

# *Volume I*



# **NWT Diamonds Project** *Appendices*

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## **APPENDIX I-A**

# **Introduction**



**TŁİİCHÒ NDÈ:**  
**THE IMPORTANCE OF KNOWING**

**Report Prepared  
by  
Dene Cultural Institute  
for  
The Dogrib Treaty 11 Council  
and  
BHP Diamonds Inc.**

**June, 1995**

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# TŁİİCHÒ NDÈ: THE IMPORTANCE OF KNOWING

## Introduction

Over the last decade Aboriginal organizations in the Northwest Territories have continually pressured government and industry to include traditional knowledge in the planning and management of renewable and non-renewable resources. In May 1995, the Federal Environmental Assessment Review Panel responded to these requests by including a provision for traditional knowledge in the guidelines for the environmental review of the proposed BHP Diamonds Inc (BHP) mine in the *Ek'ati* (Lac de Gras) area (Map 4), which is approximately 110 kilometers from the Dogrib community of *Wekweti* (Map 3, also known as Snare Lake). In January, 1995 BHP approached the Dene Cultural Institute (DCI). DCI explained the necessity of community control in effective traditional knowledge research and encouraged BHP to work out an agreement with the Dogrib Treaty 11 Council. BHP agreed to provide the Dogrib Treaty 11 Council with \$30,000 to conduct the traditional knowledge relevant to the *Ek'ati* area. The Council, in turn, contracted DCI to carry out this research. This is in keeping with the direction the Dogrib have taken, over the last decade, to do their own traditional knowledge research with assistance from organizations like DCI.

This report is the result of that research. By using both Dogrib traditional knowledge and observations, the elders documented their reasons for their two main concerns which are:

- i) how will Whites behave towards the environment and towards the Dogrib whose land they want to mine; and
- ii) how will BHP protect the *Ek'ati* area as an important hunting, trapping and fishing area for future Dogrib

Throughout this report the word White is capitalized as the elders use the term as a proper name, much the same way the word Native is capitalized in reports published by the Federal, Territorial and Provincial governments.

## Objectives

The objectives of the research are.

- i) to demonstrate the importance of elders guiding traditional knowledge research;

- ii) to demonstrate the importance of traditional knowledge as base line data for resource management;
- iii) to determine the possible length of time needed to complete the collection of traditional knowledge on the Lac de Gras area,
- iv) to demonstrate the importance of using the Dogrib language to ensure culturally appropriate interviews as well as culturally appropriate translation of concepts and terms,
- v) to demonstrate the importance of using trained Dogrib researchers to ensure each traditional concept is discussed and considered before writing the report

These objectives have been met in varying degrees with traditional knowledge and recent observations being used to discuss the wildlife and socioeconomic concerns of the elders. These concerns were paramount, therefore virtually no baseline data was collected that could be used to monitor resources. The remaining objectives were met

- the importance of elders guiding research is demonstrated by the fact that they chose to use their knowledge to express concerns that would not have been addressed if the researchers had used developed questionnaires rather than facilitating an atmosphere more closely representing traditional discussions of the environment;
- the length of time necessary to complete research is discussed below;
- the importance of using Dogrib researchers for culturally appropriate interviews and translations was significant here given the references to other stories, placenames and cultural information not readily available to outsiders, or obvious if interpretation rather than verbatim translation is being used to summarize information

## **Methodology**

The Dogrib Treaty 11 Council selected the Rae Lakes research team the members of which have been working together for two years documenting Dogrib traditional governing systems. The research team was chosen because they have an efficient working relationship and have gained respect among the elders in Rae Lakes. In part, this is due to the team using the Participatory Action Research method, which is described in Information North (Appendix Two). PAR ensures ownership of information by the elders, who are the primary holders of traditional knowledge. Ownership not only includes the elders being recognized for their knowledge but it includes control of the process used to document their knowledge. PAR incorporates Dogrib researchers, thereby ensuring that young adults learn the traditional beliefs, values and knowledge specific to their ancestors.



In this case the researchers traveled to Kq (Fort Rae) where a number of elders from the *Fk'ati* area have settled. Andrew Gon and Romie Wetrade, two members of the elders' Community Advisory Committee (CAC) in *Gameti* (Rae Lakes), traveled with the research team to provide support. They assisted the researchers by: i) choosing the *Ek'ati* elders with whom to make initial contact, and ii) explaining the research process to the *Ek'ati* elders. They made initial contact with Pierre Wedzin, Suzie Joe Mackenzie and Alphonse Lamouelle, all from the *Ek'ati* area. During the first meeting these three elders suggested the involvement of Laiza Germain, Laiza Koyina, Elizabeth (Monfwi's granddaughter) Mooli, and Suzie Rabesca. Several other members of the community joined the group interviews because they are interested in the *Ek'ati* area.

Given that the research request was to provide Dogrib traditional knowledge on the *Ek'ati* area, the elders discussed how to approach the issue. In brief, they decided to discuss the traditional knowledge that addressed their concerns as opposed to trying to provide all their knowledge of the area. As Suzie Mackenzie (05/10/95) stated.

