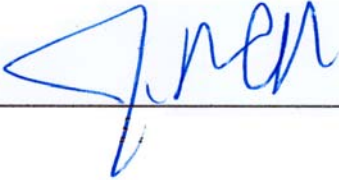


Re: Traditional Ecological Knowledge in the Kache Tue Study Region

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.



Study Director

Mar 28 / 02

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.




Reviewer

23 April 02

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.



Reviewer

11 June 2002

Date

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.



Chair West Kitikmeot/Slave Society

Oct 2 / 02

Date

Final Report
**Traditional Ecological Knowledge
in the Kaché Tué Study Region**



Submitted by:
Lutsel K'e Dene First Nation
Brenda Parlee, Marcel Basil and Nancy Casaway
Submitted to:
The West Kitikmeot Slave Study Society
June 2001

Executive Summary

The way of life of the Łutsël K'e Dene (Denesqłıne) is based on ways of knowing that have been passed on for generations. During the *Community-Based Monitoring Pilot Project (1996)* and the *Traditional Knowledge Study on Community Health (1997)* researchers in Łutsël K'e sought to learn more about the socio-economic, cultural and spiritual elements of the Dene way of life. The results of those projects suggest a range of indicators that can be used for monitoring change in the Dene way of life.

In addition to the socio-economic, cultural and spiritual relationships that exist among people, the Denesqłıne have a complex and sacred relationship to the land around them. By respecting this sacred relationship and recognizing the richness of the knowledge held by the elders about their traditional territory (Denesqłıne Nëne), much can be learned about the health of the land and how it is changing. Due to the expanse of Denesqłıne Nëne this study could only focus on one area described initially as Kaché Tué but has been defined more specifically through the present study as Katthinëne.

The data gathering of phase one of the present study followed the harvesting patterns of the Denesqłıne through the spring geese and duck hunting season, through the summer fish harvest, the fall caribou hunt at Artillery Lake (?edacho Tué) and the winter harvest of fur-bearing animals. During this phase, researchers learned about the history of Katthinëne as an area of great diversity and abundance. Among the most important lessons was the importance of respecting the land. Researchers learned that those people who respect the land and live according to the knowledge of the elders benefit from what the Creator has provided.

Phase two of the study focused more on documenting the oral history and legends about the land. These legends, presented in this report, provide us with tremendous insight into the spiritual and physical relationship that the Denesqłıne have to the land. Community researchers also worked to address gaps in what had been documented in the previous year related to the health of wildlife and wildlife habitat. Additional information was gathered about grizzly bear, raven, moose and beaver. On-the-land workshops and place research was done on the North Shore of Great Slave Lake, the Beaver Lodge at Artillery Lake and Aylmer Lake (Tł̄a Gai Tué).

Discussion of the results includes an overview of the results of this study as well as that of other related study on community health carried out in Lutsel K'e with funding from the West Kitikmeot Slave Study Society.

Table of Contents

Executive Summary	II
Table of Contents.....	III
Figures.....	V
Acknowledgements.....	VI
1. Project Description.....	7
Objectives	7
2. Study Area	8
3. Methodology.....	9
3.1 Training.....	9
3.1.1 Background	9
3.1.2 Data Gathering	9
Birds.....	10
Fish	10
Caribou	11
Fur-Bearing Animals	13
Phase Two.....	13
Species Habitat / Habitat Classification	13
Oral history related to the study Region;.....	13
Place Names and Travel Routes	13
Natural / Un-natural Changes (including impacts of development).....	14
3.1.3 Mini-Disc Recording and Video Recording.....	14
3.1.4 Translation / Transcribing	14
3.1.5 Data Management and Organization.....	15
3.1.6 Chipewyan Language Literacy and Translations.....	15
3.1.7 Mapping.....	15
3.1.8 Database Development.....	16
3.2 Coordination with the Local Leadership	17
3.2.1 Communication.....	17
3.2.2 Elders' Committee	18
3.3 Steering Committee Involvement	18
3.4 Reporting to the Community.....	18
3.5 Activities of the Year (1999-2001)	18
4.0 Results	21
4.1 Introduction.....	21
4.1.1 Traditional Ecological Knowledge of Kaché Tué	21
Sharing of Traditional Knowledge	21
4.1.2 Concepts.....	23
4.1.2.1 "The Land" (Nëne)	24
4.1.2.2 Denesqłıne Nëne - Katthinëne.....	24
4.1.2.3 Denesqłıne Relationship to the Environment.....	24
4.1.2.4 Respect for the Land.....	26
4.1.2.5 Natural Changes and Unnatural Changes (?edo / ?edo ?aja).....	28
4.1.2.6 Place Names.....	29
4.1.2.7 Themes and Indicators of Health of Katthinëne.....	32

4.2 Oral History of Katthinëne	41
4.2 Key Species and Habitats of Katthinëne	46
4.2.1 The Raven	46
4.2.2 The Beaver	48
4.2.3 Grizzly Bear	49
4.2.5 Moose	50
4.3 Places in Katthinëne	51
4.3.1 North Shore (Tué Nedhe)	51
4.3.2 The Beaver Lodge at Artillery Lake (?edacho Tué)	56
4.3.3. Tha Gai Tué - Aylmer Lake (Tła Gai Tué)	59
4.4 Indicators	65
4.4.1 Indicators of Land /Habitats	65
4.4.2 Indicators for Health of Migratory Birds	66
4.4.3 Indicators of Healthy Fish	67
4.3.5 Indicators of Healthy Caribou	69
4.5.1 Impacts from Mining Activity	72
4.5.2 Impacts from Climate Change	75
4.5.3 Additional Indicators	78
4.6 Community and Ecosystem Health	80

Appendix A – Map #1-10

Figures

Figure 1.	Study Region of Kaché Tue (katthinëne) and the Slave Geological Province	8
Figure 2.	On-the-Land Activities of Phase One	13
Figure 3.	Photo – Mary-Louise Nitah Caribou Hide Tanning at Łutsël K'e.....	25
Figure 4.	Map – Place Names.....	31
Figure 5.	Table of Themes and Indicators.....	40
Figure 6.	“How the Sun was Stolen by a Bear.” (Drawing by Clifford Michel 2001)	43
Figure 7.	The Legend of the “Old Lady of the Falls”.....	45
Figure 8.	“Old Lady of the Falls”.....	46
Figure 9.	Drawing of the Legend of the Raven.....	46
Figure 10.	Drawing – Raven Dancing at the Fire.....	47
Figure 11.	Drawing of the Beaver and Hachoghe.....	48
Figure 12.	Drawing of Legend of the Man and the Bear.....	50
Figure 13.	Travel Routes from the North Shore (Tué Nedhe) of Great Slave Lake.....	51
Figure 14.	(Inset Photo) Study Team Gathering on the North Shore (Tué Nedhe) (see cover)	51
Figure 15.	Winter Traveling through the Barrenlands.....	53
Figure 16.	Photo – Des Delghai on the North Shore (Tué Nedhe)	54
Figure 17.	Photo – Joe Desjarlais’s Cabin on the North Shore (Tué Nedhe)	55
Figure 18.	The Beaver Lodge at Artillery Lake (?edacho Tué).....	58
Figure 19.	Map of Aylmer Lake (Tł̄a Gai Tué)	60
Figure 20.	Abel Nitah – Sled Going Over the Snowbank.....	62
Figure 21.	Drawing – Fish Swimming under the Ice at Aylmer Lake (Tł̄a Gai Tué)	63
Figure 22.	Drawing – Caribou Coming out of the Crystallized Water	63
Figure 23.	Drawing – Geese / Ducks Landing On Aylmer Lake (Tł̄a Gai Tué).....	64
Figure 24.	Anne and Charlie Comparing Jumbo Whitefish and Whitefish.....	68
Figure 25.	Dene Way of Life and Katthinëne.....	82

*Cover Photo: (Left to Right)

Top: Andrew Preston, Charlie Catholique, Angus Lockhart, Marcel Basil, Matthew Abel,

Middle: Michael Rabesca, Brenda Parlee, Anne Kendrick,

Lower: Shawn Catholique, Noel Drybones, Maurice Lockhart, Joe Michel, JB Rabesca, Florence Catholique

Acknowledgements

Working with the elders of Łutsël K'e Dene First Nation has been a tremendously rewarding experience. Being on the land, in particular has given me unique insight into the complex northern environment. One particularly memorable experience came when I was working with the elders out in the barrenlands near Gahcho Tué, assessing land features and habitats. As we stared across the open landscape, our eyes periodically fell upon some massive boulders - some standing alone, some in perfectly round circles. They seemed to have dropped from the sky. In my very rational mind, there appeared to be no immediate evidence to suggest that they belonged there. Where they had come from? As I walked with the elders, I questioned them about these rocks. Alice Michel - just simply said, "The land is alive."

Łutsël K'e Dene First Nation

Elders' Committee and community members who participated in the study.

Łutsël K'e Dene Band - Chief and Council

Wildlife, Lands and Environment Committee

Dr. Fikret Berkes, Dr. Milton Freeman, Dr. Stephen Murphy

West Kitikmeot Slave Study Society

John McCullum

De Beers Exploration Canada (Shirley Pfister)

BHP Diamonds Inc. / Kitikmeot Meridian

Golder Associates – Robin Johnstone

*Archie Catholique, Bertha Catholique, Florence Catholique,
Lawrence Catholique*

*Marcel Basil, Ellen Bielawski, Shawn Catholique, Jeanette Lockhart, Stan Desjarlais, Alec
Enzoe, Anne Kendrick, Phil Lyver, Andrew Preston*

1. Project Description

Traditional ecological knowledge of elders and land users of Łutsël K'e Dene First Nation has been gathered about the Kaché Tué study region to define a baseline of knowledge about ecosystem health.

Objectives

1. Record knowledge of the Łutsël K'e Dene elders about the Kaché Tué Study Area (including species terminology, place names, traditional land use and ecological knowledge) and compile this information as *Elders' Stories about the Kaché Tué Area*. (Phase 1)
2. Record the TEK of Łutsël K'e Dene elders with particular emphasis on key species, their habitat and how they are affected by resource development. (Phase 2)
3. Develop and maintain a database and geographical information to ensure that the information gathered is accessible, understandable and useful both to the community and the West Kitikmeot Slave Study Society.
4. Use TEK in documenting changes in the Kaché Tué Study Area. This may involve developing indicators of ecosystem health including key species, their habitat and other key components of the environment.
5. Integrate the results of the Kaché Tué study (Phase 2) with the results from the *Community-Based Monitoring Pilot Project (1997)* and the *Traditional Knowledge Study on Community Health (1998)* in order to understand how resource development in the Kaché Tué Study Region may ultimately impact on the Denesųline people.
6. Draw implications from the results of the Kaché Tué study for the whole of the West Kitikmeot Slave Study region

2. Study Area

The study region was defined by the Łutsël K'e Dene Elders Committee in 1997. At that time, they expressed concern about the region between Kezus Tué and Desnethch'e (Cook Lake and Fort Reliance). On May 21, 1998 the Elders recommended that the current study be expanded to the area of Kaché Tué. The results from phase one however, extend even beyond the boundaries of Kaché Tué to an area elders call Katthinëne.

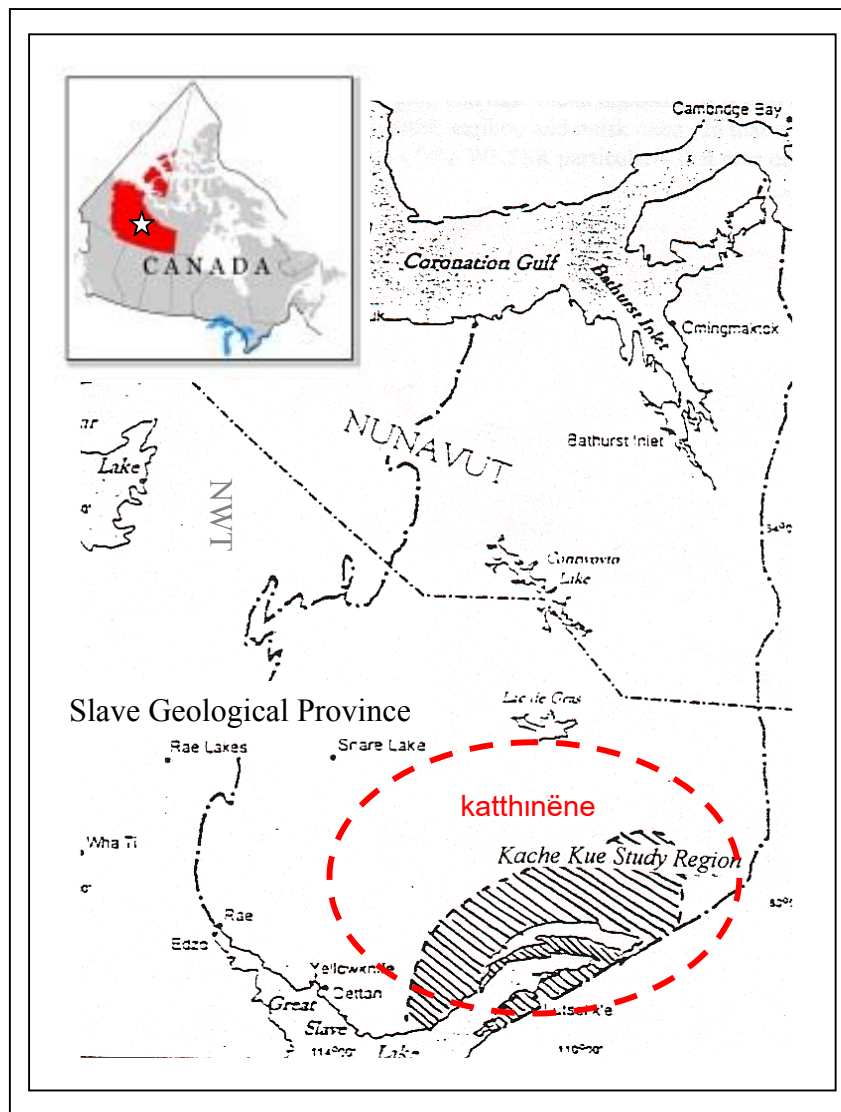


Figure 1. Study Region of Kaché Tue (katthinëne) and the Slave Geological Province

Katthinëne is the traditional territory of the Łutsël K'e Dene. They have lived and used this land for thousands of years. As one elder said during *the Traditional Knowledge Study on Community Health*, "Our footprints are out there". (ND July 9, 1997)

3. Methodology

The *Traditional Ecological Knowledge in the Kaché Tué Study Region* followed the Action Research (AR) methodological framework established during the *Community-Based Monitoring Pilot Project (1996)* and *the Traditional Knowledge Study on Community Health (1997)*. Although similar to Participatory Action Research (PAR), AR was more suited to the needs of the community and the context of why the research was being done. During the planning stages of the project, the Wildlife, Lands and Environment Committee defined the main interests and needs of the community as related to community participation. The main elements of community participation that were emphasized as important were, (1) training of local people;) coordination with the local leadership; and (3) broad participation of the community.

3.1 Training

3.1.1 Background

On-the-job training of local people has been fundamental to the development of the project. The goal of this training process is to ensure that skills and knowledge from the project are being developed and passed on to local people. These skills and knowledge are a means to increase the capacity of individuals and the community as a whole. The two full-time trainees on the project during phase one were Walter Desjarlais and Terri Enzoe. During phase two, Marcel Basil and Nancy Casaway were the primary researchers.

The training component of the study revolves around gathering, synthesizing and reporting traditional knowledge about the study area. Much of the April 1999 - March 2000 period involved training of the Community Researchers in:

- Conceptual Elements of TEK Research
- Data Gathering
- Mini Disc Recording and Video Recording (8mm)
- Translating and Transcribing (Word Processing using Chipewyan Font)
- Data Management and Organization
- Chipewyan Language Literacy
- GIS (AutoCAD / ArcView)

As both trainees have developed more skills and knowledge in areas such as data gathering and mapping, they have been able to pass on those skills to other community members who have worked on an interim basis while one or the other researcher trainee has been away on leave. Walter Desjarlais has developed particularly strong skills in Chipewyan language literacy, data management / organization and mapping. His contribution to the training of others as well as to the current results of Kaché Tué has been substantial and should be acknowledged.

3.1.2 Data Gathering

Phase One

The project proposal suggested that data would be gathered through small groups discussions or workshops with elders and land users. This method of data gathering was based on the assumption that elders and land users shared a common understanding about key areas of the study region. The details of each individual's experiences living on the land are very different however, which made the process of sharing knowledge in small groups difficult. During the early stages of Phase One, the Kaché Tué Elders' Committee suggested adapting the work-plan from small group discussions to individual interviews. "Visiting elders in their home where they can think quietly and tell their stories is a better way," they said. The decision of who to interview was based on the researchers' knowledge of community members and their experience in the study region. The capacity of the individuals to share their knowledge, to answer questions or describe the subject matter was also important.

Similar to the proposal the interviewing process followed a theme approach, which corresponded naturally with the Łutsël K'e Dene harvest calendar:

- Spring - Migratory Birds
- Summer - Fish
- Fall - Caribou
- Winter - Fur-bearing Animals

The first elders meeting preceded duck and geese hunting season. Elders felt it appropriate to concentrate our research immediately on migratory birds. Research during the summer season focused on the fish harvest. The fall focus was on caribou and in winter the researchers concentrated on fur bearing animals.

Birds

From the preliminary study, the community researchers were aware of the interest of the elders and hunters in sharing their knowledge about the diverse and abundant migratory birds in the Kaché Tué region. When asked about migratory birds, elders would commonly begin listing the various species of waterfowl, raptors, and songbirds they knew in the area. As such the interviews were essentially a close extension of the identification and Chipewyan terminology work done in the preliminary project.

During this project the community researchers established a systematic method of identifying birds with elders using photo cards they made from enlargements of drawings from the Peterson Field Guide. These cards enabled the researchers and the elders to easily keep track of which of the many birds the elders were discussing. Upon proper identification in Chipewyan, the community researchers asked the interviewees to share whatever knowledge they might have of the birds, including characteristic descriptions, personal experiences (stories) or legends. The elders shared the most stories about the birds most commonly harvested for food.

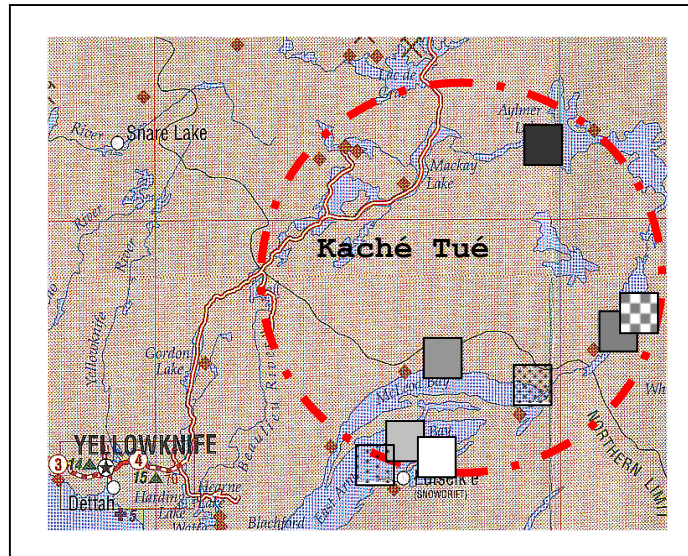
Fish

The interviewing process on fish built on work done during the preliminary study. A set of interviews were conducted to verify the Chipewyan terminology for each of those species as well as to gather information about characteristics of each species, map species related information and record details about traditional and current harvesting methods.

From these interviewees, the community researchers were told of the importance of properly fixing and drying fish. A workshop on the land with one elder and two land users was then held to document these important harvesting practices. Through this workshop, the community researchers were also able to document the Chipewyan names of each part of the harvested fish.

Caribou

The preliminary study revealed that the elders hold a great deal of knowledge about caribou. On that basis, the interview process for this project (Phase One) was therefore organized into three parts to provide ample opportunity to document this knowledge. First, a phase of preliminary interviews and a series of three workshops were held. Elders talked extensively about traditional harvesting of caribou, present day hunting practices, caribou migration, and concerns about caribou health and changes in migration. Much of this knowledge shared was based on experiences at Artillery Lake (?edacho Tué). The second part of the interview process was done through an on-the-land assessment. A camp was set up at Artillery Lake (?edacho Tué) - Crystal Island where a series of workshops and individual interviews were conducted. While there, the study team divided into three groups to spend time with the elders and hunters on the land. While in these groups, the study team worked with the elders to identify historical sites, areas of spiritual and cultural significance and areas where the Łutsël K'e Dene traditionally watch for and harvest caribou. The elders and hunters also shared further knowledge related to caribou harvesting and the proper ways to show respect for the caribou and their habitat.



