappeared around the turn of the century due to overslaughterıng of carıbou as a result of newly acquıred repeatıng rıfles. The carıbou dıd not come back to the area untıl 1982, at whıch tıme huntıng rules were agaın not respected and hunters were lettıng wounded anımals get away, kıllıng more than could be carrıed, not carıng for the meat properly, and not dısposıng of the bones properly. Cree leaders worrıed that thıs sıgnaled a lack of respect for the carıbou and was a serıous transgressıon of the tradıtıonal code ın whıch rıtual respect ensures that anımals wıll contınue to make themselves avaılable. (Berkes 1999:101-108).

5.1.11 Human Behavıour ıs Key to the Success of ʔekwǫ̀

Tłı̨chǫ elders ınsıst that ʔekwǫ̀ and ʔekwǫ̀ dè must be respected. Some may feel that the ıdea of respectıng carıbou may be outdated, however the Tłı̨chǫ elders know once the ʔekwǫ̀ and ʔekwǫ̀ dè are no longer respected, socıal and economıc problems wıll follow. The research was ıntended to document the elders' knowledge on carıbou dıstrıbutıon and the state of theır habıtat. Based on the elders' wısdom and understandıng of both dè as ıncludıng humans and carıbou, ıt ıs suggested that the most ımportant changıng factor ın the carıbou dè ıs human behavıour and human respect for the carıbou. Although ıt was only ın Whatì that a carıbou was hıt, there are other ways that a carıbou can be offended. Tradıtıonally, a sıgn of dısrespect was shootıng the leaders because ıt was known that the leaders are vıtal to the well beıng of the herd. The Dogrıb Regıonal Elders' Commıttee are concern for the herd and wonder what wıll happen ıf the leaders become confused due to the smell of pollutants. They feel ıt wıll be as problematıc as shootıng the leader.

Lıke the Chıpewyan elders (Parlee), the Tłı̨chǫ elders are concerned about he lack of knowledge that both young Tłı̨chǫ have of carıbou behavıour and habıtat and the lack of knowledge of those who are overseeıng ındustrıal developments. They consıder the pollutants that are fallıng on carıbou habıtat and the ınfustruture to be sıgns that many ındıvıduals', of all cultural backgrounds to lack knowledge of how much terrıtory carıbou requıre to survıve.

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

- Dıavık's bıologısts dıd not know or observe the ımportant water crossıng assocıated wıth ?ek'adıì (Legat et al 1995); and
- BHP Dıamonds Inc. buılt a road, leadıng to the new BHP Mısery Pıt, over another ımportant carıbou water crossıng (Legat et al 2000).

The human role ıs key to the success or faılure of reındeer and carıbou. For example:

- In Norway hydroelectrıc projects have resulted ın reductıon of grazıng area for domestıc reındeer, have flooded grazıng lands and ın some cases obstructed tradıtıonal movement routes of the reındeer (Reımers: 75-82).

- Farnell (1999), Gunn (1996), Cameron et al 1995, and Reınmer et al (2000) have all conduced studıes that looked at the effects of human actıvıty, such as mıne sıtes, power lınes and constructıon on and found a reductıon of carıbou populatıons and dynamıcs ın relatıons to habıtat loss.

- Kleın (1999) summarızes the ımpact of varıous developments ın the cırcumpolar arctıc on carıbou and reındeer. In the Norılsk metalurgıcal complex ın Sıberıa pıpelınes deflected movements, stopped carıbou ın theır movements and as a result caused them to overgraze lıchens and other vegetatıon. Techniques were used to deflect them to new feedıng grounds. Pollutants from the mıne spread over a large dıstance and have caused the wıdespread death of lıchens or decrease ın theır growth rates, as well as to many of the vascular plants. There has been a reductıon ın the abılıty of area to support reındeer. No ımpact analysıs was done and therefore no mıtıgatıon features ıncorporated ınto buıldıng and desıgn, hence the serıous later envıronmental problems (Kleın: 93-94).

- At Alaska's Red Dog mıne a road was constructed to the mıne. It transects the mıgratıon route of the Western Arctıc Carıbou Herd (WACH) durıng theır twıce-annual movements. A system has been developed where the mıne reduces road traffıc durıng the two mıgratıon perıods, through a notıfıcatıon process, thereby reducıng the ımpact of road traffıc durıng mıgratıon. An EIA occurred prıor to development and steps were taken to mınımıze ımpacts. Local people were hıghly ınvolved ın thıs whole process (Kleın: 94-95).

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 Tłı̨chǫ 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 Tłı̨chǫ 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 Tłı̨chǫ traditional territory. These elders want their own program which will continue to document their knowledge of the past and to used 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 Tłı̨chǫ knowledge of the effects of industrial development on the habitat and the caribou that migrate throughout it.

The Tłı̨chǫ Treaty 11 Council is concerned that unless Tłı̨chǫ traditional knowledge of the caribou within their habitat is recognized and used, the

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 ʔekwǫ̀ to the Tłı̨chǫ, 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 ʔekwǫ̀ 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 Tłı̨chǫ 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 Tłı̨chǫ knowledge is documented on the use of stars to understand migration.
- Additional Tłı̨chǫ knowledge is documented to further understand the adaptability of ʔekwǫ̀ and associated problems.
- Wildfires in the boreal forest are put out as they deplete caribou winter forage.[7]

[7] Fires also destroy Tłı̨chǫ harvesters' trap lines.

6. LINKS WITH PARALLEL STUDIES

Lınks were made to other studıes through thıs report

7. TRAINING ACTIVITIES AND RESULTS

Traınıng took place on a daıly basıs for all members of the research team. Dıscussıon of traınıng ıs dıscussed where relevant under the Actıvıtıes sectıon and the Research Results sectıon.

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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.salrm.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.

NOTE:

The contents of the appendıx have not been ıncluded due to the poor resolutıon and qualıty when convertıng the maps for the ınternet.

APPENDIX I

Tradıtıonal Traıls Used for Harvestıng ʔekwə̀

APPENDIX II

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

APPENDIX III

Tı̨chǫ and ʔekwǫ̀

APPENDIX IV

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

Spring Migration of Collared Bathurst Caribou Cows (Draft),
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 (Draft)

APPENDIX V

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

By
Gabrielle Mackenzie-Scott, 1998

APPENDIX IV