If we try to speak about our ancestors' knowledge, we will never complete it [in a month]. Our ancestors really spoke the truth [because they really understood the land].

Discussions on what to document took a number of hours, with elders gradually focussing on the "information that reflects concern for the land and how people treat it" (Suzie Rabesca: 05/11/95)

The members of the team concentrated on particular aspects of the research. Sally Anne Zoe, researcher, conducted thirteen hours of group and individual interviews and summarized these so she could discuss problems and possible questions with other members of the research team. Sally Anne also continually returned to Pierre Wedzin, Laiza Germain, Laiza Koyina, and Susie McKenzie for clarification of information, concepts and place names. In addition, Sally Anne worked with Aaron Herter of the Dogrib Treaty 11 Council to transfer information from the tapes to the maps. Madelaine Chocolate, translator, concentrated on translating the tapes although she assisted with the summaries as well. Aalice Legat assisted Sally Anne with the first few interviews, coordinated the research team, and analyzed and wrote the final report. Doug Hitch, Dandelion Services, and Dawn Sprecher, Sprecher Consulting, provided technical support.

On June 7, 1995 the draft section on research results was read, in Dogrib, by Sally Anne and Madelaine for verification of statements and analysis of the data. The elders approved that draft section of the report. Once completed the report will be read in Dogrib to the Dogrib elders for verification and approval.

## Limitations of Research

As with any community based research, the funders' agenda is not always the reality of the researchers or the people living in the community. In this case the BHP deadline is June 15, 1995. Since funding was not approved until May 8, 1995 the research team had one month to complete the interviews, translations, analysis and writing of the final report.

This unrealistic time frame caused limitations to the research. First, a limited number of group and individual interviews could be done due to the time consuming job of translating the tapes and understanding the concepts. Most elders use traditional Dogrib terms which are not easily translated into English. The researchers need to discuss the terms and often go back to the elders to determine the exact meaning. An hour interview which focuses on traditional knowledge takes two to three days to translate verbatim. Verbatim translations, done by professional translators trained in research, are the only way the research team has found to ensure the elders' knowledge, which is shared orally, can be analyzed and expressed accurately in English.

Furthermore, the short time frame did not allow for documentation of the detailed information necessary for baseline data. There was insufficient time to document, understand and report all of the elders' collective knowledge on the *Ek'ati* area. As Suzie Rabesca (05/10/95) states.

If you have to talk about our ancestors knowledge, there will be no end to it, I'm telling the truth. There will be no end to it.

Traditional knowledge research also usually includes the documentation and analysis of cultural and spiritual assumptions. Cultural and spiritual knowledge is not included here as there was not sufficient time to reach that level of research. After thirteen hours of interviews the elders were still setting the scene, they were still in the process of emphasizing where particular resources and places are located. There was simply insufficient time. Nor was there time to explore and report on the spiritual ramifications White behaviour has had on the land, nor express the spiritual relationship the Dogrib have with the land.

The following work was done in one month, which is an extremely short time period for traditional knowledge research. The results should be viewed as the first step toward a more comprehensive understanding of Dogrib knowledge associated with this area. Most traditional knowledge research requiring data of this magnitude requires three to seven years for completion. The research team was

able to make progress because the research team has been working together, and with elders, for two years

## Research Results

On May 10, 1995, the research team explained to the elders that the Dogrib Treaty 11 Council would like to document the knowledge which they hold on the *Ek'ati* area, and what they think is important for the staff and owners of BHP Diamonds Inc. to know. The research team requested that the elders discuss the traditional knowledge they wanted written down for the Council, who in turn would provide this information to BHP.

The elders think that because this is Dogrib land, and because all parts of the land are connected physically as well as spiritually, it would be unrealistic to restrict their discussions to one geographic area. Rather to them it makes more sense to discuss who they are in relation to the land and then discuss the importance of *Ek'ati* as a hunting, trapping and fishing area for the Dogrib people to maintain their lifestyle based on traditional harvesting. The *Ek'ati* area can be reached by several different traditional summer and winter trails as exemplified on the maps in Appendix One. The maps are used for reference only and should not be construed as Dogrib traditional knowledge, which is contained in oral narratives associated with the places.

As expected the elders discussed all aspects of the *ndè*, a term which is usually translated as land, however the concept is much broader. *Ndè* is much closer to the scientific concept 'ecosystem', however where ecosystem is based on the idea that living things exist in association with non-living elements, the Dogrib term *ndè* is based on the idea that everything in the environment has life and spirit. *Ndè* includes both the spiritual and physical aspects of the land, people, animals and their habitats. While focusing on *ndè* the process of discussion took the following format:

1. Each elder established his/her credibility to discuss the *ndè*;
2. Collectively, the elders emphasized the fact that this is Dogrib land;
3. Collectively, the elders used traditional knowledge to analyze White behaviour and to express their concern about White behaviour in relation to the *ndè*, and
4. Collectively, the elders expressed their specific concerns about the *Ek'ati* area.