- 1 **June 1999 - On the Land:** On-the-Land Workshop about Migratory Birds at Old Lutsel K'e Site June 03-06, 1999
- 2 **August 1999 –Great Slave Lake:** On-the-Land - Chipewyan / Data Gathering Session on Fish Aug. 20, 1999
- 3 **August 1999 - Fort Reliance:** Spiritual Gathering (On-the-Land) (No Data Gathering)
- 4 **September 1999 - Artillery Lake:** Researchers traveled to Artillery Lake with elders and families to interview elders and harvesters about caribou harvesting.
- 5 **July 2000 – Lutsel K'e (On the Land):** Researchers gathered with elders on-the-land near Lutsel K'e in spring to record legends and stories about birds and fish.
- 6 **August 2000 - North Shore of Great Slave Lake:** Researchers, elders and land users traveled on the North Shore (Tué Nedhe) of Great Slave Lake to record stories about key harvesting areas including portages and travel routes into the barrenlands.
- 7 **September 2000 - Artillery Lake:** Researchers traveled to Artillery Lake with elders and families to record specific information about caribou harvesting.
- 8 **November 2000 / January 2001 - Aylmer Lake:** Researchers gathered together with elders through workshops in Åutsÿl K'e to gather specific information about Aylmer Lake.

Figure 2. On-the-Land Activities of Phase One

Following this on the land assessment at Artillery Lake (ʔedacho Tué), a third set of interviews and two workshops were conducted to verify the results of the previous interviews about caribou, to fill in gaps and expand on elements of what had been collected.

Fur-Bearing Animals

The interviewing process on fur-bearing animals took place after the early winter fur harvest. Community researchers developed an interview guide for present day trappers as well as elders to find out more about traditional and current fur harvesting practices, and about the health of current fur bearing populations. Following these interviews, the community researchers held a series of verification interviews and workshops.

Phase Two

During Phase Two, the researcher gathered information from the elders primarily through home-visits. Workshops involving small groups of elders were also held to gather information and to assist researchers in compiling the results of the interviews.

The decision of who to interview was based on the results of phase one. During phase one, researchers learned which elders were best able to share information related to the study goals. For example, some elders have more knowledge about areas south -east of Great Slave Lake than elders who were raised in the barrenlands. The researchers' knowledge of community members and their experience in the study region also guided the interviewee selection. The capacity of each of the individuals to share their knowledge, to answer questions or describe the subject matter was also important.

The results of phase one provided preliminary indicators about the health of these key species (birds, fish, caribou, fur-bearing animals) in Katthinëne. In phase two, researchers focused efforts on filling gaps in the information provided about species health as well as:

Species Habitat / Habitat Classification

In addition to the species studied in phase one of the research, elders also provided valuable information about other wildlife including bear, wolf and beaver and the significance of these animals to the region and the Denesõline people.

Oral history related to the study Region;

The Łutsël K'e Dene elders shared stories and legends about katthinëne and the ancient Denesõline people during phase two of the study. This traditional knowledge provides valuable insight into the early history of the region, including events such as glaciation. These legends also highlight the important spiritual component of katthinëne.

Place Names and Travel Routes

There are many places in katthinëne that have important ecological, spiritual, social, economic and cultural significance to the Łutsël K'e Dene. Some places where these values seem particularly pronounced are at Artillery Lake (ʔedacho Tué), the North

Shore (Tué Nedhe) of Great Slave Lake and Aylmer Lake (Tłā Gai Tué). During phase two of the study, elders and researchers focused gathering of traditional knowledge at these three places.

Natural / Un-natural Changes (including impacts of development)

An important element of the study was the traditional knowledge elders shared about the changes they have seen in the katthinēne region. In addition to natural changes that elders see in the region, they spoke specifically about unnatural changes of impacts they see happening from resource development in the region.

The vast majority of the interviews were productive in terms of the detailed information that was provided. This process of selecting interviewees and evaluation of results has provided the researchers with a reference list of consultants for future interviews. Following these interviews, workshops were held with the Elders' Committee to verify the information that had been given, fill in gaps and/or expand on what had been collected.

3.1.3 Mini-Disc Recording and Video Recording

In order to ensure that the information collected was preserved for future generations, the Project Director and the community researchers invested in good quality recording equipment. A Sony mini-disc recorder and a Sony 8mm video camera, purchased by the Band previously, were the primary tools for information gathering for the project. Both the community researchers spent time examining and experimenting with the audio and video recording equipment. Although the researchers had to spend several days experimenting with the equipment, the video camera and disc recorder with the separate mike system proved well worth the investment compared with the sound quality from the average tape recorder. The recorded information on the mini-disc is also in digital format, which means that in future, a computer database including that being developed as part of the project could access the audio information. Only the mini disc recorder was used when interviewees did not want to be video recorded.

The community researchers found both the video recorder and the mini-disc recorder useful tools for gathering information.

3.1.4 Translation / Transcribing (Word Processing Using the Chipewyan Font)

Data from the interviews were translated and transcribed verbatim from the video and audiotapes into English. Key words, such as place names, wildlife and vegetation species were transcribed in both English and Chipewyan. *Accent 4.0* was the computer program we used to simulate Chipewyan (Denesłıne) characters.¹ Although ideally all data would have been transcribed in Chipewyan and entered into the database, such a project was beyond the capacity of the community researchers and the timeline constraints set out by the project proposal.

¹ The Dene Font (Accent 4.0) is now available online and can be download for free at: <http://members.tripod.com/~DeneFont/download.htm> (Courtesy to: Jim Stauffer: xjimst@ssimicro.com)

As part of the transcribing process, the community researchers were required to type their interview data into the computer. Since the computer skills of the researchers were fairly limited, a significant investment of time was spent introducing basic computer skills, and word-processing skills such as saving files. The Project Director invested time reintroducing basic English grammar skills so that the transcribed interviews could be easily read and understood.

3.1.5 Data Management and Organization

Audio and videotapes are numbered and stored in the research office. Each of the community researchers kept a logbook with weekly plans, daily log information and first drafts of all transcriptions as well as any other related notes. These log books are all kept in the community researchers' own files. Computer files are stored on the computer provided by the West Kitikmeot Slave Study Society and on floppy disks.

As an overall organization tool, an Excel spreadsheet was created detailing characteristics of each of the interviews including interviewer, date and the name and location of any audio or video tapes, computer file, maps etc.

3.1.6 Chipewyan Language Literacy and Translations

The objective of the *Traditional Knowledge Study in the Kaché Tué Study Region* is to document the traditional knowledge of Łutsël K'e elders and land users. This knowledge, by definition, passed on from generation to generation, is grounded in the language of the community – Chipewyan. The researchers' efforts to document traditional knowledge using the Chipewyan language have, however, been modest. While most interviews have been conducted in the Chipewyan language, the transcription of the interview data has been in English. The analysis of results as well as the communication of the results to West Kitikmeot Slave Study Society has also been in English. This is largely due to the fact that the Project Director is not fluent in Chipewyan. Since Chipewyan has developed through an oral tradition, the capacity of the local community members to read and write in Chipewyan is also limited. Given these limitations, the Study Team's use of Chipewyan has been limited to the recording of key concepts and elements associated with ecological characteristics of the study region.

The preliminary study conducted at Gahcho Tué in 1998, was focused almost entirely on the documentation of Chipewyan terminology. Through the interviews and workshops with the elders and land users in 1999, the Study Team has been able to verify names documented during the preliminary work, add to the lists of identifiable species, and build on the original set of concepts and classification schemes.

Translations for key concepts found in this report were developed and verified by the researchers during elders' meetings with the Chipewyan language literacy support of Archie Catholique.

3.1.7 Mapping

As proposed, a map symbology was developed detailing cabin sites, spiritual sites, habitats, valued fishing areas (nets), caribou crossings etc. Given that this phase of the project was primarily organized to provide elders and land users opportunities to share their knowledge of the study region, information collection was not easily tied to a symbology. As such the

detailed symbology proved to have limited use. Most often the elders provided descriptions and discussions of the various species, their health and any changes seen in their health. As such, only a small portion of the information is conducive to mapping.

The focus of the training evolved into the development of technical skills for digitizing, and manipulating data in layouts and databases. Rather than see information be sent out to Yellowknife to be digitized, resources were focused on establishing the capacity within the community. The technical training associated with the mapping component of the project was facilitated by Kitikmeot Meridian of Vancouver as a contribution of BHP Diamonds Inc.

Kitikmeot Meridian provided the research team with ongoing support and training in the use of AutoCAD and ArcView. Kitikmeot Meridian developed "User Guides" for the study, geared to our needs and data. Those guides detail the "how to's" of:

- Setting up the Digitizer
- Calibrating the digitizer, registering paper maps
- Digitizing
- Editing Data in AutoCAD
- Exporting Data to ArcView
- Importing DXF Files into ArcView
- Creating and Filling Out the Database in ArcView
- Merging Similar Themes Together into One Theme
- Working with Layouts

Research staff are now able to digitize the data they gather and create their own maps using AutoCAD and ArcView. With this new working knowledge of how to create digital maps from paper maps, organize, store and manipulate digital data, their understanding and capacity to gather accurate and useful mappable information has more than exceeded the expectations set out in our original project proposal.

3.1.8 Database Development

The design and development of a database was to be prepared by a consultant, taking into account the needs and objectives of the project. This work however, was not contracted to an outside source. The primary reason for this change was the presence and involvement of Anne Kendrick a PhD student from the University of Manitoba. Anne Kendrick is working with the Wildlife, Lands and Environment Committee on a project entitled *Lutsël K'e Information Management* that aims to aid the community in the development of an information management system that would enable community members to make best use of traditional knowledge and scientific information already collected in the community. Although Anne Kendrick's work has a broader focus, she was able to assist the Project Director to design a preliminary database for the Kaché Tué project. Her background in traditional knowledge research and information management provided a useful perspective. As the information collected expands, the database will evolve.

To date the components of the database include

- Project Name
- Interviewee
- Interviewer

- Date of Interview
- Form of Raw Data
 - Audio Disc Name
 - Video Tape Name
- Verified by:
- Date of Verification

Refers to Map(s) #:

- Scale Collected (e.g. 1: 250 000)
- Date of Data Entry
- Original Map (mylar, paper)
- Digitize (y / n)
 - Digitized by:
 - Data Digitized:
 - AutoCAD File Name:
 - ArcView File Name:

References to the Following Features:

- #1Feature Type / Description
 - English Name of Feature
 - Chipewyan Name of Feature
 - Feature Location (Latitude and Longitude)
- #2Feature Type / Description
 - English Name of Feature
 - Chipewyan Name of Feature
 - Feature Location (Latitude and Longitude)
- #3Feature Type / Description
 - English Name of Feature
 - Chipewyan Name of Feature
 - Feature Location (Latitude and Longitude)

Ensuring that the database reflects all characteristics of the data that has been collected was the key consideration. Kendrick followed principles of database design and management based on her own background research.² Developing the database such that it appropriately reflects the holistic perspective held by the elders is the continuing challenge, according to Kendrick.

3.2 Coordination with the Local Leadership

3.2.1 Communication with Band Council and Wildlife, Lands and Environment Committee

In addition to the training of local people the project methodology also included coordination with the local leadership. Coordination was achieved through communication and information exchange with the Łutsël K'e Dene Band Council and Wildlife, Lands and Environment

² Some useful references included:

Gwich'in Environmental Knowledge Project Database: <http://www.grrb.nt.ca/gekpdb1.html>

Arctic Borderlands Ecological Knowledge Co-op: An Overview: <http://taiga.net/coop/about.html>

Databases for Environment Analysis: Martyn Futter (Presented at EMAN Workshop - January, 2000)

Committee. They were primarily involved in over-seeing the data collection process including the evaluation of results, as well as the approval of reports destined for the West Kitikmeot Slave Study Society.

3.2.2 Elders' Committee

The Łutsël K'e Dene elders are recognized in the community as the primary holders of the traditional knowledge about the study region. Their expertise distinguished them as the best suited to advise on the appropriate focus of interview questions, methods of data collection, evaluation and verification of results.

Joint meetings were held with the Wildlife, Lands and Environment Committee and the Elders' Committee in the first month of the study to discuss the composition of the Elders' Committee, direction of the study including how the gathering of data should be conducted. While the preferred option of the Project Director was that the elders themselves select eight members to sit on an Advisory Committee, the decision of the elders was to include all of the elders. The Elders' Committee therefore functioned more like an "experts pool" that the researchers called together to discuss aspects of the project. The community researchers depended most heavily on the elders with the most experience in the study region. Those elders included: Noel Drybones, Madeleine Drybones, Alice Michel, Joe Michel, Madeleine Catholique, Jonas Catholique, Pierre Catholique, Maurice Lockhart.

3.3 Steering Committee Involvement

The Steering Committee (Dr. Fikret Berkes, Dr. Milton Freeman and Dr. Stephen Murphy) provided on-going support for the overall direction of the study. As well as having input into the development of the project proposal, the Steering Committee members have provided input on the results of the *Preliminary Traditional Ecological Knowledge at Gahcho Tué* and have received an interim report.

3.4 Reporting to the Community

The community researchers have aimed to make the project accessible to all interested community members. Meetings of the Elders' Committee have provided opportunities for members of the public to participate as observers. Where possible, on-the-land field trips have also included families, students or other interested members of the public. Similar to the *Traditional Knowledge Study on Community Health (1997)* the Project Director and Community Researchers maintained an open door policy to community members to facilitate informal communication about the project and its results. Young adults have been particularly interested in the mapping component of the project and can often be found peering over the shoulder of a researcher hard at work.

To share additional aspects of the study with the community, Marcel Basil prepared a video of excerpts from the video taped interviews and the on-the-land workshop on the North Shore (Tué Nedhe) of Great Slave Lake that provided the community with an entertaining and educational perspective on the project. This video was shown during the public meeting in November 2000.

3.5 Activities of the Year (1999-2001)

April 16, 1999 – Joint WLEC / Elders' Committee Meeting with Dr. Fikret Berkes

April 27, 1999 –	Joint WLEC Elders Meeting Regarding Project Personnel
May 1-4, 1999 –	Review of Project Results from: <ul style="list-style-type: none">• <i>Preliminary Traditional Ecological Knowledge at Gahcho Tué (1998)</i>;• <i>Voices from the Bay – Traditional Ecological Knowledge of the Inuit and Cree in the Hudson Bay Study Region</i>;• <i>Traditional Knowledge Study on Community Health (1998)</i>• <i>Scared Ecology by Dr. Fikret Berkes (Chapter 1)</i>
May 11-31, 1999 –	Preliminary Interviews with Elders about Migratory Birds
June 03-06, 1999 –	On-the Land Workshop #1 Migratory Birds at Old Łutsël K'e Site
June 5 – July 1, 1999 –	Follow-Up Interview with Elders on Migratory Birds
June 21-26, 1999 -	GIS Training (AutoCAD / ArcView)
July 7, 1999	Research Team Meeting with Dr. Fikret Berkes
July 14, 1999 -	Elders' Meeting – Preliminary Meeting regarding Methods for Data Gathering
Aug 03-10, 1999 -	Fort Reliance Spiritual Gathering
Aug 12-16, 1999 -	On-the Land Workshop #2 at Snowdrift River
Aug. 23-27 – 1999 -	Synthesis of Data on Fish
Aug. 20 – 1999	- Caribou Meeting #1
Aug. 23, 1999 -	Caribou Meeting #2
Aug. 26, 1999 -	Caribou Meeting #3
Aug. 31, 1999 -	Caribou Meeting #4 (Review of Methods for Workshop #3)
Sept. 1-19, 1999 -	On-the Land Workshop at Artillery Lake (?edacho Tué) (caribou)
Oct. 4-8, 1999 -	Reporting
Oct. 12-29, 1999 -	GIS Training
November 1999 -	Verification and Analysis of Interview Data
December 1999 -	GIS Mapping
January 1999	Interviews on Fur Bearing Animals
Feb.-March 2000	Verification and Preparation of Annual Report
April 2000 -	Report Writing and Preparation
May 1-12 2000 -	Preparation of Final Report
	Elders Advisory Meetings to Verify Results from Phase One
May 15-31, 2000 -	Follow-Up Interviews on Results from Elders' Advisory Meeting
June 2000 -	Joint Meeting with Elder's Advisory Committee, Wildlife, Lands and Environment Committee, Dr. Fikret Berkes and Dr. Milton Freeman
	Elders Advisory Meetings Define Specific Objectives -Phase Two
	GIS Training.
July 2000 -	Elders Advisory Meeting / On-the-Land Workshop Near Łutsël K'e
	Follow-Up Interviews on Species and Habitat / Oral History of Katthinëne
August 2000 -	Fort Reliance – On-the-Land Workshop –
	Oral History of the “Old Lady of the Falls”
August 2000 –	On-the Land Workshop – the North Shore (Tué Nedhe) of Great
Slave Lake	
Sept. 2000 –	On-the-Land Workshop at Artillery Lake (?edacho Tué)
Interviews on the Oral History of Artillery Lake (?edacho Tué) / Place names	
Oct. 2000 -	GIS Training
Oct.-Dec. 2000 -	Follow-Up Interviews on Tué Nedhe / ?edacho Tué Information Gathering
January 2001 –	Information Gathering on Aylmer Lake (Tł̄a Gai Tué)

February – May 2001 -
May 2001-Feb. 2002 -
Study Society

Verification and Report Writing
Edits and Revisions of Final Report for West Kitikmeot Slave

4.0 Results³

The results of the Traditional Knowledge Study on the Kaché Tué Study Region presented here are drawn from two years of work with the elders and harvesters of Łutsël K'e Dene First Nation.

4.1 Introduction

The area called Slave Geological Province by geologists and mineral resource developers is home to the Denesłıne (Łutsël K'e Dene). They call this land Denesłıne Nėne or Chıpeıyan land. This study focuses on the area of Denesłıne Nėne known as Katthinėne - the rich land. Straddling the border between the boreal forest and the tundra, Katthinėne is an ecosystem rich with a diversity of wildlife, and vegetation communities from many distinct eco-regions. The traditional ecological knowledge of the Denesłıne (Łutsël K'e Dene) who have lived on the land for thousands of years also provides a rich understanding of this environment.

4.1.1 Traditional Ecological Knowledge of Kaché Tué

The traditional ecological knowledge of the Łutsël K'e Dene is a system of understanding the local environment that has been passed on from elders to the younger generation for thousands of years. Traditional ecological knowledge systems are defined in different ways. This report highlights specific local knowledge of the Kaché Tué environment, their understanding of the elements and processes that characterize a healthy environment, as well as provides insight into the underlying values or worldview that guides the Denesłıne interpretation of health and change in the environment. These three dimensions of traditional ecological knowledge are woven together in this report.

Sharing of Traditional Knowledge

The main vehicle for passing on this knowledge has been the tradition of storytelling. Elders gathered together with the families, sharing their collective wisdom that was highly valued for its potential to unify the family, provide spiritual guidance and advise leaders.⁴

Today, storytelling and the passing on of traditional knowledge has diminished greatly from previous years. Government social policy, the residential school system, television and pressures for northern economic development have all been part of a systemic process of cultural alienation. Over the last two decades, traditional ecological knowledge has found a new voice as more and more people recognize its role in our understanding the changing environment.

Since 1984, Łutsël K'e has undertaken four major TEK studies including the documentation of archaeological values at Timber Bay (Jacobs 1986), the impacts of the Talston hydroelectric development (Bielawski 1993), the documentation of community health issues (Parlee and Marlowe 1998) and the present study. These studies of traditional ecological knowledge and

³ The transcripts from the elders' stories are not currently available to the West Kitikmeot Slave Study Society. Summary excerpts from these stories are included in the Discussion of Results. The results are found in a compilation of Elders Stories, and are available through the offices of Lutsel K'e Dene First Nation.

the process of video and audio recording elders' stories is a change for the Denesqłine (Łutsël K'e Dene) who depended on their oral tradition rather than written reports to pass on their knowledge. Elder Maurice Lockhart describes the way in which elders used to tell stories in the past.

Back from 1918 - I can remember how things looked. It was so different. Some people who don't care so much won't notice the changes. How we do things is also changing. We are supposed to be working together. My grandfather used to sit around together and think about these things and predict what would happen. That is what we are doing now; elders can predict what will happen in the future. Maybe our children will be very poor. We talk about a lot of things. What we are talking about is very important. Our grandfather used to talk about these things. (ML 05 11 00 MT)

Many elders recognize that it is a very different world than it used to be and feel it is important to collect the elders' knowledge before the land is affected by mineral resource development. Liza Enzoe for example, suggests that the information should have been collected prior to any development in the region.

You should have gathered this information before the mining companies came here. If we had all this information before it would have been better. Along time ago we lived differently. We don't do the same things now. The things we live on all come from the land. We are hoping these things will not be damaged. The government is controlling our land. If we work together - it may be better for our land. You get information from the elders - these are things we need to know. The elders are passing on and this research means their knowledge will be used in the future. You are doing something good here. (LE 08 30 99 MT)

Most of the elders see the necessity for recording their knowledge on paper so that future generations of Denesqłine will understand their perspectives. Zepp Casaway describes how different things are from the olden days and the importance of recording this knowledge today.

The report that has been put together is about our culture and our way of life. The documents show how we see things. The people here know exactly what is happening. When I was young - I didn't go to the store. I survived on the land. I put my snowshoes on in the winter and this is how we survived. Today it's not like the olden days. This document here won't go away. It will be around for many years. It tells what we understand about the animals and how they behave and how we live on the land... Some of

the young people don't know the whole story. The documents that are made will let them know it. We can pass on stories about the rivers and how they made a dam without our consent. [Talston Hydroelectric Development]. That dam in that area has damaged the area. That area used to be good for hunting - Now it's ruined. We have told the government but they said it wasn't their fault. We also tell stories about the mining exploration and how they are working out there without the consent of the government. When we talk about the land, these are the things we are talking about... We are not playing around. It is not a game. What we are talking about - it is very serious. The elders know what is happening. The stories that have been collected tell what has happened in the past. (ZC 28 06 00 MT)

The stories told by elders during the present study often recount their personal experiences or those of grandparents and great-grandparents. These stories are important because of the specific knowledge they share about wildlife, places and events in the region. These stories are also significant because they are metaphors for understanding the complex spiritual and physical interactions between the land, wildlife, water, air and the people of the land.

The following excerpt from an interview with elder Pierre Catholique provides specific information about the caribou migration route. The story also provides insight into the spiritual and cultural significance of the caribou coming to meet the respected hunters.

...and my grandfather (Gahdële) said, "We are going to see caribou now - Look around," he said. He knew the caribou were here. Sure enough you could see caribou on the hills and at (tha cho k'e) a little further down from there we went ashore and there were many caribou there...The hills were covered with caribou migrating, coming this way. After harvesting a few of them we traveled back to our camp -after dark that time. (PC 09 15 99)

It is these stories told by the Łutsël K'e elders that are the basis of this research on the Kaché Tué Study Region.

4.1.2 Concepts

Some overarching concepts emerged from the elders' knowledge about the Kaché Tué system. They include:

- Land (nëne)
- Denesqłine Nëne – Katthinëne
- Denesqłine Relationship to the Land
- Respect for the Land
- Natural and Un-natural Changes in the Land
- Place Names

4.1.2.1 "The Land" (Nēne)

One concept used to talk about Katthinēne is nēne which is commonly translated as "the land". In addition to the ground itself and the vegetation covering the land, nēne appears to refer to everything that depends upon or affects the land including changes in the weather, climate, animals and people that depend on the land to survive. There is also a cultural and political aspect to the definition of nēne as described here by elder Pierre Catholique.

"This land here is our land as I have said before. I grew up here at Artillery Lake (?edacho Tué)." (P Catholique 09 15 99)

During a previous study, elder Maurice Lockhart also described the emotional and spiritual elements of the land.

When the loneliness comes to you, you've got to do something to take your mind off it. Maybe take a walk out in the forest. When you get up to the top of the hill and you see all the beautiful scenery around you, like the trees, mountains, lakes and shores, its so beautiful, it makes you wonder, "Who did this all for me?" (M Lockhart 04 21 97)

The use of the word nēne reflects a very strong wholistic sense of the study region, and serves as an important conceptual starting point for interpreting the results of the study.

4.1.2.2 Denesōłine Nēne - Katthinēne

Katthinēne is the area of Denesōłine Nēne (Chipewyan Land) that elders describe as rich with resources. People would always go to Katthinēne to harvest caribou, to trap for furs - traveling by dog team, by canoe and on foot. People always knew they could find food in that area. Katthinēne is an older word which the elders use but is not commonly known by the younger generation. Other common references or spellings for Katthinēne include katinēne or kakinēne which means the area at the end of the lake.

4.1.2.3 Denesōłine Relationship to the Environment

The Denesōłine relationship to the land has many different social, economic cultural and spiritual dimensions. One important relationship that was researched during this study, by community researcher Nancy Casaway, was the relationship between Denesōłine women and the caribou and the preparation of caribou hides.

Tanning Caribou Hide

1. *Cut the hair off the hide then soak in water for one to two nights. The procedure of soaking hide in water is to soften the flesh and to wash the blood out, you well need to wash the blood out completely or the hide well not get soft when tanning.*
2. *Both sides of the raw hide scraped by a bone tool, until the hide is very white.*
3. *For step three you well need to boil caribou brains and sunlight bar of soap, once the contents is cooled off then put the hide in the boiled brains for an hour.*
4. *Hung the hide outside for the wind to dry, the best time is in the fall and spring time. Take down when the hide feels dry and paper feeling. Bring the hide inside and lay it flat over a rack for over night.*
5. *Take the hide out of the water, place on tarp, pull hide over a post begin scrapping hide with a bone tool. Scrape the hide on both sides then wrung out the hide with a stick.*
6. *The hide is stretched by hands frequently until the hide gets soft and dry.*
7. *The hide can be smoked or left white.*

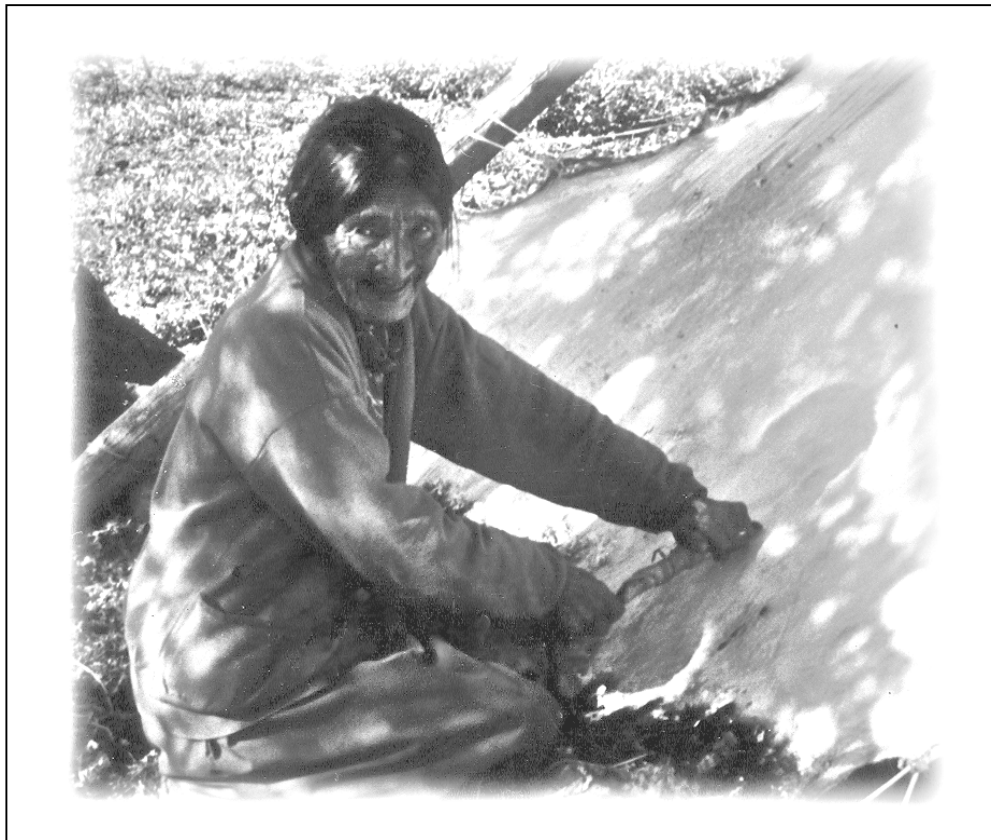


Figure 3. Photo – (Late) Mary-Louise Nitah Caribou Hide Tanning at Łutsël K'e
(Photo – Evelyn Marlowe 1998)

4.1.2.4 Respect for the Land

Among the most important lessons learned from the elders is the importance of respecting the land. Researchers learned that those people who respect the land and live according to the knowledge of the elders benefit from what the Creator has provided. Respecting the land for the elders is a way of expressing their thanks to the Creator for the land, water, and wildlife. Part of that respect is built upon a cultural identity that is closely connected to the land. Stories of Łutsël K'e Dene history on the land are very powerful for the elders. It is very important to them that others understand that they were born and survived on this land. Pierre Catholique describes his history at Artillery Lake (?edacho Tué).

This land here is our land as I have said before. I grew up here at ?eda cho Tué (Artillery Lake). I'm very experienced in this area and I've been everywhere and have seen it all. I know my way around this area very well. Some people talk and tell stories then say they have seen the area around here but they have never been here. I myself grew up here with Jonas Catholique, Joe Michel, (Dzo dzi) John Michel and some have passed away - we all grew up together at our homes here at ?eda cho łaze (Timber Bay). (P. Catholique 09 15 99)

Respect is also based on a spiritual connection or a deep understanding of the land, water, and wildlife as alive in the same way that people are alive. Many elders spoke about how the Denesųłine share a common language and song with the animals and the land. Pierre Marlowe explained this connection during the spring workshop at the old site of Łutsël K'e.

In the olden days, all the animals including the birds, used to talk like people. This was at the same time in history when the fire was alive. If you wanted a fire, all you had to do was call to the trees and the wood would come running and make a fire for you. One time a piece of wood hit a man by mistake. The man got very mad and started hitting the stick. After that the wood would not longer make fires for the people. (P. Marlowe 06 03 99 Mtg.)

The elders told many stories about the value of respecting the land, water and wildlife and the implications of not showing respect.

In the past, people used to really watch things - respect. They knew not to chase the caribou too far. If they chased a caribou on one day - they knew they would have to shoot it on the next day. If people chase the caribou with the skidoo, they become stressed; it affects their lungs. They become sick - like pneumonia. We should teach the young people these things. Our main source of food is the caribou. If we lose the caribou, we will be pitiful. (ND 09 18 99)

Upon hearing geese flying overhead at Artillery Lake, JB Rabseca recounted a story about what happened to a man who did not show respect for migrating geese.

Hey! - Geese you can hear them! In the olden days when you hear them fly over, they would say .hey - come fly over me again next year.. They would tell them. This is what has been told. One time when everyone was calling out like this, there was this one person who was skeptical about believing. So he said, .Hey! Next year don.t fly over me again!. The next spring before the geese flew over that man died. And this is what happened. So this is why you have to talk to the geese well when they are coming from the south or the north. These are important words in the Denesqłine language. (JB Rabesca 09 15 9)

The elders expressed tremendous worry about the failure of non-Denesqłine to show proper respect for the land. Pierre Marlowe expressed his fear about how improper respect for the land shown at Stark Lake is affecting people.

The fish in Stark Lake are a problem. Since the mine [uranium exploration] was put there in the past the fish are different, the water too. In another ten years, maybe we won't be drinking the water from our own lake. There are lots of elders who have passed away from cancer already because of it. (P. Marlowe 04 20 00)

Some elders fear the lack of respect for the land will limit their ability to harvest.

The caribou today are kind of different from the past. Last year there was lots around ŁutsėłK'e. The caribou seem to know the people now. Before they used to come amongst the people. That didn't happen last year. Maybe it will get worse in the future. Now there are new mines coming up. (JB Rabseca 09 15 99)

The elders also teaches us about the importance of loving, respecting and protecting the land, as one would an "old lady". The belief in the land as a spiritual or supernatural power that can strengthen, heal and provide hope to people who are not well is also very important to the Denesqłine relationship to the "Old Lady of the Falls".

People go there to ask for help. They also give her some things in return. They also go there when they have cancer to ask her for help. They drink the water then they give her something in return. (AJC 1998)

The Lockhart River has been here a long time, Our ancestors (Old Lady setting in the falls). Some times she feeds people by killing big game, caribou, moose, by drowning them in the river and sending it down the river for people to pick it up at the mouth of the river. Until today it's still the same, if you ask for help, she'll hear you any where you are, she's there to help people. When I was a young man I remember traveling with my parents (decease)

by canoe paddling. We would sometimes paddle to the mouth of Lockhart River and find dead floating caribou. The old lady had fed us today and we give thanks. The caribou was fresh and the weather was good at that time. Not long ago she gave us, moose floating down river that time there were a lot of people traveling. All the people ate moose meat and gave thanks. We have good use for her to be among us out here at Lockhart River. She helps people in every which way she can. Today we still visit her every summer to pay our respect for our people, our health and to be strong in our spirit. The Denesqłine, believe she's a spirit that helps all walks of life, even nature and animals. If some one is sick people help that sick person in taking him or her to the falls and leave him or her over night to heal, that time there was a teepee set up back then. In order for here to help you would have to confess all your sins, just like going to church for confession. That is how it's been done to this day. During the winter you can see smokestack from a distance that has caused the rocks around the falls to darken. People who travel looking for caribou during the cold winter months ask her for help if they can't find the caribou around the Lockhart River. The smoke points straight up and at the tip it bends in every which way it points and that's where the caribou is. The people go that way to find the caribou. Once we built house around the mouth of the river, that time we had good life then, some of the log cabin is still standing, there are all types of stories about the Old Lady in the falls. (ML 08 00)

In the past, the "Old Lady of the Falls" was a common gathering place. People would pass through the area often, particularly on their route into the barrenlands. Today community members still visit the falls regularly and recognize the "Old Lady of the Falls" and its spiritual power as a fundamental part of their cultural identity.

It makes sense to me - my identity as a Denesqłine person - I want things the Denesqłine way. I ask myself, "Why am I Denesqłine?" "Why am I Chipewyan?", "What is my spirituality?" I think about these things rather than have things imposed on me. [I think it is important for] spiritual reasons. In my life, I have struggled through different social issues. I looked to the "old lady" to get help and guidance for a better life. There is also hope to heal the community with the annual gathering. (AC 1998)

This rich perspective of respect underlies all the information collected about the study region.

4.1.2.5 Natural Changes and Unnatural Changes (?edo / ?edo ?aja)

One useful perspective that emerges from the elders' discussions about Katthinëne is the idea of natural change and unnatural change. ?edo simply means changes. The word is often used for example, to talk about things that change seasonally. The elder Eddy Catholique spoke about natural changes in the population of fish in Great Slave Lake.

Now there have been a lot of fish in the past two years. Fish are just like people - they stick together. They travel together. If you catch one on a hook you can turn around and go to the same place and you'll probably catch another one there. (E Catholique 06 29 99)

The elder Noel Drybones describes a natural differences and changes in the whitefish.

In late September, there is a lot of fish - whitefish and jumbo whitefish. Sometimes the backbone of the whitefish is bent on in a hump because the fish is so big. At ____ there are a lot of these jumbo whitefish, which weigh about twenty pounds or so. At ____ and north of Cook Lake, there are only small whitefish. (ND 08 25 99)

ʔedo ʔaja is translated as "something has happened to it" and suggests that something unnatural is happening.

There used to be so many ducks and geese in the past compared to today. We will see in the springtime how many ducks pass by us. Wild ducks - they come here when the ice is melting. Something must be happening to them where they are migrating in the south. That is why there are not so many. (A Michel 04 20 00)

One hunter described his late grandfather's prediction that something would happen to the caribou.

The herd migration is changing very fast. Even on the barrenlands the migration is changing. A while ago in the fall people seen caribou tracks and looked around and saw nothing. Before when people saw caribou tracks, they would see one or two caribou and then a couple of days later the whole herd arrives. It would just feel like the ground was moving. Now a days it is not like that. It is very hard to keep track of the herd. My late grandfather once said, .In the near future the animals are going to change.. I think this change has already started. (HC 02 02 00)

This recognition of natural and unnatural change is also elemental to understanding the results of this study.

4.1.2.6 Place Names

Place names are also important reference points for understanding the region of Kaché Tué. During the Kaché Tué study, elders identified many place names in katthinëne, including areas around Tłagai Tué (Aylmer Lake), ʔedacho Tué (Artillery Lake) and the North Shore (Tué Nedhe) of Tué Nedhe. As in the preliminary study at Gahcho Tué, we used a 1:250 000 scale map to document place names the area via the Des Delghai (Barnsten River), The Cho Tłázi

(Big Stone Bay) and ?eneTué thek_l. They placed the names of the other major lakes in the Katth'i nëné area including Kezus Tué (Cook Lake), Datthi Tué (Walmsley Lake) Denehesdah Tué (Taylor Lake) Tłagai Tué (Aylmer Lake), and Fletcher Lake (Tué Cho). They also defined tsudaí chënë (spruce stands – picea empetrum) in the barrenlands where people in the past used to make Dēne Kųnk'é (winter camps) for trapping and hunting.

The many place names (1000 +) that were documented during this study are being integrated into the Geographic Information System. Due to the proprietary nature of this information, the results are not currently available to the West Kitikmeot Slave Study Society. Like indicators, place names tell us a story about a particular area. As well as having social and cultural significance, place names can have ecological reference. ?edacho is a very good example of a place name of ecological significance; it tells a story about caribou migration and the importance of Artillery Lake (?edacho Tué) as a caribou crossing.

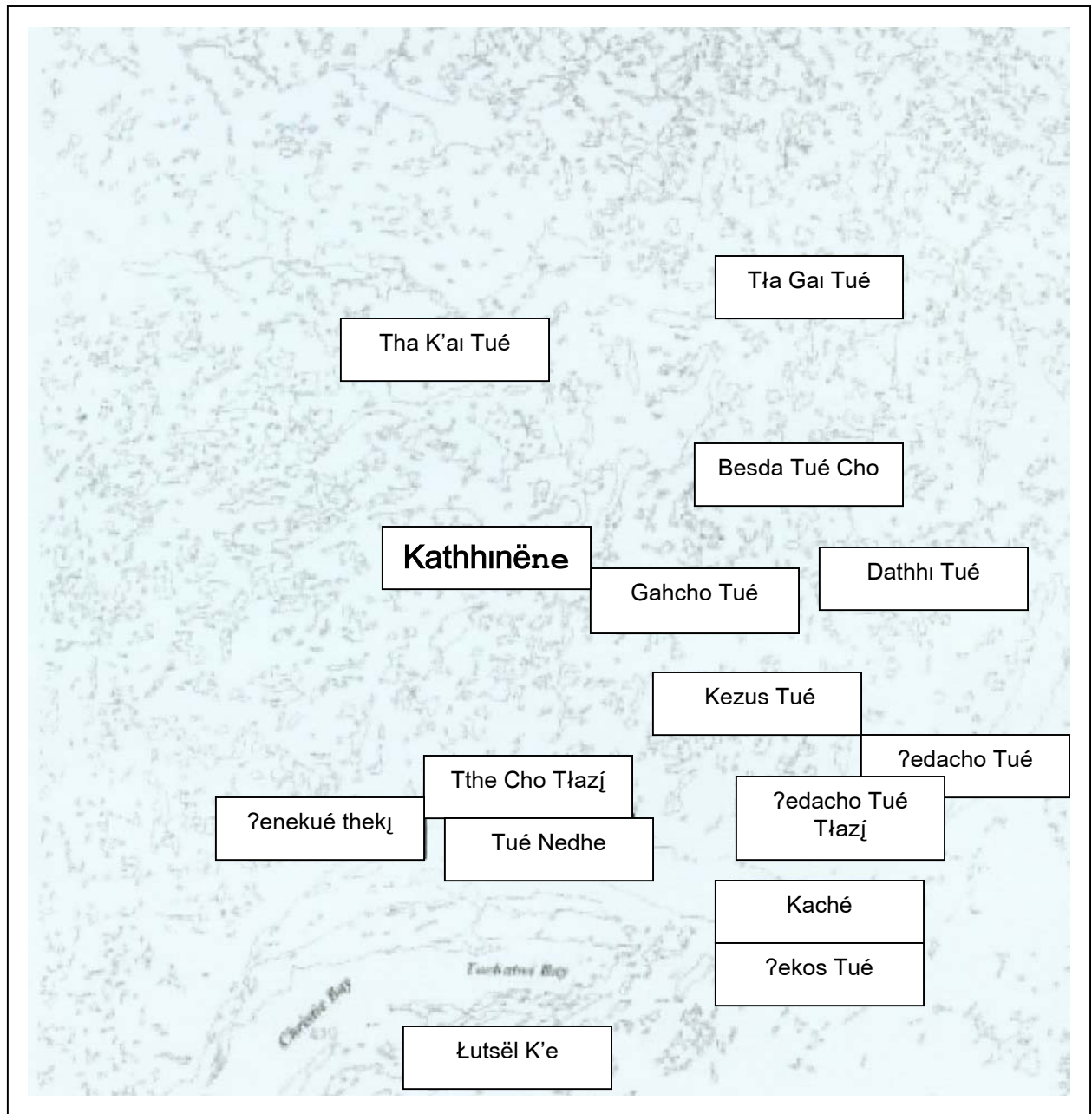


Figure 4. Map – Place Names

4.1.2.7 Themes and Indicators of Health of Katthinēne

The traditional ecological knowledge about katthinēne has developed over generations. This knowledge includes a wealth of information about the land, water, wildlife of the region including indicators of ecological health.