In this case, the elders claimed control over the research by using a traditional

process for reviewing Dogrib traditional knowledge and their observations, as a means to share their concerns with BHP. The following are the results of those discussions, they decided to share what they know to be the truth, and what they want BHP and other Whites to understand.

### Establishing Credibility

To be recognized as a traditional knowledge holder and to have specific Dogrib traditional knowledge associated with the *nã*, a person must have lived on the land, which includes traveling on the land as well as observing and knowing details of places, both physical and spiritual. It also means understanding *ndè* includes the wildlife and their habitat, and the people who survive because of the animals. In addition, it means knowing the oral history as passed down from the ancestors.

Initially each elder presented information on

- i) historical events associated with Edzo, the Dogrib leader who established peace with the Yellowknives' leader Akaitcho;
- ii) where they travel and work on the *nã*; and,
- iii) their relationship with their ancestors.

In discussing Edzo, they demonstrate they know the traditional Dogrib laws of the land, and in discussing the ancestors and where they have worked and traveled, they demonstrate their knowledge of Dogrib history and their place within the Dogrib Nation. Knowing the Edzo story is particularly important to one's credibility as a traditional knowledge holder. An understanding of this event is not only important historically, but the Dogrib are now living under the peace, the social order and the governing laws Edzo established by setting:

- laws on interacting with other nations,
- laws that governed how to treat each other, and
- laws about leadership and management.

The importance of Edzo's laws and "Edzo ... [as] the government for this part of the *ndè* " (Suzie Rabesca: 05/11/95) has become increasingly clear in the traditional government research taking place in Rae Lakes.

On May 10, 1995, Pierre Wedzin, an elder of over 90 years and one of the oldest from the *Ek'ati* area, explains his kin relationship with Edzo. In doing so he also explains that he spent time with the descendants of Edzo in the *Ek'ati* area.



Mesa Lake students writing Dogrib history  
while parents hunt and dry meat for winter



Caribou Bones that will be boiled for marrow fat

Grandfather made peace for us. He is truly our grandfather who made peace. My younger brother and I, Edzo, Edzo's daughter Illic, is whose son I am. So we are Edzo's son's sons. He [Pierre's brother] is my mother's younger brother's son. *Yahbie* is my mom's younger sister's son. So they are like the true daughters of Edzo, our mothers. So Edzo, is our true grandfather. His stories are recorded and they are true. That was how his [*Yahbie*] father spoke to me and grandfather whenever I use to accompany them. He used to talk to me about it. But I never say, "My grandfather said this."

Our elderly mothers and fathers have truly struggled. . Being as old as I am, I was with them [in the *Ek'ati* area]. Like my elderly relatives, I killed game for them, I trapped right along with them, I trapped for them, I worked for them .... Our elders worked and that is what we are here to talk about. It is impossible to talk for too long. . I will sing one song [before we continue]

In addition to each elder telling some aspect of the history of Edzo, they also explained their relationship with their ancestors and the land, particularly their association with the *Ek'ati* area.

Laiza Koyina (05/15/95), who joined the group five days after the first interview, explains that she has not only lived on the *nde*, she has known people who have died or been hurt on the *nde*. She (05/15/95) describes this.

My father worked on *Ek'ati* at one time; all of our fathers have worked on *Ek'ati* at one time. That is where our fathers raised us.... *Nqdixait* [Map 4] was where an old woman died on us while we were trapping there ..

...All the land over there is where all the dead bodies are laid. *Kqk'eti* [off Map] is where grandmother had died and they had to bring her across the lake and over by *Kqk'etiba* [off map]. They carried her there and they buried her. And also my younger brother, Johnny, is buried there. . We have a lot of relatives who are buried in the barren land. My older sister '*Daali*', my uncle '*Eht'akw'q*' wife Adele and the person we call '*Wokwekwit'a*', his young daughter and many more people. Every year, every summer is how we worked there.

Laiza goes on to tell a story about *Miseh* who shot himself on the arm, and how this event caused a great deal of difficulty for them all

*Miseh* had wounded a caribou and was running after it. He was looking for it when he thought he might set his gun down and in doing that the gun went off and it shot him right through the arm. A plane came and took him to the hospital in Fort Rae, but only after *Zoozeh* went to Fort Rae by dog team to get help. [While we were waiting for the plane] my husband took care of him [so he couldn't hunt]

In establishing credibility elders also explain what they do not know. Suzie Rabesca (05/10/95) states

I am not too familiar with the [*Ek'ati*] area. Others who have traveled there [more than I have] might be able to talk some about it, but the people who will give you accurate information are the people who worked and lived there. [I am at this meeting because] we should reflect on what opening our land [to outsiders] will do to us and the land. Let's focus on what's important to us all

Laiza Germain (05/16/95), who joined the group on the sixth day, tells how she traveled to the *Ek'ati* area. In telling this narrative she shares information about travel routes and use of resources [Maps 1-4]

Before I got married, I traveled great distances to other lands. Like *Tithita* and beyond. After I got married, my husband *Zemi* had strong *naawo*. [knowledge]. Before Christmas we went to the barren land. *Ek'ati* and *Dehzati* [Map 3] that is where we lived. We traveled to the barren land going through *Gots'okati*, and *Satsoti* [Map 2] and over the mountain. ... From there, there are two big lakes and a third that is called *Yahbati* [Map 4] and from there *Ek'ati*... We had Christmas just before *Ek'ati* towards the barren land. . we lived there [around *Ek'ati*] a lot... They traveled there in the late fall and lived there. I lived there in the winter time [to trap].