Katthinēne	<i>Denesq̄line Nēne</i>	<ul style="list-style-type: none"> • Chipewyan land
	<i>Everything is connected</i>	<ul style="list-style-type: none"> • the spiritual world and the physical world including the land, water and wildlife are all connected

Species of Katthinēne	Birds	Fat <ul style="list-style-type: none"> • fatty skin under the feathers means a healthy bird • higher nutritional value
		Diversity <ul style="list-style-type: none"> • Spiritual significance (many different voices of birds is a gift from the Creator)
		Population <ul style="list-style-type: none"> • abundance of migratory birds means a healthy population • greater ease of harvesting • security of an abundant food source
		Migration <ul style="list-style-type: none"> • pattern of migration including time of year and consistent use of staging areas suggests a healthy population and healthy habitat • security of an abundant food source • ease of harvesting

	Łuwe (Fish)	<ul style="list-style-type: none"> • Size / Shape: Length / weight ratio (some natural variation in study region) (no deformities) • Population / Diversity: balance of species in the system • Fat: fat around organs – sign of good health; good water quality • Clean / Organs: parasites; infection; deformity – sign of poor health • Colour / Texture – Flesh: Darker red meat of trout is preferred;
--	--------------------	---

Species of Katthinēne	Etthēn (Caribou)	<p>Etthēn ha ?enalze (Knowing the animal)</p> <ul style="list-style-type: none"> • Bełtsicho – old bull • Yalghus – younger bull • Ts'udą - cow • Deyeth ?aze - teenager • Tthaze – 2 year old • Betsi?aze – less than a year <p>Population</p> <ul style="list-style-type: none"> • Number of caribou (size of migration, groups) <p>Fat</p> <ul style="list-style-type: none"> • Busy antlers • Wide chest • Good looking hair • Short tail • Not skinny 	<p>Natural pattern of migration</p> <ol style="list-style-type: none"> 1. ?enil?as – caribou returns 2. Etthēn narilya – whole migration stops 3. Bedé ne she – growing antlers 4. Deladzine ?enich'ú – caribou velvet comes off 5. Bedé hegun – antlers dry up 6. ?ek'endalde – ?ek'enalde 7. Ts'an ją – ts'an ją 8. Narilya – winter feeding 9. Nałas - nal?as 10. Tsi hal?as (betsi) – tsi ha?as <p>Sites</p> <ul style="list-style-type: none"> • Integrity of caribou crossings, caribou blinds, corrals, small-treed areas, over-wintering grounds
------------------------------	-------------------------	---	---

<i>Species of Katthinēne</i>	Fur-Bearing Animals	<p>Population / Diversity Nunı (wolf) Nâghai (wolverine) Ts'ibā (white fox, arctic fox) Nagithe (red fox) Chiz (lynx) K'eá K'aile (weasel) Tha (marten) K'lath chus (mink) Dzin (muskrat) Numbı (otter) Ts'a</p>
------------------------------	----------------------------	--

<i>Species of Katthinēne</i>	Raven	<ul style="list-style-type: none"> • trickster; arrogant; greedy; associated with powerful medicine
	Beaver	<ul style="list-style-type: none"> • Chased by Hachoghe through the Lockhart River
	Grizzly Bear; Wolf	<ul style="list-style-type: none"> • Protector; dangerous • Bear seems to eat anything now • Does not seem afraid of people anymore
	Moose	<ul style="list-style-type: none"> • More moose toward the barrenlands

Species Habitat	flat land	<p><i>travel / setting camp / gathering berries, medicines</i></p> <ul style="list-style-type: none"> • <u>barrenland sheltered with small trees</u> - setting camp • <u>treeline sheltered with drywood</u>- setting camp • <u>high ground</u> - (seeing) • <u>barrenlands / high ground with large boulders (k'a)</u> - caribou hunting
	wet land	<p><i>gathering berries, medicines / hunting</i></p> <ul style="list-style-type: none"> • <u>hummock</u> - berries / medicines / mosses • <u>barrenland marsh</u> - geese / ducks (hunting) • <u>treeline marsh</u> - moose / muskrat / beaver habitat (hunting)
	rocky areas	<p><i>gathering berries, medicines, hunting</i></p> <ul style="list-style-type: none"> • <u>barrenlands round rocky areas</u> (hare / ground squirrel, ptarmigan... habitat) - hunting • <u>barrenlands pointed rocky areas</u> (hare / ground squirrel / ptarmigan habitat) - hunting
	Eskers	<p><i>travel / setting camp / gathering berries, medicines</i></p> <ul style="list-style-type: none"> • <u>esker sides</u> - (wolf, whitefox habitat) - • trapping/ hunting / shelter / setting camp) • esker tops (traveling / seeing / hunting)

North Shore (Tué Nedhe) of Great Slave Lake	Indicators of Denesq̓ine Nēne	<ul style="list-style-type: none"> • travel routes and portages • Denesq̓ine trails • cabins, tent rings • campsites • travel markers (scarred trees)
	Ecological Indicators	<ul style="list-style-type: none"> • edible and medicinal plants (blueberries / cranberries / raspberries, spruce gum etc.) • height of land (viewing caribou) • caribou trails • bays / moose habitat • good fish habitat (whitefish) • eagles nest • narrows / open water (kałdële)
	Spiritually significant areas	<ul style="list-style-type: none"> • graveyards • sacred water – Desnethch'e Deze (Lockhart River) • Old Lady of the Falls (Tsank'ui Theda) • Special places – Betsı Ghie

ʔedacho Tué (Artillery Lake)	Indicators of Denesq̄line Nēne	<ul style="list-style-type: none"> • cabins at ʔedachoghe (timber bay) • campsites, tent rings • Gahdēle's Canoe • trails • arrow heads
	Ecological Indicators	<ul style="list-style-type: none"> • caribou trails • ʔeda / ʔedacho (caribou crossings) • Thai t'ath (eskera) / denning sites • edible and medicinal plants (blueberries / cranberries etc..) • treeline • height of land • k'a (waiting places) • ts'u ʔaze dī ʔa s̄l (timberstands)
	Spiritually significant areas	<ul style="list-style-type: none"> • Beaver Lodge • Hachoghe's Shovel • Graveyards • water of Artillery Lake (ʔedacho Tué)

Tłá Gai Tué (Aylmer Lake)	Indicators of Denesqłine Nēne	<ul style="list-style-type: none"> • campsites, tent rings • Denesqłine trails • traplines • arrow heads
	Indicators of ecological significance	<ul style="list-style-type: none"> • caribou trails • ?eda / ?edacho (caribou crossings) • Kaldēle (open water) • Leriyah da Tué • Thai T'ath (eskers) / denning sites • rich vegetation / edible and medicinal plants (blueberries / rosehips, labrador tea etc..) • treeline • migratory birds, loons, swans, geese • height of land • k'a (waiting places) • na yahge (rocky areas) • ice ridges • ts'u ?aze dı ?a sɿ (timberstands)
	Spiritually Significant Areas	<ul style="list-style-type: none"> • sacred water of Aylmer Lake (Tłá Gai Tué)

Tłá Gai Tué (Aylmer Lake)	Indicators of Denesqłine Nēne	<ul style="list-style-type: none"> • campsites, tent rings • Denesqłine trails • traplines • arrow heads
	Indicators of ecological significance	<ul style="list-style-type: none"> • caribou trails • ?eda / ?edacho (caribou crossings) • Kaldēle (open water) • Leriyah da Tué • Thai T'ath (eskers) / denning sites • rich vegetation / edible and medicinal plants (blueberries / rosehips, labrador tea etc..) • treeline • migratory birds, loons, swans, geese • height of land • k'a (waiting places) • na yahge (rocky areas) • ice ridges • ts'u ?aze dı ?a sɿ (timberstands)
	Spiritually Significant Areas	<ul style="list-style-type: none"> • sacred water of Aylmer Lake (Tłá Gai Tué)

Resource Development	Water	<ul style="list-style-type: none"> dams, flooding on-ice drilling disturbance of water; Spills (oil etc.) on ice on-land spills (drain into the water) 	Wildlife	<ul style="list-style-type: none"> Animals eating garbage at mine site Increase stress on wildlife; migration changes, accidental deaths
			Fish	<ul style="list-style-type: none"> fish dying from lakes being drained, explosions,
	Vegetation	<ul style="list-style-type: none"> Loss and contamination of vegetation around mining camps, particularly around tailings ponds Garbage being left 	Weather	<ul style="list-style-type: none"> unpredictable and unseasonably warm weather unpredictable wind conditions
Climate Change	Rivers and Lakes	<ul style="list-style-type: none"> decrease in water levels small streams and creeks are drying up; water is no longer safe to drink 		
	Forest Fire	<ul style="list-style-type: none"> increased incidence of forest fire decreased resources for forest fire management loss of key trapping areas loss of property (cabins) and culturally significant areas; gravesites 		
	Wildlife / Wildlife Habitat	Habitat	<ul style="list-style-type: none"> Loss of wildlife habitat due to forest fire 	
		Wildlife	<ul style="list-style-type: none"> death due to forest fire changed migration (caribou) population of ducks and geese is lower there are fewer caribou 	
Unknown	Wildlife / Wildlife Habitat	<ul style="list-style-type: none"> Land and animals are polluted (spoiled) from contaminants 		

Figure 5. Table of Themes and Indicators
from the Traditional Knowledge Study in the Kaché Tué Study Region

4.2 Oral History of Katthinëne

Oral history about katthinëne goes back many generations. Some stories for example, tell of a time when people and animals used to speak the same language. The late elder, Zepp Casaway, told a story that had been passed on to him from his elders. The legend, *How the Sun was Stolen by a Bear* tells of a time when there was no summer and the land was covered by ice. Instructed in a dream to find the bear, the people and the animals worked together to retrieve the sun from the greedy bear. The strongest fish carried the sun back home. The morai was the fish that eventually broke through the winter and people saw the sun everyday from then on. The melting ice eventually covered the land. It was not until after the blackduck dove to the bottom and returned with a bit of ground that the land began to reappear. While there may be several interpretations, *How the Sun was Stolen by a Bear* is arguably a story about glaciation. It may refer to the period of the mini ice age several centuries ago. The idea of the sun reappearing and the disappearance of the land under water may indicate that the story is as old as 10 000 or 40 000 years when the katthinëne was indeed completely covered in ice by a glacier that flooded the region as it melted.⁵

How the Sun was Stolen by a Bear (Glaciation)

Told by Zepp Casaway

Translated by Marcel Basil

After the world was created, things were not always the same. There were ups and downs. One time, the sun disappeared. After the sun was gone, it was only winter and there was lots of snow falling. There was no sun and that is how people stayed. They were hungry and did not know what to do. The people did not know what happened. Back then the medicine power of dreams was very powerful. Dreams helped people find out things. People would share dreams with one another and also with animals who were also involved. (At that people and animals were the same and talked to one another in the same language). After the sun disappeared, people looked towards their dreams to find out where the sun went but no one had a dream for a long time.

Then one day a squirrel went to sleep beside a campfire. He fell into a very deep sleep, so deep that he rolled himself into the campfire. People tried to push him out but he just rolled back into the fire. Suddenly he awoke and ran up a tree. He had a dream about the heat and started running to find the sun. The people went with him to help him. They went traveling a very long ways, looking for the sun. The people didn't know which way they were going but the squirrel knew because he was following his dream so he was the guide. The people and the squirrel continued traveling.

⁵ Further research is required to investigate how this story may relate to other traditional knowledge as well as scientific information about glaciation.

Eventually they looked around to see who was there. The only people who were gone were the bear, the jackrabbit and the eaglet. The bear was sitting with his canoe and wooden paddle at the caribou crossing by the river waiting for the caribou to cross. The people and the squirrel then saw that there was a bag on the top of the esker. They questioned the bear cubs, "Whose bag is that on top of the esker?". The bear cubs did not want to answer, so the people knew it was the sun.

The people left for a little while to make a plan. They were planning how to take the sun away from the bear. Soon they thought of a way to trick the bear. They chose the lynx to act as a caribou, to swim across the river. They chose the mice to chew on the bear's wooden paddle. They figured they would capsize the bear's canoe and since the bear is a slow swimmer they would have time to get the bag with the sun and run away. They told the lynx not to swim too close to the shore because the bear might catch up to him. The mice were told, "You're small so the bear cannot see you." So the plan went into effect. The people ran up to the esker to retrieve the bag. They poured sand into the bear cubs' mouth so they would not warn their father. The bear started paddling towards the lynx and the mice chewed the paddle. The bear's boat capsized and the people ran away with the sun back to the land of cold weather.

The sun was heavy and the people had to travel a long ways. The fastest and strongest animals were the pike and the morai. So they took turns carrying the sun. Of course the others helped as well. Finally the people and the animals reached the winter ground. A morai was the last one to carry the sun and he was the strongest. It is said that he was the one who broke through the winter. The people saw the sun everyday from then on.

The snow began to melt then. It melted and flooded the earth. There was only one island remaining and that is where all the living things went to live. The people and the animals were there together wondering how to get the land back. They said who ever dreams about the earth will be the chosen one. Then one day, a black scoter was chosen through a dream. He dove under the water and was gone a long time. The people and the animals waited and waited. They thought the scoter might have drowned. Then all of a sudden the black scoter came up and said, "I found the land. If you believe me, I'll bring the land back." Then he dove again. The people and the animals continued waiting. The black scoter came up again with a bit of ground. From then on the water went down and the land reappeared.

That is the story that was told about how the sun reappeared and the ground was raised. From then on the earth was the same as what you see now.

How the Sun was Stolen by a Bear is significant in the context of this study. It tells us something about katthinëne as a system of interrelationships between the spirit world and the physical world, between human beings and animals and between the elements of sun, fire, water, land. Through this story we see how all these things are connected to everything else. The story is also an affirmation of the depth of perspective and understanding that elders have about this region.

Another story that provides additional affirmation on the depth of traditional knowledge is the story of the *Old Lady of the Falls*. The legend highlights many of the same inter-relationships between the spiritual and the physical world that appear in the previous story. In addition it provides perspective on the evolution of the landscape of katthinëne and unique features such as the Lockhart River.



Figure 6. “How the Sun was Stolen by a Bear.” (Drawing by Clifford Michel 2001)

The Legend of Ts'anTui Theda - "The "Old Lady of the Falls"

Told by Zep Casaway

Translated by Archie Catholique

I will tell you a true story about how it was in the beginning and how Ts'anTui Theda (the "old lady of the falls") came to be. This story was passed on to me as it was passed on from generation to generation. The "old lady of the falls" has been there since the earliest of times.

It started in the place called Kaché (Ft. Reliance) and ?edacho Tué (Artillery Lake). It used to be called Beaver Lake in those days because there was a beaver living there. You could see the beaver's lodge if you happened to be out at ?edacho Tué. People were often in that area because that is where they went caribou hunting in the fall time. Even today Dene people still go there to hunt caribou.

In those days there used to be a man. His name was Hachoghe. He was a big man. One day Hachoghe saw the beaver's lodge. He could see it because it was on top of a small hill. He decided he wanted to kill the beaver but saw that he would have to get the beaver out of the lodge. So he started to push the dirt to one side. (Today you can even see where he pushed the dirt to one side.) He was so busy digging and moving the dirt that he didn't notice that the beaver had another lodge in the narrows close to the main land. It wasn't far from the main route that the Dene people used when they traveled in that area.

But the beaver did not stop at that lodge. Instead he went down the Lockhart River to the main lake – Tue Nedhe. The people there were starving. When they saw the beaver they thought they may be able to kill him. It was then that Hachoghe saw the beaver and ran after him with a shovel. He threw the shovel into the water but the smart beaver swam away. The handle of the shovel broke and Hachoghe had to leave it there, sticking out of the water. That is why when you go to the north end of ?edacho Tué you see a rock sticking out of the water. That is the handle of Hachoghe's shovel.

After Hachoghe broke his shovel, he didn't give up. He continued to follow the smart beaver back up the Lockhart River. By then the Dene people from Tue Nedhe were following Hachoghe. The river was strong and the beaver soon got tired and Hachoghe killed him. The Dene people were so hungry they went after the meat right away. There was enough meat from that beaver for all the Dene people for two or three days. But there was one woman who asked for the beaver's blood. Hachoghe told her he could not give her the beaver blood because there was not very much left. So the woman sat down at the falls and waited.

All of the other Dene people followed Hachoghe who was chasing another beaver down the river. They were heading toward the east arm of Tue Nedhe. After a while, the people noticed that the woman was still back at the falls. So Hachoghe picked two healthy people to go back and look for her. They went all the way back up the Lockhart River and they found her sitting at the falls. She had been sitting there a long time and so she was stuck in the earth. The two people told her that Hachoghe was asking for her to return to Tue Nedhe. She said, "I cannot return with you. I have been sitting here too long and now I will be here for all eternity." Then she said, "Go back to where you came from. Go back to Hachoghe and the others and give them this message." So the two people returned to Hachoghe and the others and gave them the message. This is how the Dene people learned about the "old lady of the falls" (Ts'anTui Theda). From that day forward the Dene people have gone to visit the Ts'anTui Theda to pay their respects, share their worries and to ask for help.

Figure 7. The Legend of the “Old Lady of the Falls”

The legend of the “Old Lady of the Falls” provides a unique perspective on the origins and significance of the river called Desnethch'e to the Denesųine (Łutsěl K'e Dene) and the place (Parry Falls) called the "Old Lady of the Falls". More broadly, the legend is suggestive of how the Denesųine conceptualize the land – as alive, with human characteristics. In this case the land is a mother figure, a nurturer.



Figure 8. “Old Lady of the Falls”

These legends provide us with insight into the traditional knowledge that exists about the region of katthinëne and the Denesųłıne understanding of events that occurred in the distant past. Unlike science which describes these landscapes in mechanistic terms, these legends indicate the a spiritual, social or sentient dimension of landscapes and processes such as glaciation.

4.2 Key Species and Habitats of Katthinëne

Oral history such as that of the legend of the Old Lady of the Falls affirms that a strong foundation of traditional knowledge exists about the region of katthinëne dating back generations. During Phase One of the study, traditional knowledge was gathered about parts of the ecosystem, specifically about key species of birds, fish, caribou and fur-bearing animals. (See Appendix 1 – Preliminary Study in the Gahcho Tué Study Region 1999 and Appendix 2 - Traditional Knowledge Study in the Kaché Tué Study Region Annual Report 2000) In addition to studying these individual species, the elders talked in more detail about the raven, the bear, moose and beaver.

4.2.1 The Raven

The raven is a particularly significant character in the legends about the region of katthinëne. This legend told by elder Jim Fatt, talks about the trickster ways of the raven and how he hid the caribou away from the people. The people were only able to release the caribou from the raven through their spiritual powers.

Before that, the raven was proud. One time he captured all the caribou and made a fence out of wood and kept them for himself in the mountains – away from the people. But the people released the caribou through powerful medicine.

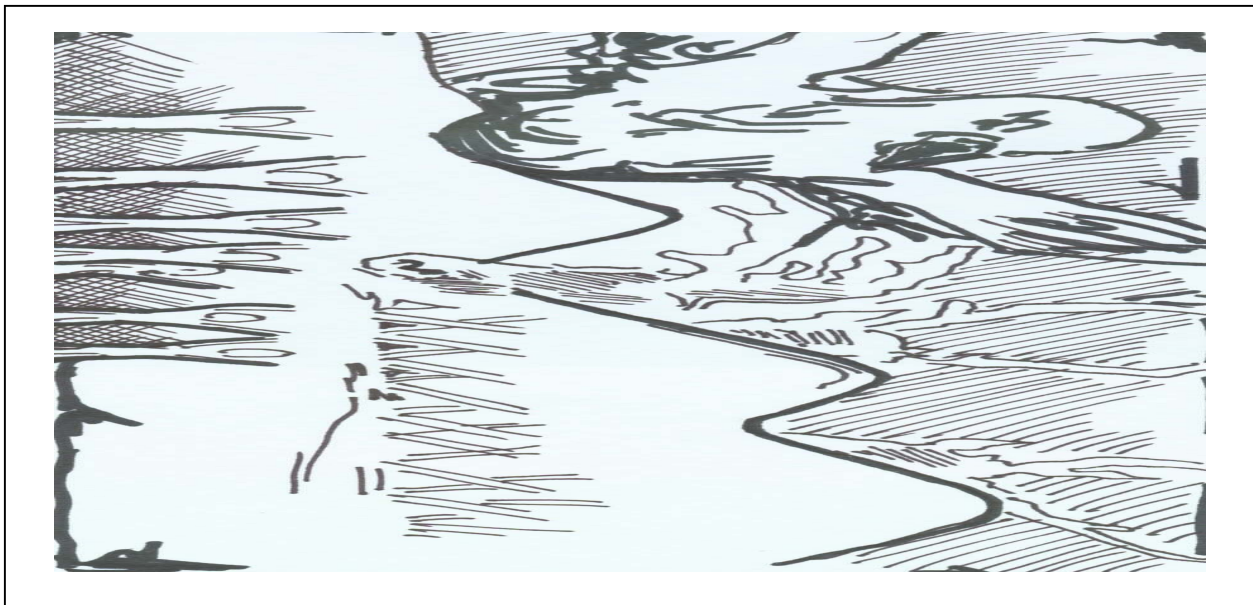


Figure 9. Drawing of the Legend of the Raven

Another story tells of how the Denesųline strategized to turn the raven black by throwing him in grease and ash.

On the North Shore (Tué Nedhe) of Great Slave Lake – McLeod Bay – that is where the raven was thrown into the ashes and grease.

One time the raven was invited to a drum dance by the people and some animals. Back then the animals talked like humans. The dance continued all night. The plan was to throw the raven into the ashes and grease. At first the raven sat back and watched people and the animals dance to the drum music. Then one elder challenged the raven to a dance. The raven had powerful medicine in those days. He told the people and the animals that his power was so great it was above the clouds and his songs were so good. He began dancing and singing and it was said that he danced and sang very well. The ash and grease was set up by dawn in a tent. In the morning the people captured the raven and through him into the ash and grease. The Denesųline people and animals rushed out of the teepee. It is said that the raven was good at throwing rocks and was an accurate shot. He hit two loons, some geese and swans who were singing in enjoyment on the lake. (JF 01 09 01)

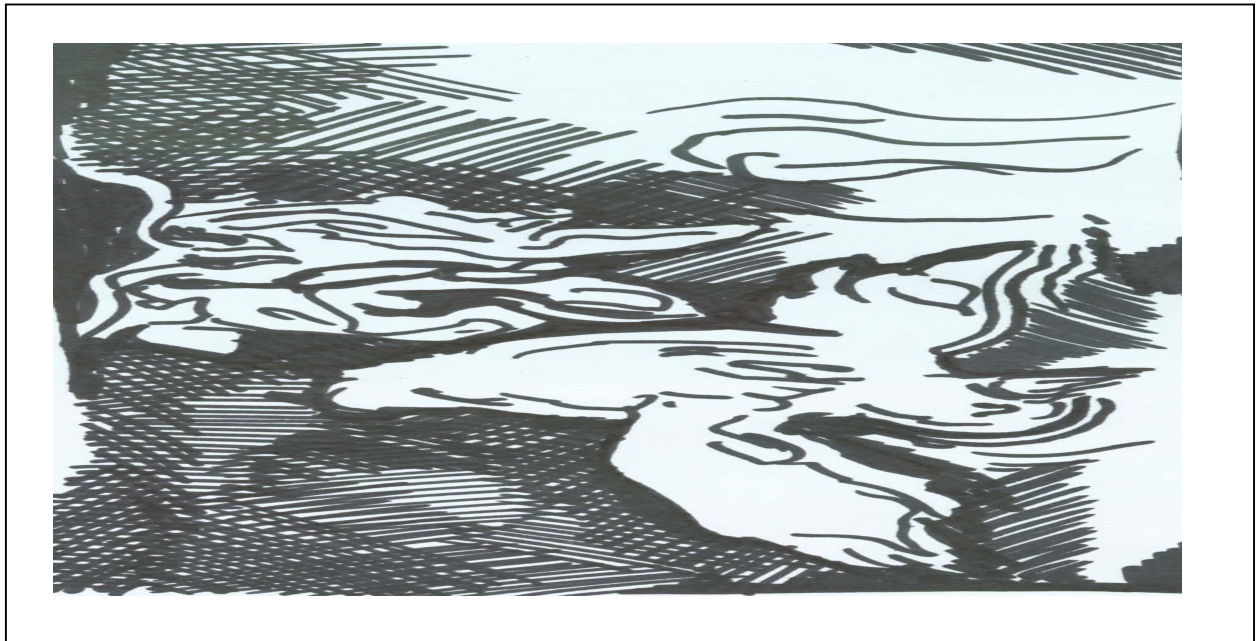


Figure 10. Drawing – Raven Dancing at the Fire

4.2.2 The Beaver

The beaver is also very important to the Denesųline. This story talks about the relationships of the beaver to the katthinène landscapes including the area around ʔedacho Tué (Artillery Lake).

This story I am telling you is told by the late Louis Drybones. At Artillery Lake (ʔedacho Tué) –there used to be a Beaver Lake. Toward the “old lady of the falls” there were four giant beavers. In Artillery Lake (ʔedacho Tué) – all the islands you see used to be the air bubbles from the giant beavers Two beavers went down the river and made a dam but Hachoghe dismantled the dam and made the river that is the Lockhart River. The beavers kept on going down the river and at Fort Reliance at the mouth of the river they made another dam. Hachoghe also took that dam apart and chased them all the way to Talthelei Narrows to Betsų Ghie where the water is alive. It is said that he chased them all the way to the Mackenzie River and killed three there. You can see them nailed on the said of a mountain at Fort Norman. The last beaver got away and made it to the Arctic sea where he turned into an island and has stayed like that for eternity. Until this day you can see its eyes glowing from the island... Hachoghe was brought to this earth to kill the giant animals. We don't know why. You can see it on TV sometimes when the people dig up the big bones [dinosaurs]. It was Hachoghe who killed them all. (MD 11 12 00)

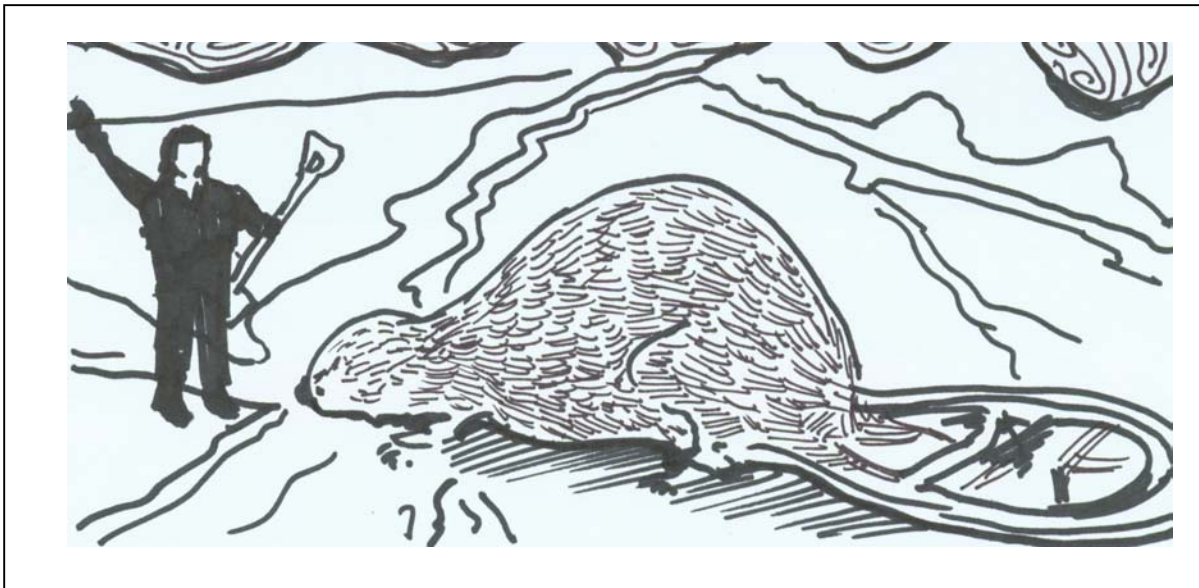


Figure 11. Drawing of the Beaver and Hachoghe

4.2.3 Grizzly Bear

The elders also shared stories about the relationship of the Denesqłine with the grizzly bear. In this account the grizzly has spiritual powers and is both nurturing and dangerous to the Denesqłine. The bear brings the young man into his den to save him from the cold and feeds him throughout the long winter months. At the end of the story, the bear is killed for food by other men who find the den in spring.

Once there was a person who hibernated with a bear. It was a young man who had gone hunting in the fall time and followed a set of bear tracks for a while. The tracks led to where the bear had gone to hibernate for the winter. The young man caught up to the bear who was working on constructing his den for the winter. He was sneaky but the bear saw him. The animals talked back then. The bear told the young man- "Why are you sneaking up on me? – Why don't you come and join me." The bear said – "I am building my house for the winter – just in case you are curious about what I am doing." The bear then invited the young man to join him – he had powerful medicine so the young man could not refuse. They entered the den, the young man was in the back and the bear was in the front. They often woke up to eat some fish during the winter months. Sometime in spring- the young man woke up to the noise of another human outside the den. The bear made a little exit by the door and stuck his paw outside in the snow. He told the young man to do the same. The next day some other men returned and noticed the human hand print on the snow. The young man came out to meet the other men. They decided to kill the bear and roast him on the fire. The young man said nothing about his experience but from then on was wise about where the bears were hibernating and which bears were fat. After that the people name the young man "Sas ahl'e" or bear-chewing. (JF 01 09 01)

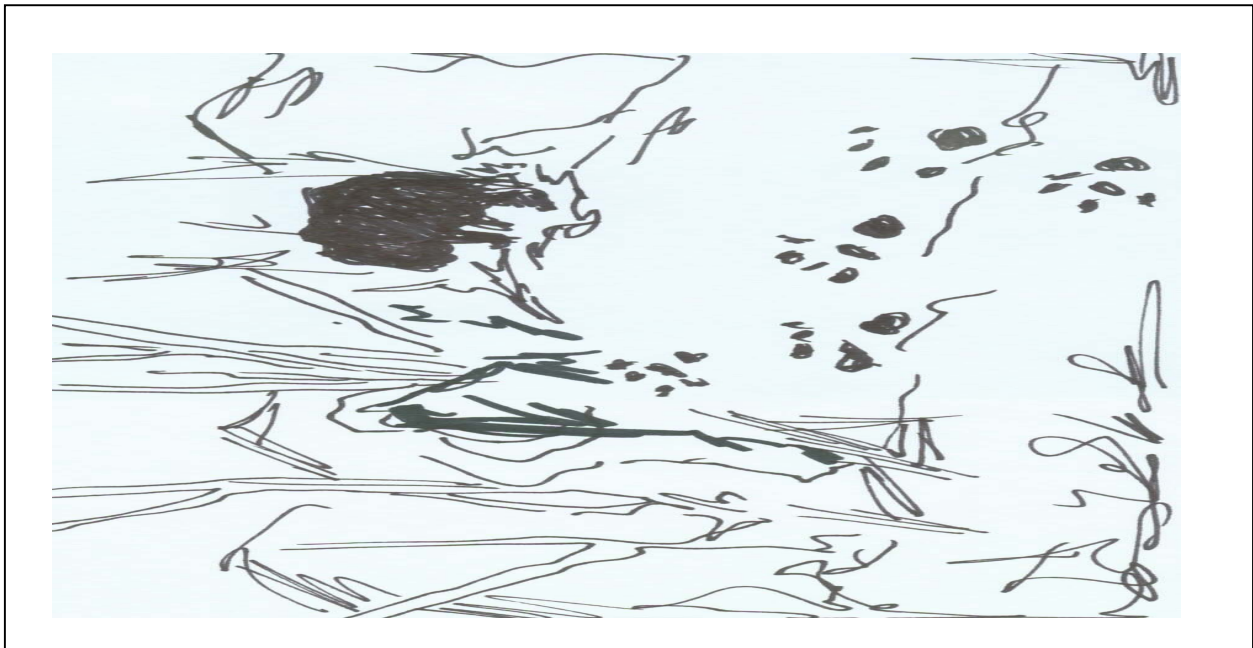


Figure 12. Drawing of Legend of the Man and the Bear

Changes in the Denesółine land use and development activities in the region have resulted in many changes in the katthinène landscape, particularly in the last fifty years. Some of these changes are visible in the behaviour of wildlife. Some elders are recognizing that predators such as wolves and grizzly bears are not scared of people anymore.

I notice there is a change in what the grizzly bear eats. Now he eats anything - garbage, human waste. In past - bears never used to come around and bother people. Now they come into camp and bother people - its dangerous. They don't seem to be scared of people anymore. In the past all the wild animals used to be afraid of us. There never used to be wolves around town. (JC 01 15 01)

4.2.5 Moose

Another change noticed by the elders is in the distribution of wildlife including the range of the moose and caribou.

Around Artillery Lake (?eda cho Tué), people lived only off caribou. Now there are lots of moose there too. It never used to be like that. (PC 01 15 01)

4.3 Places in Katthinëne

In addition to these specific results about species in the region, additional insight was gained from specific on-the-land workshops at:

- North shore of Great Slave Lake;
- Artillery Lake (?edacho Tué);
- Aylmer Lake (Tł̄a Gai Tué).

4.3.1 North Shore (Tué Nedhe)

The North Shore (Tué Nedhe) of Great Slave Lake is an area of katthinëne of tremendous significance to the Denesółine. This area sits on the edge of treeline and stretches over 200 kilometers - west from McKinlay Point to the bays of Desneth'che and Kaché.

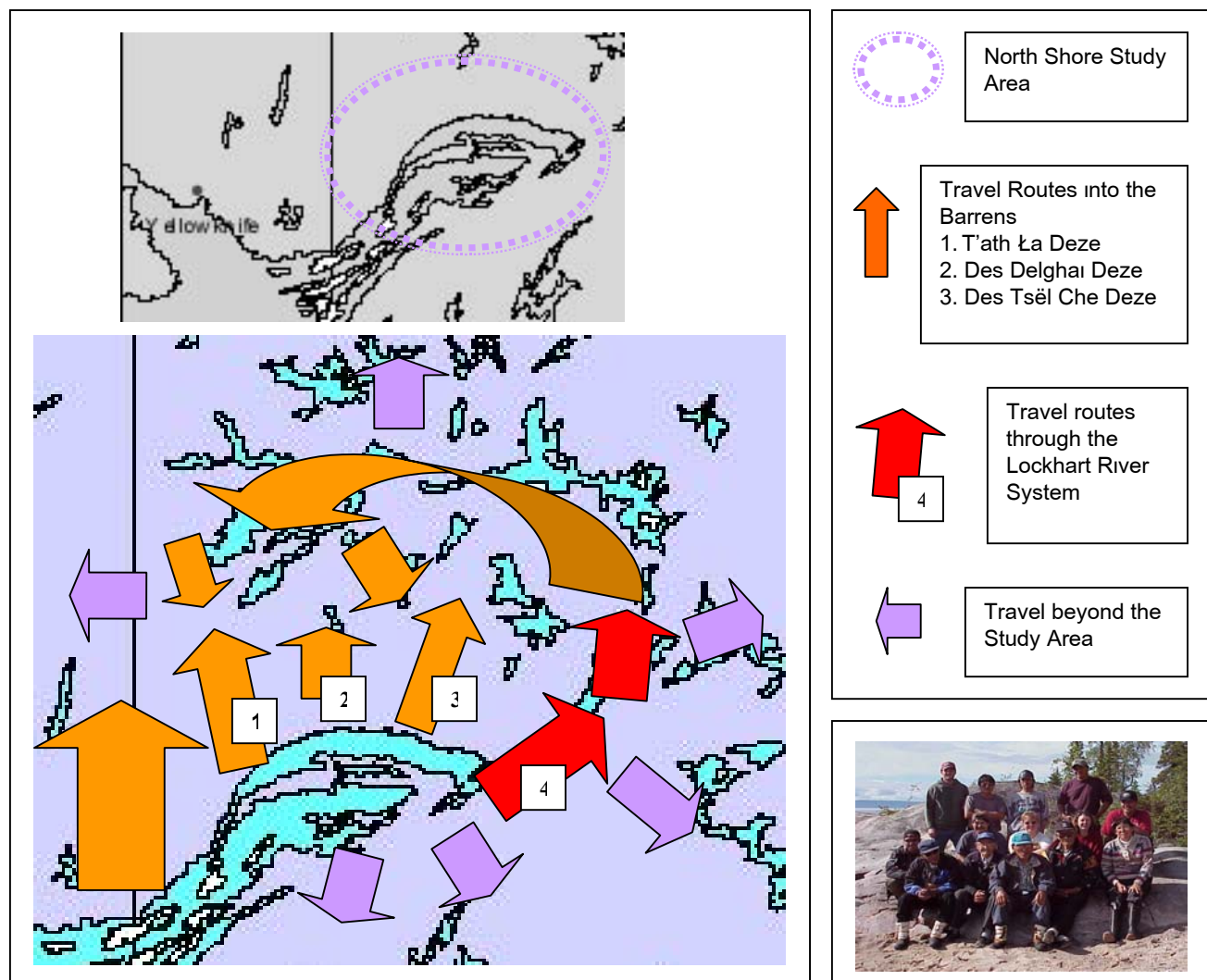


Figure 13. Travel Routes from the North Shore (Tué Nedhe) of Great Slave Lake
Figure 14. (Inset Photo) Study Team Gathering on the North Shore (Tué Nedhe)

This area is well known to the Denesōline. Many elders lived and traveled in the area for most of their lives, following the same travel routes as their parents and grandparents and others before them. As a result of this rich history there, elders have a tremendous amount of knowledge about the region. As one elder says, I don't need maps because I know they area.

Around Kaldële I travel by canoe. I've traveled all over in that area. This is what I remember when I used to travel. When I was younger I didn't need maps because I knew the area. Some people only know the area by maps... I used to travel with my late father but mostly was by myself. I used to travel around Dene Shëth Deze and up to the barrenlands. I remember I used to trap white foxes up to Benjamin Lake and Indian Lake. Big Stone Lake and around Bedford Lake – I was around that area too and around S'otse tha kine tué. I have traveled north all the way from Narrow Island to Fort Reliance.... I used to travel about 40 miles on foot a day. Once I walked from Harry Lake all the way to Fort Reliance. (ND 06 09 00)

The North Shore (Tué Nedhe) area is mix of socially, culturally, ecologically and spiritually significant sites. Many of these sites can be found along the well traveled winter trails and summer portage and canoe routes that led the Denesōline into the barrenlands. As elder Maurice Lockhart described, these trails and portages were created generations ago by the Thai Denesōline (ancient people).

These canoe routes and trails into the barrenlands have been here for generations. Our ancestors (Thai Dēnesōline) used these routes and trails. Now we still use them to go hunting for caribou. It has been passed on from our great ancestors to today – from Taltheilei to Fort Reliance. (ML 08 31 00)

There are four main trails stretching north from the North Shore (Tué Nedhe) T'atha Ła Deze, Des Delghai Deze, Des Tsël Che Deze and Desnethch'e Deze. Each of the trail systems begin at camps along the shore of Great Slave Lake and stretch north to the waters of the Lockhart River at Tha Gai Kué (McKay Lake) and Tłā K'ai Kué (Aylmer Lake). These trails were important travel routes for trapping and for hunting caribou. The main route however, was the Desnethch'e Deze system as explained by elder Maurice Lockhart.