Our ancestors and my father used to love to travel on the barren land. When it is spring time we went to *Simiti* [Map 1]. That was where they lived and we made our birch canoes. If there's a marriage they each have a canoe for themselves.

The men went to *Kq* [Rae] and some people were left behind. The ones who were left behind went to the barren land. Our ancestors always went to the barren land and *Ek'ati*.. . They traveled on the land. They traveled great distances on the land

That was before me and they shared that knowledge with me and I'm telling them [BHP] the story they told me. Our ancestors loved going to the barren land. Every season they go to the barren land. In the old days there were no white man's things. The women made clothes from the caribou hide. The women make caribou pants and caribou skirts.

They made clothes out of caribou hides and they only used the caribou hides [did not use woven cloth] to make clothes. Our ancestors loved to travel on the barren land and they go there every season. Our ancestors and my father they traveled on the barren land. My father used to travel on *Ek'ati*. They used the birch canoe on *Ek'ati*, but I never traveled there in the summer time. I remember living there only in the winter time.

Before Christmas they went to *Kq* [Rae] with the dog team. The people went to *Kq* and the caribou did not go near *Kq*. After spending Christmas in *Kq* they left for the barren land to hunt for caribou. Because they did not have meat but only fish, the men who could kill caribou went hunting.

The caribou did not migrate past *Kq* so the men went on ahead and killed caribou. The people who were walking behind them, they stayed there for two days and the hunters headed back and met their family with the meat.

Our ancestors went through real hardship to get caribou. They would gather together and go hunting together. They lived there and waited for the caribou. The men used big snowshoes for walking and lived there all year long.

Come spring, the men start to make birch canoe. That is how they came to the barren land. That's what they used to say. My mother-law used to tell me stories once in awhile. She used to tell me about the great barren land and how there was no wood. There was a big mountain that they call *Kwesho* and that was where we used to work.

In summer or spring time or fall we used the old wood that they picked up as they traveled along the way. My father and his father used to work like that and my grandmother used to tell me stories that her grandmother used to tell her.



The final example demonstrates the importance of the spiritual and mythical aspects of knowing the *ndè*. Laiza Germain told this story after Sally Anne asked her the meaning of the name *Yahbati* for one of the lakes she referred to in her previous story. Laiza Germain said it may be associated with *Yamoza*, who was a very powerful *Yahbati* or spiritual leader. In suggesting the connection she tells the following story:

When the earth was new and all the animals were once human, *Yamoza* proposed to the beaver. He wanted beaver to marry him, but the beaver said, "that is not possible as I can only live in water." So for that reason the beaver said "no".

Somehow *Yamoza* convinced the beaver to marry only on the condition that *Yamoza* cut down a log every time they cross a river. So every time that they went for a walk *Yamoza* would cut a log down and lay it across so that his wife and child could cross safely. One day while walking, *Yamoza* and his wife came across a small creek. There were a lot of rocks and there was hardly any water so *Yamoza* thought to himself that he wouldn't cut any logs down to cross.

*Yamoza* crossed the water bed and his wife and child followed behind. *Yamoza* was almost across when he looked back to check on his wife and child. To his surprise, the water had risen and his wife and child were floating down stream. *Yamoza* tried to save his wife and child but couldn't reach them because of the strength of what had now become a big river.

*Yamoza* tried to reach his wife and baby but no matter how hard they tried to swim across, they kept floating down stream. *Yamoza* cried to his wife to come back but she just kept floating down stream with her baby. In desperation, *Yamoza* swam ahead and built a weir but was unable to trap his wife and child. The beaver and his baby were never to be seen by *Yamoza* again.

In summary, the elders' message here is that knowing the *ndè* is more than just reading a map (Suzie MacKenzie: 05/12/95), knowledge comes from listening to the elders, who pass the knowledge from the ancestor, and from traveling and working on the *ndè*. This knowledge is an important aspect of owning the land and the traditional government research [Gameti Elders 1993-1994] is creating an important prerequisite to making any type of management decision that will affect it.



Preparing Fish



Scraping Hides

## Tłı̨chò Nde

It is not their land It is our land, 'Tłı̨chò Nde [Dogrib land] Because it is our land it is not their land (Suzie MacKenzie. 05/10/95)

Throughout the Dogrib Nation the elders are in shock that Whites are able to come onto Dogrib land and make decisions without considering that they are trespassing on Dogrib land; and without considering that the Dogrib have worked and fought for the land.

.Ek'ati is a place where we work together So when we say 'our land', it is true because while we looked for game we met and worked together. (Andrew Gon. 05/15/95)

Romie Wetrade's (03/04/95) statement of a month earlier encompasses all that the elders have stated:

Their [our ancestors] footprints show on the ground [it shows where they used to follow the caribou].