This place was not the main route to the barrenlands. [The main route] was on the other side beside Dez Tué ethaille. Back bay where the river flows out of the main route – people would travel on that route east of Bedford Bay. They would go hunting for caribou into the barrenlands. From Fort Reliance to Artillery Lake (?edacho Tué) – that is main route of our into the barrenlands. Our ancestors used to carry canoes and gear with them everywhere they went. You can still see camp sites from the olden days when people used to travel through here. (ML 08 28 00)



Figure 15. Winter Traveling through the Barrenlands

The stories of the elders tell of the history of these travel routes. Interwoven with these stories are hundreds of Denesōłıne place names. Names such as ʔeda “caribou crossing”, “Desnethch’e” where the water flows out” and des delghai “white river” provide us with specific detail about landscape features. Names such as “small portage”, “open water” provide details of where to travel and where not to travel both in summer and in winter.

Other names tell stories about cultural and spiritual sites such as graveyards and sacred places. “Betsı Ghie” and the “Old Lady of the Falls” are two examples. There are many others.

Place names also provide us with insight into what life was like for generations of Denesōłıne. For example, elders told us the story of Dene Shēth Deze “Dene Hill River” which tells of a Denesōłıne man who died on the North Shore (Tué Nedhe) when the caribou did not come. As elder Maurice Lockhart described, “Some people died here because of the meat shortage... it was tough when there was no caribou.” (ML 08 31 00)

Most of the stories about the North Shore (Tué Nedhe) however, are about the relationships that people had with one another as they traveled to and from the barrenlands. They tell us about the importance of family and of working together.

I remember when I was a young man, traveling with my late father. Back then, there was lots of people on the North Shore (Tué Nedhe) of McLeod Bay. People at that time used to trap for whitefox. People from Rocher River, Fort Resolution and Łutsël K'e used sleds and tents. I remember two people from Fort Smith - Pat Burn and his

brother Gabe. We all traveled together into the barrenlands. Once we got there people would go their own way to trap. In the evening people would gamble for white fox pelts. They would play hand games. Pat Burn didn't gamble so he cooked. He used to tell me to eat with him so I would eat with him. People would be playing hand games in the next tent. He was a good cook.... After Christmas holidays, we would make our way back to the shore. My mom and dad were still alive then. Tsa kël ghə – that was where some white people stayed and near a place called dath kël. That was where we would go up into the barrenlands.



Figure 16. Photo – Des Delghai on the North Shore (Tué Nedhe)

All members of the family played an important role in this way of life.

People helped one another harvest caribou and made winter clothes out of the caribou fur – even snowshoes. About this time of year – people would already be in the barrenlands harvesting caribou meat. At the end of August – that is when people traveled back to the shores from the barrenlands. Around this area – they would harvest fish and the women used to work on the caribou hides and

make moccasins and winter coats. The men would work and help the women with some tools they would make such as rope and tarps for the dog sleds, harnesses, and teepees. (ML 08 28 00)



Figure 17. Photo – Joe Desjarlais’s Cabin on the North Shore (Tué Nedhe)

The relationships had with one another were ever-changing. When people met and how long they gathered together was largely dictated by the migration of the caribou and the trapping season. People gathered and camps were set up where the caribou were abundant.

Despite these uncertainties, the Denesųine always came back to the North Shore (Tué Nedhe) in spring after trapping and returned to the North Shore (Tué Nedhe) in fall after trading. The North Shore (Tué Nedhe) was a constant factor in the relationships people had with one another.

When we reached the barrenlands we came across a big lake and shot some caribou. We stayed there and made drymeat. Solemon Boucher and myself trapped together for white fox. We would get lots of whitefox in the barrenlands. In spring when it was nice and warm – that is when we would go back to North Shore (Tué Nedhe) of McLeod Bay and travel home to Łutsël K'e. Some people from Rocher River were traveling with us. They

came a long ways. That is how people worked and lived in the olden days. (JBR 08 28 00)

		Indicators - Cultural Significance
North Shore (Tué Nedhe)	Indicators of Denesq̄line Nēne	<ul style="list-style-type: none"> • travel routes and portages • Denesq̄line trails • cabins, tent rings • campsites • travel markers (scarred trees)
	Ecological Indicators	<ul style="list-style-type: none"> • edible and medicinal plants (blueberries / cranberries / raspberries, spruce gum etc.) • height of land (viewing caribou) • caribou trails • bays / moose habitat • good fish habitat (whitefish) • eagles nest • narrows / open water (kałdēle)
	Spiritually significant areas	<ul style="list-style-type: none"> • graveyards • sacred water – Desnethch’e Deze (Lockhart River) • Old Lady of the Falls (Tsank’ui Theda) • Special places – Betsi Ghie

4.3.2 The Beaver Lodge at Artillery Lake (ʔedacho Tué)

Among the areas of special significance is Artillery Lake or ʔedacho Tué. Straddling the treeline and over-wintering grounds of the Bathurst, Beverly, Queen Maud and Qaminurjuaq caribou herds, the area has been a provided the Łutsël K’e Dene with food, shelter and other resources needed for survival for thousands of years.

The crossing of the caribou at the south end and north end of the lake in early August – September has always been a sign of health in the natural cycle of caribou migration as well as a sign of the benevolence of the Creator.

The Denesq̄line traditionally gather at ʔedacho Tué to meet the fall caribou migration. Some of the Denesq̄line also lived there semi-permanently at ʔedacho Tłazı (Timber Bay). Gahdēle was a central figure in the development of the community at ʔeda cho tłazı (Timber Bay). His skills in log cabin building, his support of others and his knowledge of caribou movements in the region fixed his name in Denesq̄line history.

After [summer hunting] was all finished and the month of October came, the people would go to ʔedacho tłazı (Timber Bay) and would gather there. They would make cabins using logs until every one had one to live in. This all started because of a man named Gahdēle. He lived there now and again. Some of his children are still around - Jonas Catholique, that is his dad. There are a lot of people descended from him today. Even old people lived

there at ?eda cho tłazj (Timber Bay) because it was easy to live there...(ZC 09 27 99)

In addition to its resources, ?edacho Tué also has sacred significance as part of the watershed of the Lockhart River. In addition to the falls itself, there are other landscape features in the legend of the “Old Lady of the Falls” that can be found today along the route followed by Hachoghe. Hachoghe's, shovel in Artillery Lake (?edacho Tué) for example, is a well known cultural reference point for community members. References related to the beaver in the story are also important. In the following excerpts, elders JB Rabseca and Madelaine Catholique describe the landscape features of the beaver lodge found on Artillery Lake and how it was created.

In the olden days, our ancestors had lots of respect for the beaver lodge at Artillery Lake (?edacho Tué). My grandfather used to tell me to respect the area by offering tobacco – even in winter. I remember Louis Drybones had a cabin at Artillery Lake (?edacho Tué). On the way we would stop at the Beaver Lodge and he told us we would have to make offerings of respect – so we did. (PC 30 11 00)

This beaver lodge is from a long time ago when the Thai Denesqline lived. It was a long time ago in the olden times when the beavers were here at this lake. That was long before my time. They said when this lake never froze up in the winter time - that is when the beavers were here. This is what the Thai Denesqline have said. They also said no one could go on the lake because the water was alive. And this is what it has been told.

This beaver lodge is the den for the beavers and there is another one at the end of this lake. The Thai Denesqline have confirmed this. As the story goes this (Ha cho) had chased the beavers to (Tué cho) and killed the yearling beaver down river from here and the big one went to (Tué cho) as it has been told in the pass. And this is how the Lockhart River came to be and they all have stories to tell. It is from here that it came from and it is amazing and where they said the beavers have been killed you can still see where it has been stretched along with the picks still there. (JB Rabesca 09 15 99)

At Artillery Lake (?edacho Tué) the beaver lodge was chopped on one side by Hachoghe. That is why it looks the way it does. Across from the beaver dam there is the muskrat lodge. That muskrat is still alive today - Noel and my late daughter once saw it. It was very big – they were watching it through binoculars. It was coming out of the

lake near the caribou crossing. There is big island there and it was standing up on the island. Its hands and head were very big. It stayed a little longer and then slowly went back into the water and disappeared. But we could see it moving for a while. After it disappeared the day was nice and calm... when people go to ?edacho Tué (Artillery Lake) – they have to respect the land. Sometimes the whether is bad – maybe because the muskrat is traveling down the river – we don't know.



Figure 18. The Beaver Lodge at Artillery Lake (?edacho Tué)

	<i>Theme</i>	<i>Value and Description</i>
Artillery Lake (?edacho Tué)	Indicators of Denesqłıne Nēne	<ul style="list-style-type: none"> • cabins at ?edachoghe (timber bay) • campsites, tent rings • Gahdēle's Canoe • trails • arrow heads
	Indicators of Ecological Significance	<ul style="list-style-type: none"> • caribou trails • ?eda / ?edacho (caribou crossings) • Thai T'ath (eskers) / denning sites • edible and medicinal plants (blueberries / cranberries etc..) • treeline • height of land • k'a (waiting places) • ts'u ?aze di ?a sɿ (timberstands)
	Spiritual Sites	<ul style="list-style-type: none"> • Beaver Lodge • Hachoghe's Shovel • Graveyards • water of Artillery Lake (?edacho Tué)

4.3.3. Tł̄a Gai Tué - Aylmer Lake

Tha Gai Tué (Aylmer Lake) is another area of katthinēne of special significance to the Denesqłıne. It is characterized by a diversity of values – cultural, social, spiritual and ecological. As part of the waters of Desnethch'e, (the Lockhart River watershed) it is significant to the Denesqłıne as spiritual water – because of its connection to the “Old Lady of the Falls”.

Elders describe the area based on their experiences hunting, trapping and traveling through the area. Many elders who lived at Artillery Lake (?edacho Tué) know Aylmer Lake (Tł̄a Gai Tué) well as it was a common destination for white fox hunting. Elders also used to use Aylmer as a travel route on their west to McKay Lake and east into the Thelon.

I used to go to Aylmer Lake (Tł̄a Gai Tué) only in the winter with my father and to Fletcher Lake. This was just for trapping. There are lots of people who used to go to Aylmer Lake (Tł̄a Gai Tué) from Łutsəl K'e. I traveled from Aylmer Lake (Tł̄a Gai Tué) to the Thelon River (Thelon Deze) a few years back. (NA 01 15 01)

Elders also call Aylmer Lake (Tł̄a Gai Tué) - Thai T'ath Tué (lake where there are lots of eskers). The many eskers at Aylmer Lake (Tł̄a Gai Tué) have always been important to the Denesqłıne for trapping as well as for camping. Eskers are used as denning habitat for many species including

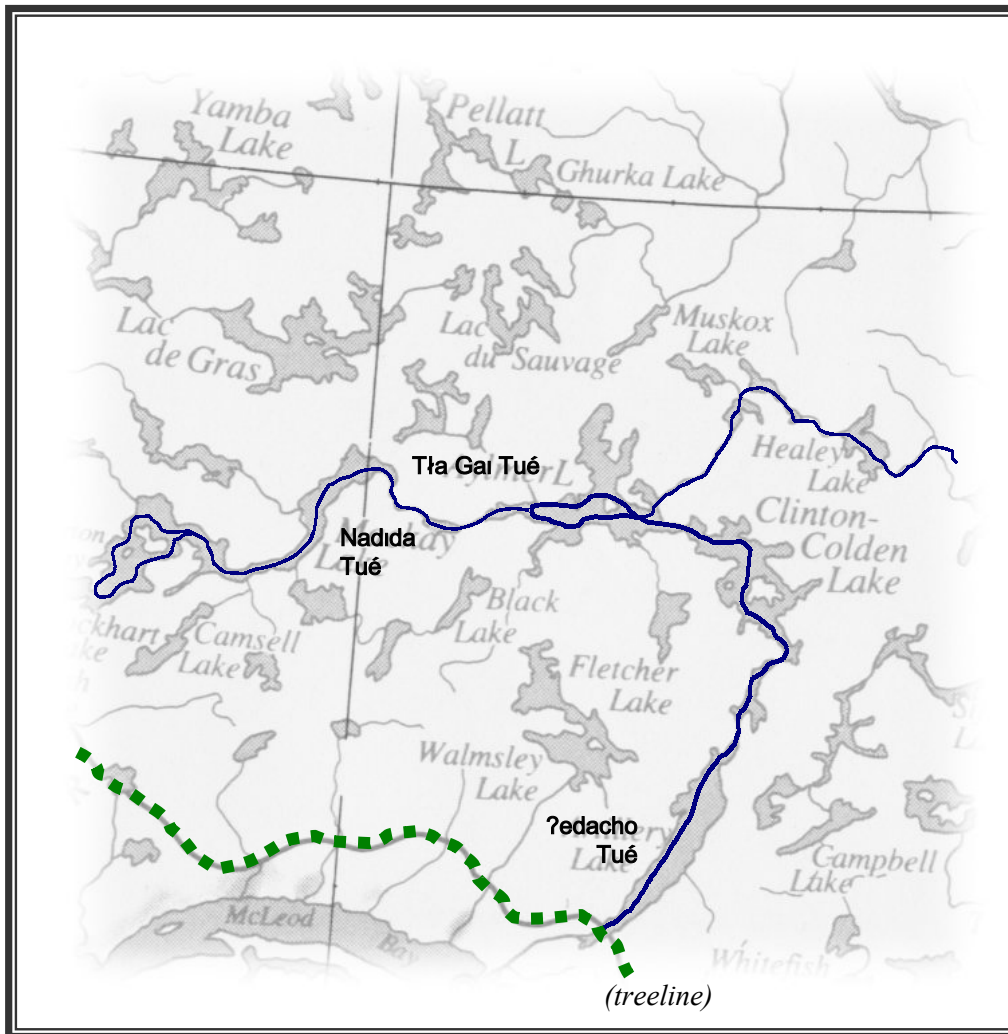
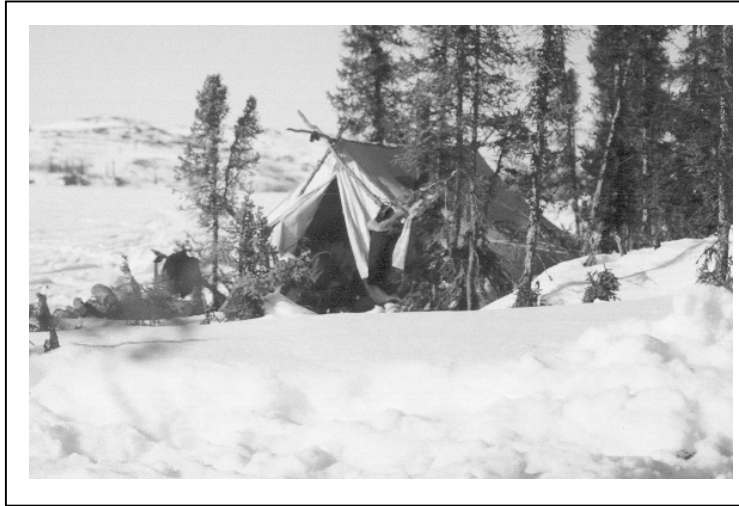


Figure 19. Map of Aylmer Lake (Tla Gai Tué)

wolverine, wolf and whitefox. Eskers are also used by Denesóline who would make camp in their shelter where there were small groups of trees and dechën (drywood) for fuel and setting tents

People would mostly go to Aylmer Lake (Tłá Gai Tué) in winter by dog-team to trap. They trapped the animals that denned in the eskers. There are lots of eskers around Aylmer Lake (Tłá Gai Tué). People would set up camps wherever there were small groups of trees ts'u ?aze di ?a s!....

Aylmer Lake (Tłá Gai Tué) was not an easy place to travel, however. Some areas including those north of Aylmer Lake (Tłá Gai Tué) are dangerous because of the sharp rocks in that area.

Behind Aylmer Lake (Tłá Gai Tué) –it's very rocky and there are many cliffs. Its ok traveling there in the summer but in the winter – there are very large ice ridges that hide the rivers and streams. Also sometimes if there is a hill – there is really deep snow – its dangerous. Abel Nitah was chasing caribou around there and the caribou saw the drop-off but Able did no see it and went right over the edge with his dogs. It's dangerous in the winter. You can't tell if there is a river because the snow covers it. (JM 01 15 01)

The elders describe the vegetation around Aylmer Lake (Tłá Gai Tué) as similar to that found around Artillery Lake (?edacho Tué). Berries, lichens and other barrenland plant life provide a rich habitat for caribou, grizzly and other wildlife. The *Denesóline* also value the rich plant life as part of their traditional diet and for traditional medicine.

Around Aylmer and Artillery Lake (?edacho Tué), it is mostly the same although there are some different kinds of plants. For example, you can tell the blueberries around here are tall but in Aylmer Lake (Tłá Gai Tué) they are much shorter. The vegetation does not grow very tall. The caribou feed off this vegetation. In the springtime – all these new plants are very fragrant. (JC 01 15 01)

The vegetation around Aylmer Lake (Tłá Gai Tué) is very healthy – its not disturbed or polluted. The plants there are very small. Even the Labrador tea, rosehips, and other plants – they are very short and small. We used to live at Artillery Lake (?edacho Tué) so we knew the area very well. (JM 01 15 01)

It's a good big lake - Aylmer Lake (Tłá Gai Tué). There are a few good spots for fishing where there is a channel... the fish are good there. In the past we didn't use hooks –

we used caribou tongue for bait in the channel. It doesn't really freeze in the channel but if you make a hole in the ice you can see down and see all the fish swimming by... there are two gaps close together – one is good – one is not so good for fishing. (ND 01 15 01)

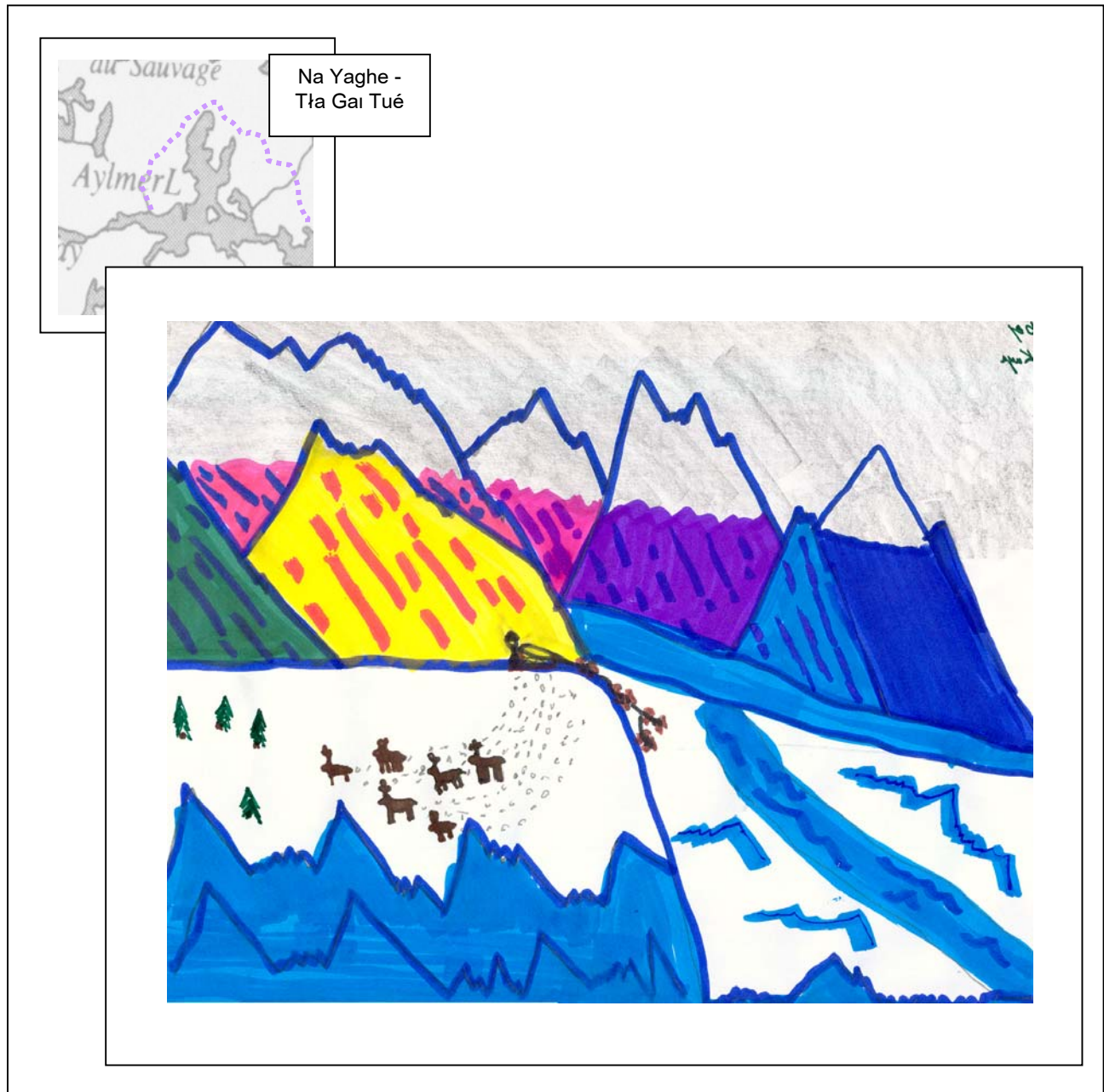


Figure 20. Abel Nitah – Sled Going Over the Snowbank
(Drawing by Kaya Casaway 2001)

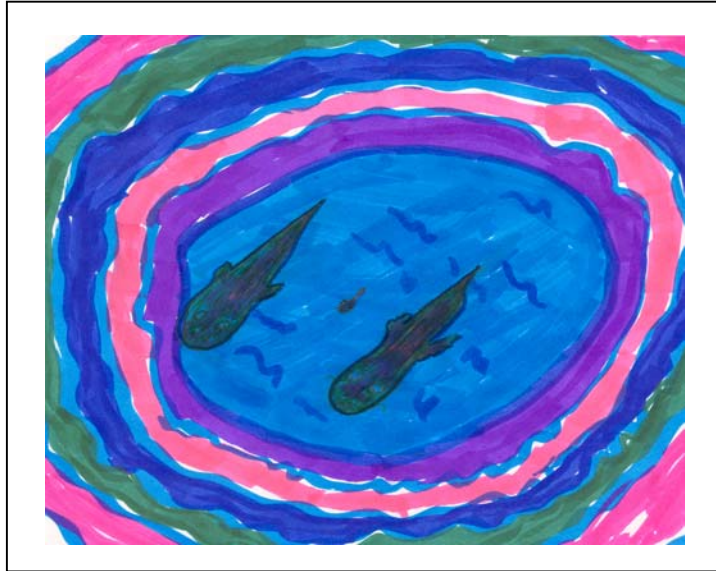


Figure 21. Drawing – Fish Swimming under the Ice at Aylmer Lake (Tł̄a Gai Tué)

There is a place where the caribou cross at Aylmer and that caribou crossing is called Łeryah da. [the ice is moving slowly] When the caribou come out they are covered in crystallized ice. (JC 01 29 01)



Figure 22. Drawing – Caribou Coming out of the Crystallized Water

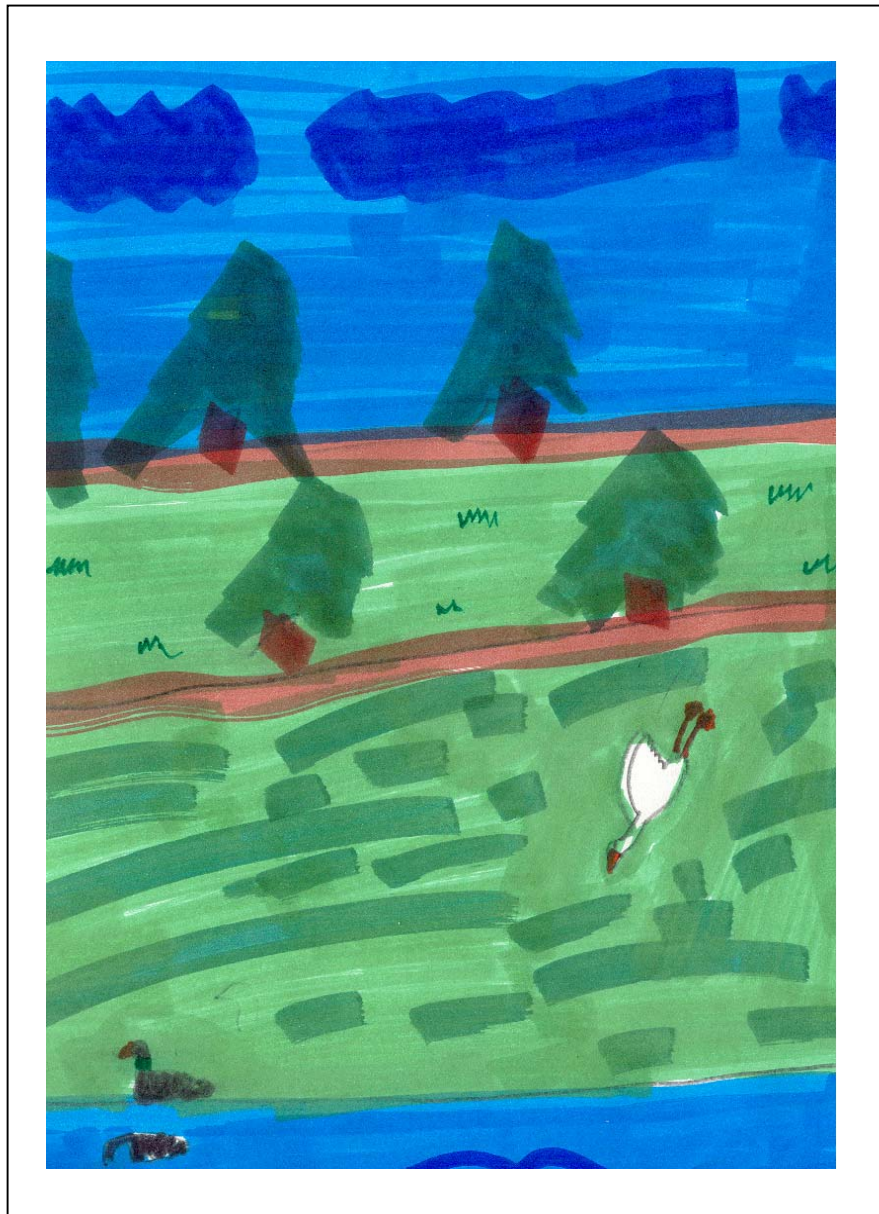


Figure 23. Drawing – Geese / Ducks Landing On Aylmer Lake (Tłá Gai Tué)

You should protect the areas and waterways that flow into the Lockhart River. Even as far as McKinlay Point to McKay Lake should be protected. At one time in the dry years – it may not seem like the water flows that way but in the spring you can see it. - it all flows into Great Slave Lake. (PC 01 29 01)

	<i>Indicator</i>	<i>Value and Description</i>
Aylmer Lake (Tł̄a Gai Tué)	Indicators of Denesqłine Nēne	<ul style="list-style-type: none"> • campsites, tent rings • Denesqłine trails • traplines • arrow heads
	Indicators of ecological significance	<ul style="list-style-type: none"> • caribou trails • ?eda / ?edacho (caribou crossings) • Kałdēle (open water) • Leriyah da Tué • Thai T'ath (eskers) / denning sites • rich vegetation / edible and medicinal plants (blueberries / rosehips, labrador tea etc..) • treeline • migratory birds, loons, swans, geese • height of land • k'a (waiting places) • na yahge (rocky areas) • ice ridges • ts'u ?aze dı ?a sɿ (timberstands)
	Spiritually Significant Areas	<ul style="list-style-type: none"> • sacred water of Aylmer Lake (Tł̄a Gai Tué)

4.4 Indicators

Indicators of change for katthinēne can be built upon what elders know to be true about natural and unnatural change within the environment, how they value that environment and how they understand changes within that environment.

4.4.1 Indicators of Land /Habitats

The values associated with the land are based on a variety of factors. How easily people were able to travel by foot in summer or by dog-team in winter was particularly important. People also highly value areas that are sheltered and where there is dry wood for making fires – these areas are good for setting camp. Areas where berries and traditional medicines are known to be abundant are also highly valued. Land as habitat to wildlife is also an important value. Migratory birds, fish, caribou and fur bearing animals all share different areas of land in different ways. During the preliminary study at Gahcho Tué, elders spoke much about the eskers as well as the flat, marshy, rocky and areas. During the Kaché Tué study including the on-the-land assessment at Artillery Lake (?edacho Tué) (1999) and during the on-the-land assessment on the North Shore (Tué Nedhe) (2000), elders commonly referred to these four general habitats / landscape areas. The value of classifying the land in this way was verified during a November 2000 workshop with the elders and again in March 2001.

<i>La</i>	<i>Habitat Indicator</i>	<i>Value and Description (Uses)</i>
-----------	--------------------------	-------------------------------------

flat land	<p><i>travel / setting camp / gathering berries, medicines</i></p> <ul style="list-style-type: none"> • <u>barrenland sheltered with small trees</u> - setting camp • <u>treeline sheltered with drywood</u>- setting camp • <u>high ground</u> - (seeing) • <u>barrenlands / high ground with large boulders (k'a)</u> - caribou hunting
wet land	<p><i>gathering berries, medicines / hunting</i></p> <ul style="list-style-type: none"> • <u>hummock</u> - berries / medicines / mosses • <u>barrenland marsh</u> - geese / ducks (hunting) • <u>treeline marsh</u> - moose / muskrat / beaver habitat (hunting)
rocky areas	<p><i>gathering berries, medicines, hunting</i></p> <ul style="list-style-type: none"> • <u>barrenlands round rocky areas</u> (hare / ground squirrel, ptarmigan... habitat) - hunting • <u>barrenlands pointed rocky areas</u> (hare / ground squirrel / ptarmigan habitat) - hunting
Eskers	<p><i>travel / setting camp / gathering berries, medicines</i></p> <ul style="list-style-type: none"> • <u>esker sides</u> - (wolf, whitefox habitat) - trapping/ hunting / shelter / setting camp) • esker tops (traveling / seeing / hunting)

4.4.2 Indicators for Health of Migratory Birds

Values associated with migratory birds are also based on a number of factors. The Denesōłine harvest of geese and ducks in spring and in fall is fundamental part of the Dene way of life. Over 38 different species of birds were commonly known and/or harvested in katthinēne.

Each of these species is valued for different reasons. The Long Tailed Duck (H̄l Kal) is a popular part of the spring diet. He is also valued as a smart bird who can hide quickly under water if it is disturbed by approaching hunters. The Ptarmigan (Kásba) was highly valued during long periods when there was no caribou. Other values are more spiritual. The loon, for example, is associated with good eyesight. During phase one of the study, elders spoke of the eagle as having powerful traditional medicine.

In harvesting ducks, as with other species, the Denesōłine valued their ability to use all parts of the duck. One elder described this process of h̄lnes.

You can eat any body parts from the ducks – everything from the stomach, kidney, liver... Most people enjoy eating ducks. If you are going to cook it on the fire – first singe the feather and then burn out what is remaining... That's what they do with geese. I enjoy eating ducks... From the ducks and geese we used the feathers for making feather blankets and pillows...(MD 1999)

It is for these reasons and based on these values that health of migratory birds is of significance to the Denesųline. Being able to actively track changes in the health of migratory birds, to ensure that these values are protected, is important to the Denesųline.

The following table describes ways in which the elders recognize that the birds are healthy.

	<i>Indicator</i>	<i>Value and Description</i>
Migratory Birds	Fat	<ul style="list-style-type: none"> fatty skin under the feathers means a healthy bird higher nutritional value
	Diversity	<ul style="list-style-type: none"> Spiritual significance (many different voices of birds is a gift from the Creator)
	Population	<ul style="list-style-type: none"> abundance of migratory birds means a healthy population greater ease of harvesting security of an abundant food source
	Migration	<ul style="list-style-type: none"> pattern of migration including time of year and consistent use of staging areas suggests a healthy population and healthy habitat security of an abundant food source ease of harvesting

4.4.3 Indicators of Healthy Fish

Fish in katthinēne are valued for many different reasons and in different geographic areas. At least 12 different species of fish are commonly harvested in lakes throughout the study region. The Lake Trout is called Łu zane in Chipewyan and is among the most commonly harvested species along with the Łu and Łu Cho or Whitefish. Both species are valued for their relative abundance especially in later spring and summer when caribou were scarce. People valued fresh fish and would also dry and store it for future use for themselves and for their dogs.

Similarly to other wildlife that is harvested in Katthinēne, the elders recognize the value of all parts of the fish when they were fixing the fish (Łu cháile). The following table describes the different parts of the fish that the elders know from Łue cháile.

Chipewyan	English	Chipewyan	English
Łue tthēn	Flesh	Łue tłá tthen	Fish tail meat
Łue tthı	Head	Łue che ghay	Tail fins
Łue beyeda	Mouth	Łue gothe	Scales
Łue k'ase	Gills	Łue tła	Tail
Łue dzi	Heart	Łue chı	Skin
Łue ddher	Liver	Łue něne	Backbone
Łue k'uné	Eggs	Łue ghaye	Fins
Łue dzine	Stomach	Łue chą	Guts
Łue tłēs	Fat		



Figure 24. Anne and Charlie Comparing Jumbo Whitefish and Whitefish

It is on this basis that we understand the Denesųline values associated with fish. Being able to keep track of changes in the health of the fish populations is seen as useful. Some of the ways in which the elders recognize changes in the health of the fish.

Fish	Size / Shape	Length / weight ratio (some natural variation within katthinëne) (deformities)
	Population / Diversity	balance of species in the system
	Fat	fat around organs – sign of good health; good water quality
	Clean / Organs	Parasites; infection; deformity – sign of poor health
	Colour / Texture – Flesh	Darker red meat of trout is preferred;
Water	Water Levels	levels in streams, rivers, lakes
	Water Quality	taste (tea); contaminants; chlorine;
	Respect	paying the land; using the water;

4.3.5 Indicators of Healthy Caribou

The value of the caribou to the community dates back to time immemorial. A legend (told by Zepp Casaway) even suggests that a Denesq̓line man was born from a caribou hoof and survived by nibbling on a caribou tongue. This legend of the “The Old Lady and the Tiny Tiny Man” tells us about the very powerful and integral relationship between the Denesq̓line and the caribou..

In the harvest of the caribou (etthën nał t'ath) – the Denesq̓line spoke at length about the importance of respecting the caribou - knowing how to recognize the best animal to harvest, being able to take down and fix the animal and pack the meat back to camp. The proper preparation of the hide and the meat for immediate use or for storage is another aspect of the respecting the caribou that was emphasized by elders. Failure to show proper respect would result in changes in migration.

When hunting, you take everything from the caribou and leave nothing but some guts. That is how they hunted back then... People always have respect for the caribou because it is our main diet and you never hit, poke and whip caribou. Once someone [disrespects the caribou], the caribou will [migrate] further out and that is very bad for the people. (NM 10 04 99)

As with other species, using the whole caribou is very important.

The bone marrow, they would boil and make lard out of it – they even saved the hooves... the little hides would be made into small clothing like moccasins, hats, pants, slippers, parkas, tents, sled, dog harnesses, ropes, canoes, snowshoes and blankets. (ML 09 1 99)

There are a great number of sites in katthinëne, that are associated with harvesting caribou. Among the most well known are the caribou crossings (?eda), caribou blinds (k'a) and caribou corrals. Areas where there are small groups of trees in the barrenlands were also important.

When the caribou are spotted they are killed then – brought to where there are small trees. The trees are put on it or they can also be put on the ground for use in late winter and nothing can be taken that way. The wolverine is a real thief and this is done to prevent him from taking anything. (ZC 09 27 99)

It is from these values that we interpret the value of caribou to the Denesq̓line and understand the importance of the continued health of the caribou.

Caribou	Respect in Etthën ha ?enalze	Knowing the animal <ul style="list-style-type: none"> • Bełtsicho – old bull • Yalghus – younger bull • Ts'udǵ - cow • Deyeth ?aze - teenager • Tthaze – 2 year old • Betsi?aze – less than a year
	Population	Number of caribou (size of migration, groups)
	Fat	Fat - <ul style="list-style-type: none"> • Busy antlers • Wide chest • Good looking hair • Short tail • Not skinny
	Migration	Natural pattern of migration <ol style="list-style-type: none"> 11. ?enil?as – caribou returns 12. Etthën narilya – whole migration stops 13. Bedé ne she – growing antlers 14. Deladzine ?enich'ú – caribou velvet comes off 15. Bedé hegun – antlers dry up 16. ?ek'endalde – ?ek'enalde 17. Ts'an jǵ – ts'an jǵ 18. Narilya – winter feeding 19. Nal?as - nal?as 20. Tsi hal?as (betsi) – tsi ha?as
	Sites	Integrity of caribou crossings, caribou blinds, corrals, small-treed areas, over-wintering grounds



Figure 25. Photo - Noel Drybones Fixing Caribou

4.5 Unnatural Changes in Katthinëne

The region of katthinëne is a system of rich resources. The development of these resources by outsiders has been a major issue for the Denesóline in recent years. One elder shared his perspective on how the kind of changes they experienced in living on the land differ from the changes resulting from development activities such as hydro.

If I had 10 traps - I would live on that. If I didn't get any furs, I would move on to a different area. If we killed a caribou, later it would all be gone. This is how things were. No it's not like that -we have to really watch the land. When I was 20 years old, I didn't notice any changes in the land but now - just look at Nanacho Lake for example, its spoiled [from the Talston River Hydro-Electric Project]. (JBR 10 26 00)

The hydro-electric project on the Talston River was the cause of many environmental and socio-economic impacts as described here.

Long ago at Nanula Tué before they build the dam there were good fish just like Great Slave Lake fish. Now they have a dam [on Nanula Tué] and fish are different. I remember before they build the dam I trapped around there... when the dam was built there – there were lots of changes. You can't eat the fish now because its soft [and] skinny. (PM 1999)

In addition to the hydro-electric project, mineral resource exploration and development has left many scars on the land including the site on Stark Lake.

The fish in Stark Lake are a problem. Since the mine [uranium exploration site] was put there... the fish are different – the water too. In another ten years, maybe we won't be drinking the water from our own lake. There are lots of elders who have passed away from cancer already because of it. (PM 04 20 00)

Current resource development projects therefore are of significant concern to the Łutsël K'e Dene. Mineral resource development projects such as the BHP Ekati Mine, the Diavik Diamond Mine and the proposed DeBeers Diamond Mine at Na Yaghe Tué have raised many questions about the long term social and environmental changes that might occur.

In addition to the specific changes in the environment, anxiety over potential long-term negative effects is an impact in and of itself.

In addition to resource development activities, climate change, tourism and community infrastructure such as diesel generators and roads, are also seen by the elders as stressors on the environment.

4.5.1 Impacts from Mining Activity

The impact of stresses such as mineral resource development on the landscape and habitat of katthinëne are the cause of great anxiety for elders. Impacts of exploration and mineral resource development are of particular concern, however, garbage left by tourists and others is also an issue.

I think all the mines should take the garbage out [off site]. What about the cans... they should bring it to somewhere so they can be recycled. If we had a person monitoring these kinds of things, it would be good. We could hire someone and they could write reports for us about what happens there. (AB 10 16 00)

A lot of garbage is being dumped and the animals eat it - geese, ducks and caribou. The animals depend on other animals to survive. The land is like our refrigerator. If it is damaged we will be damaged too. (LE 10 26 00)

Because of the garbage - our land is spoiled. I travel all around Rocher River area and I never saw the land spoiled anywhere. Now a days it's different. (JBR 10 26 00)

Air pollution and the indirect impacts on habitat of diesel generator emissions is also a big concern to elders who worry that animals will ingest the fall out of these emissions.

They use a furnace [diesel generator] for heat at the mine and the exhaust goes into the air. Then the animals eat that when it gets on the ground. In the past we used dog teams to get around - there was no pollution from that.... (LE 10 26 00)

I've worked at the mine last spring, Winspear [De Beers - Snap Lake] from what I've seen about ten-mile radius north, west south and east, toward the north east side about ten miles radius I've walked. When I was walking around I sunk my feet in to the snow. I kind of wondered about it. Two days later I traveled in a helicopter around the area and noticed dust that fly from the trucks that haul gravel. At that time the wind was mostly coming from the north. I've noticed the dust particles fly at least ten miles radius to the eastside on to the ground, which will effect the environment and caribou habitat. (JD 18 12 00)

Other concerns about water quality related to the accumulation of contaminants and impacts from site specific exploration and development activities such as on-ice drilling.