What about those people from down south there's no footprints of theirs or their trails around this area but still they are talking about the land. They're saying they are going to look for diamonds, they're going to look for gas There's no footprints of them on this land but they still explore beside us. ... They don't have any trails or their foot prints but that's what they are assuming that they have worked on the land. They are telling the people "this is how I worked on the land and this is how the land looks like" they are telling it back to the people instead. All the Dogrib people have been all over the land and even though the land are marked they have traveled way beyond the map where there's marks showing but still it seems like they are prowling through our houses. ... Around our cabin area they would find diamonds they would find gas and they would find everything while there's no one at the cabin and it seems like that's what they are doing to our ancestors homes and they break in and look around everywhere on our land. They think nobody has been there and they are saying that's where we're looking and digging for diamonds. They should have walked on the land a long time ago. They never been there but they are still looking for diamonds...where our ancestors used to travel to it. It seems like they're prowling through our property. But they talk as if they know the land very well and they talk as if they know everything and they talk as if they know all the knowledge from around here.

The elders feel that since the White people, who make decisions, are not sent to discuss the issues it is very difficult to come to a *naawo* [binding agreement] As Andrew Gon (05/12/95) explains

They never act the same, they always change their rules and don't tell us, and they never send their bosses They are driving us crazy

Although elders agree that Whites have not proven to be trustworthy, they also agree some White technology has helped the Dogrib people to live better. Dogrib traditional knowledge of White behaviour starts with the Dogrib woman who discovered Whites and who brought the technology of guns and matches back to the Dogrib. According to Pierre Wedzin (05/15/95) the knowledge that she brought made Dogrib life easier, better and richer

Harry Wedawin (05/10/95) says, "There were white men on the land but we never questioned them Now they are getting out of control." While Suzie MacKenzie (05/10/95) explains, "These whites, they were poor, poor, pitiful that is what my uncle said .. Our ancestors had to take care of the White people".

[Yet now they] make a discovery without our knowledge. It's almost as if they were stealing from us Whoever is their boss doesn't ask us permission; that's how they work. What if we work like that behind their backs on their land, what would they do to us? (Laiza Koyina: 05/15/95)

The elders also see the signing of Treaty 11 in 1921, which is within living memory for many elders, as deceitful. The elders know Monfwi signed a peace treaty with the White government based on Edzo's laws; the same laws which Edzo used with the Chipewyans

When Monfwi signed the treaty he never sold the land. The land is here for our use and our children If we don't speak out it will be too late. (Harry Wedawin: 05/10/95)

Dogrib elders perceive the Game Wardens or the Renewable Resources Officers as people who are responsible for taking care of the animals for the people. However, they also feel that they have never done their job properly. They are supposed to look after the animals and the land, but Pierre Mantla (05/12/95) states:

I've worked hard on the land, and traveled by birch canoe but that is something that I've never seen .. Will the caribou be able to cross it?

They are putting us to the test, and the Renewable Resources Officers can't do anything. It is half their fault.

Most of the comments made about Game Wardens and Renewable Resource Officers are less than flattering as they are seen as people with a job to do, but without any power to do it. Many elders say, they are "not the boss, their boss is watching them" (Pierre Mantla. 05/12/95). The elders tell the story of the poisoned meat being left on the land to exemplify the point that the White Game Wardens never informed the Dogrib because they do not know anything about animals. Their knowledge of the Game Wardens' lack of control causes the elders to worry.

This story about poison meat is true. All of David's dogs had been poisoned. Poison had been used all the way to Great Bear.. This is how the Game Wardens work against us. . They kill live caribou and whatever comes and feeds on it, will die. Whatever comes next, will also die from it. The cycle continues until several [animals and people] have died from it. It's not good at all (Suzie Mackenzie 05/12/95).

When Suzie MacKenzie (pers. comm: 05/20/95) asked for an explanation, the Game Wardens said they were trying to protect the caribou from the wolves, but Suzie MacKenzie explained that the wolves, fox, ravens and people are supposed to eat caribou, and so if poisoned caribou meat is left, all kinds of animals will be harmed; such as when David Chocolate's sled dogs died from poisoned meat when he was trapping with Charlie Apple. The reported incident of poisoned meat is frightening as the Dogrib leave caches of meat for times when food is scarce. (Complete Narrative: Appendix Three)

This story shows that White behaviour is not consistent with how the Dogrib traditionally behaved, and the concept of poisoning an animal has no basis in Dogrib environmental ethics.

Edward Lafferty (05/12/95), contributes additional information about Whites not really understanding the animals and therefore treating the animals poorly. He says:

Even when we went hunting in Łutsuk'e, I found a dead caribou [with a tagged ear]. I cut it's ear off. I kept it. I have it at home. The caribou was dead. It's ear was all damaged and it died from starvation. I cut it's ear off and I have it at home. And also swan. I had spotted something white and I went to look and discovered it's feet were wired and that they were badly damaged. I have that at home too.