When you drill for diamonds - what you use [drilling muds] spoils the water. You can't just throw it on the ground. When you are drilling at the mines - this mud you use - I understand it makes it easier to drill. This mud along with the sewage and the garbage make a big mess. You can't just throw it away. What do you do with it? Do you throw it on the ice? It's not good. Even if you throw it on the land, there are tiny little streams that run into the water - eventually this water all gets to Great Slave Lake. You have to be careful of these things. (PM 02 14 01)

In the wintertime some elders were over there. (Gahcho Tué) They could see them drilling on the ice. There was a lot of oil on the ice. In summer, a geologist was collecting some samples from under the lake. All the oil and snow on the ice were mixed together. I know they throw it on the land but I don't know where it goes from there. I was out there in the spring. There was no good vegetation left around the tailings area. In future, the water might be polluted.

J.B. Rabesca raised concerns about drainage into Great Slave Lake and the potential for mineral resource development to pollute the water. He recommended careful monitoring of water quality.

There is going to be a lot of garbage and waste left on the snow during the winter. In springtime, it will flow down into Great Slave Lake and contaminate the water. Water has to be monitored carefully, especially runoff from the mine. The southern biologists don't know our traditional knowledge or our Dene way of life.

Elders also expressed concern about the impact of development on fish.

What happens when they explode the rock - everything [the dust] spreads out everywhere. If that happens, the fish will die or get spoiled. Dams - they flood the area and the land dies - the overflow kills the plants. The fish start to eat the plants from the land and they die. The water we drink will also be spoiled.

There are large dynamite explosions at the mine - in the water. It's very loud. I think it will kill the fish. They shouldn't use so many explosives. (GM 1130 00)

The concern the elders have about impacts on migratory birds relates to their concern about impacts on water quality.

The animals / birds live on the land they drink the water... they will feel the effects. (PC 11 30 00)

The caribou around that place; I am concerned about if they caribou start eating food around the mine area; anything that spills on the ground is taken up by the plants. There is muskeg in that area too. The spills will stay in that area. Someone said they would put up a fence in that area but they haven't done anything yet. If they put a fence in that area - we wouldn't worry about the caribou. It's not good to have caribou in that mine area. (JB 02 14 01)

Regarding the mine - it doesn't look good. I don't know why people are not saying anything. The mining companies are only here to make money - then they will leave. We will always be here. If they spoil the land - it's ok for me but what about our children. There will be a big impact for them. More and more people will come here. You won't see the caribou - you will only see the path they used to follow. What the elders told us before - it is happening now. (JBR 11 30 00)

Regarding the winter road - If you make a road you make it too high. It's too hard for the caribou to get over it. It should be lower. The caribou won't just pass through a little pathway you make... they go all over. The road needs to be fixed. (JB 02 14 01)

Jonas Catholique talked more broadly about his concerns with caribou collaring.

I am also concerned about the caribou collaring. This is so we can locate the caribou by satellite. We attended a meeting about that. In the past people knew where the caribou were by the old "lady of the falls" [Parry Falls - spiritual site of the Łutsël K'e Dene].

The tailings pond and its impact on caribou and other wildlife was the major issue of concern to the elders who had already visited the Monopros [Gahcho Tué] site.

I am concerned about the tailings ponds and where the waste goes-also the sewer. They need to put a fence around these areas so animals won't be affected by it.

The two elders, who had participated in the caribou count, had some specific concerns regarding the tailings dump/pond.

Where the Monopros [DeBeers Exploration Site] mine site is located, that is the where the caribou migrate and bring their young. I was talking to somebody from Monopros. *They are going to try and monitor the caribou but I don't think they can do that. In the summer time, we still get food from the land. Those are the caribou that go right through the Gahcho Tué area. We will be the ones affected. Our main source of food is the caribou.*

[At the Ekati Mine] - the animals might be getting run over. The big trucks cannot swerve to miss small animals or even caribou. You have to make a choice - it's the caribou or you. (GM 11 30 00)

4.5.2 Impacts from Climate Change

The changes that appear to be occurring as a result of climate change are also a concern. Increased variability in temperature may be the cause of more lightning storms in the summer season. Some elders describe this increased frequency of forest fires caused by lightning storms as an unnatural occurrence, (PM 11 06 00) and they worry about the impact of these fires on caribou habitat.

Regarding the forest fires - some scientists say its good for new growth. But do you know what the caribou eat? If the lichen burns - it will take over 100 years for the plants to grow back. Some scientists say the forest fires are good but it's not like that for us. There never used to be so many forest fires. I have never before seen a forest fire started by lightening. We look after the land and we respect the land and the animals. (PM 11 06 00)

During a forest fire - the animals must be pitiful - burning alive. The government wants to be the boss of the land but they won't even control the forest fires. There are a lot of funding cutbacks. There was a big forest fire at Austin Lake - that is where my son traps. (LE 11 06 00)

Elders are concerned about the impacts of forest fires on caribou migration.

The reason why there is less caribou now is because of the forest fires in the area. Caribou vegetation is all burnt around Nanacho Lake (Nanula Tué). On the north side of McLeod Bay (Tue Nedhe) it is also burnt. The south side is not so burnt. Caribou come to the south side because of that. We can't do anything about what has happened with these fires. We cannot help what happened, nor could we have stopped it. The land has to grow back by itself. It's

all a part of Mother Nature's life. Before it happened we should have been prepared. The government should have helped us. (AM 10 18 00)

The water levels were much higher in the past according to the elders. (05 11 00 MT) Elder Maurice Lockhart talked about his observations of the wind, rain and water levels, suggesting that there has been a significant decline in water levels in the last ten years.

The rain takes care of the land. The wind hasn't changed that much but the lake water has gone down a great deal. The rain and wind don't seem to have changed but still somehow we seem to be losing water. (ML 09 15 99)

The fact that this change is not well understood by the elder suggests that it may be a unique occurrence tied to global warming. The suggestion that it may be climate change triggering the loss of water was made by elder Noel Drybones. Unlike Maurice Lockhart, Noel has observed a change in the winds in recent years.

The climate is changing. The wind blows harder than it did in the past. Its different - the wind picks up quickly and changes quickly; now I don't know what has happened... In the afternoon you can't even go out onto the lake. At one place in Whitefish Lake I got stuck on an island because of this... The Thelon River - things have changed also. A long time ago, my sister and me traveled on the Snowdrift River to Siltaza Lake. We never saw any rocks along that river but today you can see lots of rocks. [the river is shallow.] (ND 05 11 00 MT)

Now there is hardly any caribou. Things are not the same as it used to be. There is less caribou – even ducks and the water also seems lower. All the small lakes [ponds] on the barrenlands are disappearing as well as the small streams and creeks that flow between them. That is why the water is no longer healthy to drink. (ML 08 28 00)

Despite their worries, elders are unsure what can be done about this and what the overall effect will be on the wildlife in katthinëne.

I don't know if we can anything about climate change. If it's cold - it's cold. If it's warm - it's warm. What can you do? I don't know if it will affect the animals. We will see when it happens. (PM 11 30 00)

JB Rabesca describes his concern that the land is increasingly unable to “clean itself” or recover from the stresses being placed on it.

I have lived on this earth for a long time. In the early days nothing was wasted. Even human waste was not considered garbage. Other animals ate other animal feces. The land would clean itself. Now it's different. If there is an oil spill - how can the land clean itself? There is a lot of damage happening now. (JBR 10 26 00)

The elders recognize that others who use the land must also come to terms with the fact the katthinëne may soon be unable to sustain itself. Some threshold of resource development may soon be reached.

There are many considerations in defining those thresholds. The commitment of resource developers is one issue. Some elders see value in working with corporations who will listen to their concerns and recommendations about how to respect the land and ensure it is protected for future generations.

One elder talked about the progress he sees working with biologists whom he believes "know what is good and bad for the environment."

Its not like there is mining going on without our knowledge. We are notified. Biologists know what is good and bad for the environment. They know what is good and bad for the animals. We know too. We have to work together to develop this project. (Preliminary Study at Gahcho Tue - 1998)

Being actively involved on site is particularly important.

Our youth and elders should be more involved in activities on site. Our traditional knowledge is supposed to be included. More of our people should be involved. This is how the project was originally presented to us. (AB 10 30 00)

To build greater understanding, elders recognize the value in working together.

If someone is creating something and everyone agrees it is good then it will work out. If they don't agree then it won't work out. Working together - its important to think about our children and ensure that they will have a good economy to survive.

Ultimately, however, it is important to recognize, as the elders do, that we are not completely in control of the future and how it will change.

It is the Creator who will end up determining what will happen to the land. (LE 10 26 00)

4.5.3 Additional Indicators Related to the Impacts for Resource Development

Resource Development	Water	<ul style="list-style-type: none"> dams, flooding on-ice drilling disturbance of water; Spills (oil etc.) on ice on-land spills (drain into the water) 		
	Vegetation	<ul style="list-style-type: none"> Loss and contamination of vegetation around mining camps, particularly around tailings ponds Garbage being left 		
	Wildlife	<ul style="list-style-type: none"> Animals eating garbage at mine site Increase stress on wildlife; migration changes, accidental deaths 		
	Fish	<ul style="list-style-type: none"> fish dying from lakes being drained, explosions, 		
		<ul style="list-style-type: none"> 		
Climate Change	Weather	<ul style="list-style-type: none"> unpredictable and unseasonably warm weather unpredictable wind conditions 		
	Rivers and Lakes	<ul style="list-style-type: none"> decrease in water levels small streams and creeks are drying up; water is no longer safe to drink 		
	Forest Fire		<ul style="list-style-type: none"> increased incidence of forest fire decreased resources for forest fire management 	
		Habitat	<ul style="list-style-type: none"> Loss of wildlife habitat due to forest fire 	
		Wildlife	<ul style="list-style-type: none"> death due to forest fire changed migration (caribou) 	
		Denesǫline	<ul style="list-style-type: none"> loss of key trapping areas loss of property (cabins) and culturally significant areas (gravesites) 	

		<ul style="list-style-type: none">••	
<i>Unknown</i>	Wildlife	<ul style="list-style-type: none">• population of ducks and geese is lower• there are fewer caribou	

4.6 Community and Ecosystem Health

Integration of Results from Community-Based Monitoring and the Traditional Knowledge Study on Community Health

The results of this study come from the Łutsël K'e Dene perspectives as resource harvesters. Generations of living on the land in the region of katthinëne has provided them with a tremendous knowledge about the wildlife, habitats and landscape features, as well as places such as Artillery Lake (?edacho Tué), the North Shore (Tué Nedhe) of Great Slave Lake and Aylmer Lake. This lifestyle has also provided them with tremendous perspective and understanding of changes in their environment.

The intimate relationship between the Łutsël K'e Dene and the land and resources of katthinëne is given meaning by the social, economic, cultural, spiritual and political context of the community. The Traditional Knowledge Study on Community Health (1998) describes this context from the perspective of community elders. Indicators from the Community-Based Monitoring Pilot Project (1996) also provide definition to this relationship based on local knowledge. These studies bring together three themes of community health - self-government, healing and cultural preservation.

Self-Government

The leadership has always an important role in defining the community's relationship to their environment. In the past leaders were keenly involved in the organization of the community and how they lived and worked together, and often provided direction on resource use. For example, the Chief would be responsible for traveling from camp to camp and ensuring that meat that was harvested was divided equally among community members. Today the leadership still plays an important role in community resource harvesting and use. Over the last thirty years however, the leadership has had to begin addressing an exploding number of issues related to resource use and development by outsiders. Community members today emphasizes the importance of the leadership being knowledgeable about issues which affect the community, communicating and sharing information and making decisions.

Working together has always been an important aspect of the community's relationship to their environment. In the past, people helped one another to survive. People would gather together at key times of year, such as the fall caribou harvest, so that they could share knowledge, tools and food. Sharing among family member was the most common, however, anyone who was unable to hunt or care for themselves was also a high priority. Wealth was largely defined by the number and quality of hides used for clothing and the tools needed for surviving on the land. People also had fun together, playing cards, and sharing in celebrations such as weddings, drum dances and hand games. When Yellowknife was established in 1930s however, the elders noted some changes in the way in which people lived and worked together on the land. The number of people drinking (alcohol) increased, people began fighting with one another, and there were more people unable to care for themselves (due to alcohol abuse). This in turn affected they way in which people harvested and shared resources. Today, working well together is also very important to community members. It is good when people are able to help one another (without being paid), communicate in a good way and participate in the decisions being made in the community. However, working relationships in the community are more complex today than in the past. Resource development and wage employment has changed

the way resources are shared. People are less likely to help individuals and families that have jobs. Youth participation in the community is increasingly related to their success in education and securing wage employment. Committees, Boards, and the Band structures established to administer education, health, and municipal services have introduced new kinds of working relationships between community members. New structures and arrangements such as those under the Wildlife Lands and Environment Committee are also increasingly defining the way in which the community members share knowledge and resources (related to the land) and their land use activities including trapping, hunting and community gatherings on the land.

Healing

The relationship of the community to katthinēne is also defined by their journey of healing. The land including the animals, trees, plants, air and water provide the community with a foundation of emotional, spiritual, physical and mental well-being. In the past individual wellness was defined by the capacity for self-reliance on the land. People that were able to hunt for themselves and stay alone in the barrenlands were considered healthy. People valued being able to travel whenever and wherever they chose. Taking care of oneself including tools and the details of traveling was important. Self-reliance on the land was also strongly related to the family and the roles and responsibilities of individuals within the family. Men were primarily responsible for hunting and would teach their sons at an early age. Young boys as well as girls also helped their mother in looking after the camp. She would teach them many things including how to properly preserve and store meat. Parents were role models and children listened to their parents. “If the parents worked well, the children would be smart.” The family is still considered important, however, there are many challenges for parents and children in their lives today. Resource development and wage employment have changed the role of parents within the family. Youth have new roles largely defined by their education. The amount of time families are able to spend together on the land and in harvesting is lessened. However, the land was and still is an important aspect of well-being. It is defined as having both spiritual and physical healing qualities. Just being on the land, as well as visiting specific places such as the “old lady of the falls” provides a sense of wellness. People continue to seek help from the land, and the Creator in their everyday lives. The land is also a source of medicine for curing physical illnesses. While today there is an increasing emphasis on western medicine, the land still plays an important role in the community’s healing.

Cultural Preservation

The cultural well-being of the community, the skills and knowledge drawn from living on the land, is perhaps the aspect of wellness in Łutsël K’e most clearly connected to the land and resources of katthinēne. Skills and knowledge related to traveling on the land including place names, travel routes as well as that related to hunting and trapping was fundamental. Skills and knowledge related to the harvesting of caribou was of particular importance. Today these skills and knowledge are still important, however, effectively sharing this information with younger generations is a challenge for parents, grandparents, the Band and the school. The importance of preserving the

Chipewyan language is a fundamental priority. Impacts from developments such as the Talston Hydro Electric dam and that potential impacts of mineral resource development are a major concern. In the past, people really respected the land. They watched what they were doing. Today it is not like that, according to the elders. People leave garbage all around, do not pay respect the caribou. There is also anxiety over unnatural changes in caribou migration and the potential for the water, fish and wildlife to be spoiled by contaminants. The potential loss of sacred sites, such as the “Old Lady of the Falls” also weigh heavily on the minds of elders and community members.

The health of katthinēne including the land, water and wildlife is thus intimately related to the health of the community.

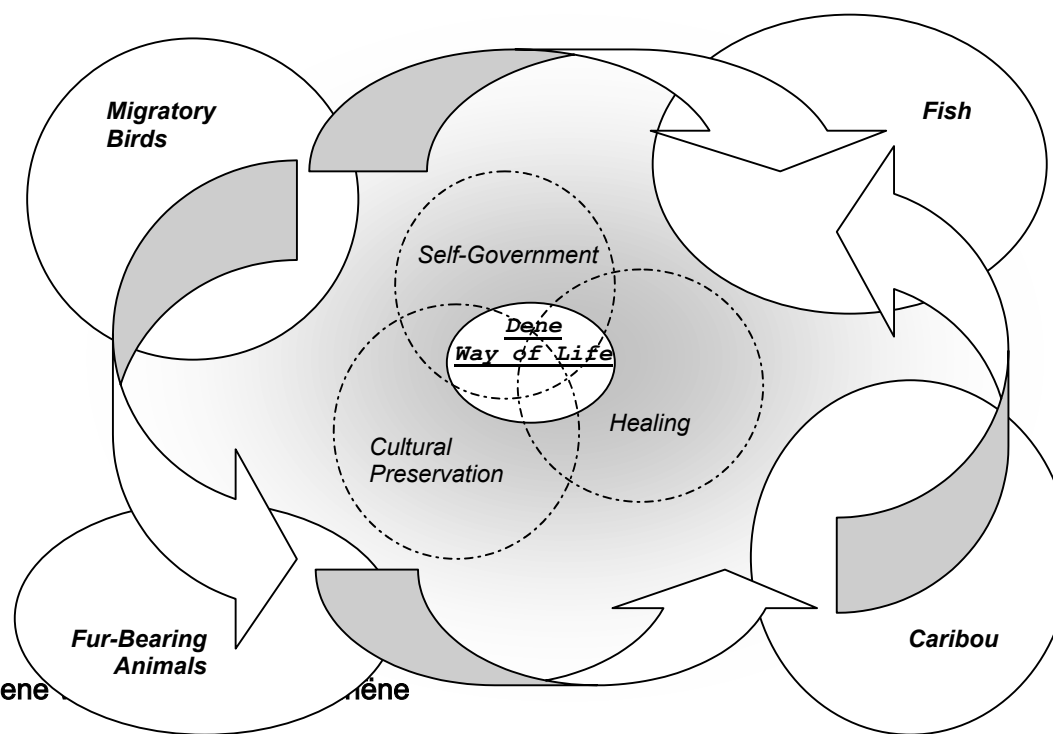


Figure 26. Dene katthinēne

Changes in the health of the land and resources reverberate within the community in terms of their capacity for self-government, healing and cultural preservation. Mineral resource development, in particular, introduces a range of new ecological issues that represent challenges for the community. This report as well as others carried out with Łutsël K'e Dene First Nation are intended to increase understanding of rich and inter-related dimensions of social-economic, cultural, spiritual and ecological health.

5. Links with Parallel Studies

The *Traditional Knowledge Study in the Kaché Tūé Study Region* is the ecological parallel to the socio-economic and cultural work done in Łutsël K'e under the *Community-Based Monitoring Project* (1998-Present), the *Traditional Knowledge Study on Community Health* (1997) and the *Community-Based Monitoring Pilot Project* (1996).

6. Training Activities and Results

See Section 3 - Methodology

7. Schedule and Any Changes

See Section 3 - Methodology

8. Bibliography

- Banfield, A. W. F. Mammals of Canada Toronto: University of Toronto Press, 1974.
- Bliss, L.C., O.W. Heal and J.J. Moore. "Tundra Ecosystems: A Comparative Analysis," In the International Biological Program. (25) Cambridge University Press.
- Godfrey, W. E. and J. A. Crosby and S. D. MacDonald The Birds of Canada (Revised Edition) Ottawa: National Museum of Canada, 1986
- Hart, Michael Anthony. "Sharing Circles: Utilizing Traditional Practice Methods for Teaching, Helping and Supporting," In From Our Eyes: Learning from Indigenous Peoples. (Sylvia O'Meara and Douglas A. West Eds.) Toronto: Garamond Press, 1996.
- Jacques Whitford Environment Limited (JWEL). Draft Final Report on an Archaeological Overview Assessment of the Proposed 1998-99 Winter Construction Areas Kennady Lake, District of Mackenzie, NT. Burnaby: Jacques Whitford Environment Limited. (August 1998)
- Johnson, Derek, Linda Kershaw, Andy MacKinnon and Jim Pojar. Plants of the Western Boreal Forest and Aspen Parkland. Edmonton: Lone Pine Publishing and the Canadian Forest Service, 1995.
- Peterson, Roger Tory. A Field guide to Western Birds. (3rd Edition) Boston: Houghton Mifflin Company, 1990.
- Pojar, J. K. Klinka and D. V. Miedinger. "Biogeoclimatic Ecosystem Classification in British Columbia," In For. Ecological Management. (22) pp.119-154
- Reid, Bob, Fred Sangris and Lawrence Catholique. Lac de Gras Drainage Basin Study. Yellowknife: DIAND -Water Resources. (June 1998)
- Scott, W.B. E.J. Crossman Freshwater Fishes of Canada Ottawa: Fisheries Research Board of Canada, 1979.
- Usher, Peter J. et. al. Hydro-Electric Development and the English River Anishanabe: Ontario Hydro's Past Record and Present Approaches to Treaty and Aboriginal Rights, Social Impact Assessment and Mitigation and Compensation. (Report for Nishanambe-Askı Nation, Grand Council Treaty#3 and Teme-Augama Anishanaba). Ottawa: P.J. Usher Consulting Services. (December, 1992)