The Game Wardens asked me for the bands but I refuse to give them to him . In the future when we sit and talk, I will set them before them and talk about it . If I threw it away they will not believe me . Even here, I told the Chief Game Warden, "If we set a metal band on your ear for a year, you would get sent to the hospital in Edmonton "

The elders continue to provide examples of Whites caring more for money than the *ndè* that feeds and clothes all people of the world . Andrew Gon (05/11/95) states, "White people left Rae Rock mine and now it is like a big ugly scar!!!", while Pierre Wedzin, (05/15/95) states

Since the arrival of the White man our land has been poisoned. Unless they show some caution it is not certain we will see the caribou again. When they worked on the Rae Rock mine, they used poison that we still suffer from . My brother and I have spoken out . The people of old have worked the land for many years and we see that Whites have done damage to the land

In summary, the elders provided information to demonstrate their lack of trust for Whites ability to care for the environment or to show respect for the Dogrib or their *ndè*. The elders feel that until their trust is restored, they cannot trust Whites to respect their traditional knowledge or understanding of the environment . Romie Wetrade (05/10/95) says:

The Whites don't regard this land as our land. They think the Dogribs had no previous government of its own. They don't think ..They do as they choose . They claim land around us, they poke around our houses for rocks, they seek gas but they don't think of what we might think. Despite them we have come this far.

It is our land . This land that we walk upon is our land. .. We hear one another and must agree that what we hear is true. We must be one voice. If we fail they [Whites] will take over completely. Our children who are being educated today do not know our past. They are being educated and that is good, but we must leave something behind for them ... If we didn't listen to our elders what would have become of us? ...We are doing this for our children . After we are gone it could be terrible for them... Our elders have brought us through, we can't throw away our elders' words . It is not possible. We can't go anywhere else. . (Pierre Wedzin: 05/12/95)

## Ek'ati

In discussing the documentation of traditional knowledge, the elders expressed their concern for all that is in the Dogrib area. The maps show the traditional routes used by the Dogrib to reach *Ek'ati* from various parts of Dogrib country. Knowledge of these routes are important as

*Ek'ati* is like a store house for us. What will we do if that is destroyed? What will we leave our grandchildren if the land and animals are destroyed? (Harry Wedawin. 05/15/95)

The elders agree that to survive on the land a person must know where to travel and what to expect; a person must know where to find the plants and animals. Traditionally placenames provided important information about the environment as well as changes that occur. Pierre Wedzin (05/24/95) describes

a place called *Tłits'eza*. [translated as: eat fish there] on *Ek'ati* (Map 4). There's lots and lots of fish. . . I caught a lot of trout with bait. I caught over seventy fish with bait because I sat for the whole day. The fish line broke on me. While there was a lot of fish there at one time but they are saying there's a lot of dead fish floating now. That is what I hear.

The Dogrib elders have observed animals all their lives, therefore the knowledge they have of the environment is useful baseline data. Suzie MacKenzie's (05/12/95) comment, although not detailed or specific, provides an indication that the knowledge of the Dogrib elders could be used when monitoring change:

*Ek'ati* is our land. ... There is an abundance of fish. There are lots, it is said, near the proposed mine site. They [BHP] say they don't use gas, but there is no wood so they have to use gas which pollutes. Do the fish like this? Probably not. We live on fish. It is not good that they [BHP] ruin the land in this way.

*Ek'ati* is a big lake and so is the lake, *Nòdixati* [Map 4] next to it. Between these two lakes is less than two hours of travel time by dog team. People have lived there. What will people live on? People rely on wildlife and they in turn rely on each other. Will the mine people think about this when they put their mine in. It would be good if they could help us. ... The *Ek'ati* area is good land. When there is smoke of any kind, it will be repulsive to the animals. It will drive them away. .. They [BHP] are planning to do away with our life style of fishing and hunting. It will be traumatic if it is lost.

The combination of traditional knowledge and concern due to potential or real change is evident. The area between the *Ek'ati* and *Nôdixati* is known as *Ek'ati tâta* [Map 4], which translates as the land between two lakes, one of which is *Ek'ati*.

This area is important because this strip of land creates a funnel through which the caribou travel between the two lakes, creating an important hunting site. People live in this area because it is where the caribou route leads. They are easy to hunt at this spot. (Suzie MacKenzie: pers. comm, n.d.)

All elders interviewed provided both traditional knowledge and recent observations as the basis for their concern about the wildlife. Romie Wetrade and Pierre Michel's concern focused on the potential road through the area in which the caribou migrate.

We love the land that's why we talk about it. Land is used by everyone. Yet there is talk they might build a road [The caribou don't like to cross the ice roads (Romie Wetrade: pers. comm., 03/07/95)]. Will animals cross this road? Caribou, when they sniff our scent, they will turn back. Will they come to us if the road is built. We have our traveling routes and many of these routes meet. (Maps 1-4). We do not need a road. (Romie Wetrade: 05/10/95)

*Ek'ati* is like a store house for us and it is not good that they should make a road to it. ... There is a long road in existence and they shouldn't put in another road. If we say yes, there will be too many roads leading into *Ek'ati*. If that happens, it will be terrible. The caribou migrate to us and back to their birthing ground through *Ek'ati*. They can bring everything they need in by plane. (Pierre Michel: 05/12/95)

Whereas Pierre Wedzin and Edward Lafferty relate the position of the mine will affect the caribou migration as well as the habitat of the wolf and fox:

There are [also] a lot of wolves and fox dens where the mine is [proposed on *Ek'ati*]. And the caribou migrates there too. Its like they're blocking its [caribou] path. A lot of people don't like that; they don't like it at all. (Pierre Wedzin: 05/24/95)

In the fall, when there are lots of caribou we flew along where the proposed mine site will be, and it is right where the caribou migrate... They migrate right along the shore of the lake. I watched them move from *Kôk'eti* [Contwoyto Lake: outside Map area] to the mine site. (Edward Lafferty 05/11/95)





Rita Blackduck



Making Serving Dishes

Edward Lafferty (05/11/95), who expressed several observations about Whites not really understanding animals, had additional concerns such as

Draining a lake and scooping out the diamonds and putting the water back in again and putting the fish back in doesn't sound right to me.

Based on this limited information about the environment around *Ek'ati* it is apparent that the elders have knowledge of the environment that could be extremely useful. There was insufficient time to document the traditional knowledge associated with places, however as suggested the placenames and associated narratives could provide baseline data.

The maps provided are not intended to depict traditional land use. They do, however, reflect some of the placenames and provide some indication that information is associated with each of the names.

### Traditional Harvesting

As shown in the pictures throughout this document, the Dogrib continue traditional harvesting as a means of subsistence. Although most Dogrib families now live in one of the four communities with young people attending schools and some adults entering the wage economy, traditional harvesting and lifestyle continues. The majority of young and middle aged men work hard to support their young families and older parents. They go out early in the morning to collect wood for heat, to hunt caribou, to check nets for fish, or travel to their trapping area.

As Suzie MacKenzie (05/16/95) stated.

From *Kq* they go to *Ek'ati tata* [Map 4] to trap. We traveled with a canoe and we go right beside the eskers. That's where I trap, that place was good for trapping. That's why we have always traveled there.. When summer comes the people hunt the ducks [there] and the people must depend on the caribou. First men do duck hunting and then they go caribou hunting around *Ek'ati*.

Families continue to dry caribou and other meat in their homes, and if oil is a source of heat, smoke houses are used. Many families move to bush camps in the fall and spring to dry meat. Meat is also stored in freezers.

Each community has a communal hunt from which meat is distributed and stored in a communal freezer, where any member of the community can get meat and where meat is shared with other communities. Given the importance of caribou to the diet, Andrew Gon's (05/10/95) statement continues to be relevant

We depend on the land. We eat off of it, and it brings us healing  
We have traveled this land and have paddled its waters We are  
dependent on the caribou for it's meat and clothing .It would be  
good if they [Whites] were to show care in how they work the land If  
not, it will not be good.

People in surrounding areas all depend on the caribou too, and also  
other wildlife Lifestyles of everyone that has always lived here is  
affected. We cry out because we love this land Land also gets  
destroyed through fires. Precious food and land gets burned up.  
Animals cry Who cares enough to cry out on their behalf . Let's hope  
for a change in the future Not a repeat of yesterdays mistakes  
(Andrew Gon: 05/12/95)

### Summary and Recommendations

In summary, the elders used traditional knowledge and observations to document their reasons for two main concerns.

- i) how will Whites behave towards the environment and towards the Dogrib whose land they want to mine; and
- ii) how will BHP protect the *Ek'ati* area as an important hunting, trapping and fishing area for future Dogrib.

The elders agree that only those who can establish credibility as having ancestors who worked and traveled on the *ndè* should be discussing the *ndè* .

The elders who were interviewed about the *Ek'ati* area emphasized the importance of BHP Diamonds Inc. understanding and respecting the cultural requirement of Dogrib people to take care of the land. In doing so it is important to accept their analysis of White behaviour and treatment of Dogrib land

The Elders look forward to honest communication from BHP and to building a healthier relationship than those previously experienced. Many of the recommendations listed below will contribute to achieving this objective and are intended to lend guidance to the company.

- 1 BHP must demonstrate respect for Dogrib ownership and stewardship of the land
- 2 BHP must demonstrate commitment to the utilization of Traditional Knowledge of the environment and in relation to socioeconomic issues
- 3 In supporting further Traditional Knowledge research, commitment must be made by BHP to the Participatory Action Research method (see Appendix Two) as a means of contributing to the community development process and of respecting Elders. This requires realistic time frames and long term commitments.
- 4 BHP should review the results of other Traditional Knowledge research results from the Dogrib region to become more familiar with Dogrib culture and the research process including;
  - “Doing Things the Right Way” - the Dene Justice case study
  - The Dene Medicine Report
  - Traditional Dogrib Methods used to Redirect Caribou
  - Dogrib Terminology and Concepts related to Renewable Resources

Other research requests from outside of the Dogrib region but still from within the NWT should also be reviewed:

- Lore: Capturing Traditional Environmental Knowledge
- Traditional Environmental Knowledge Report: A Pilot Project








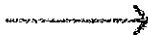
5. Additional research should focus on the following:

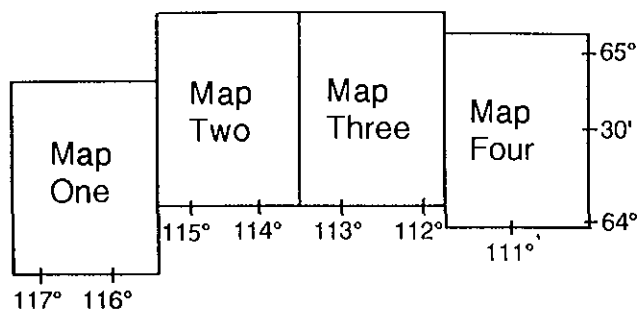
- caribou migration routes and information about when caribou did or did not use specific routes
- the effects of smoke and emissions on caribou and small fur bearers
- the effects of water pollution on fish and other animals
- the effects of water changes, such as water level and temperature, on fish
- how the elders know that caribou;
  - turn away from smoke
  - turn away from human scent

**Appendix One:**  
**Legend and Maps of the *Ek'ati* Area**

# Appendix One: Maps

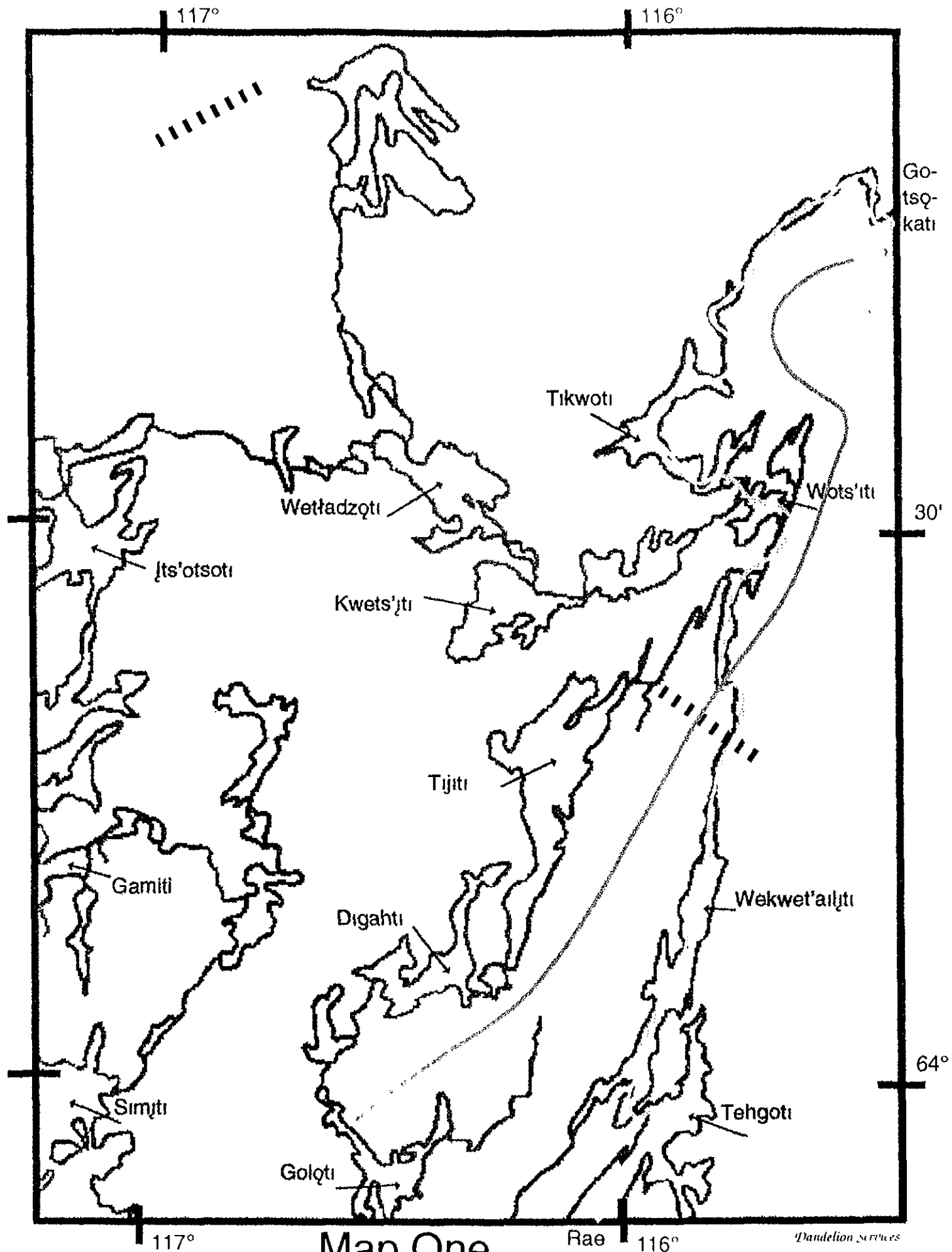
## Legend

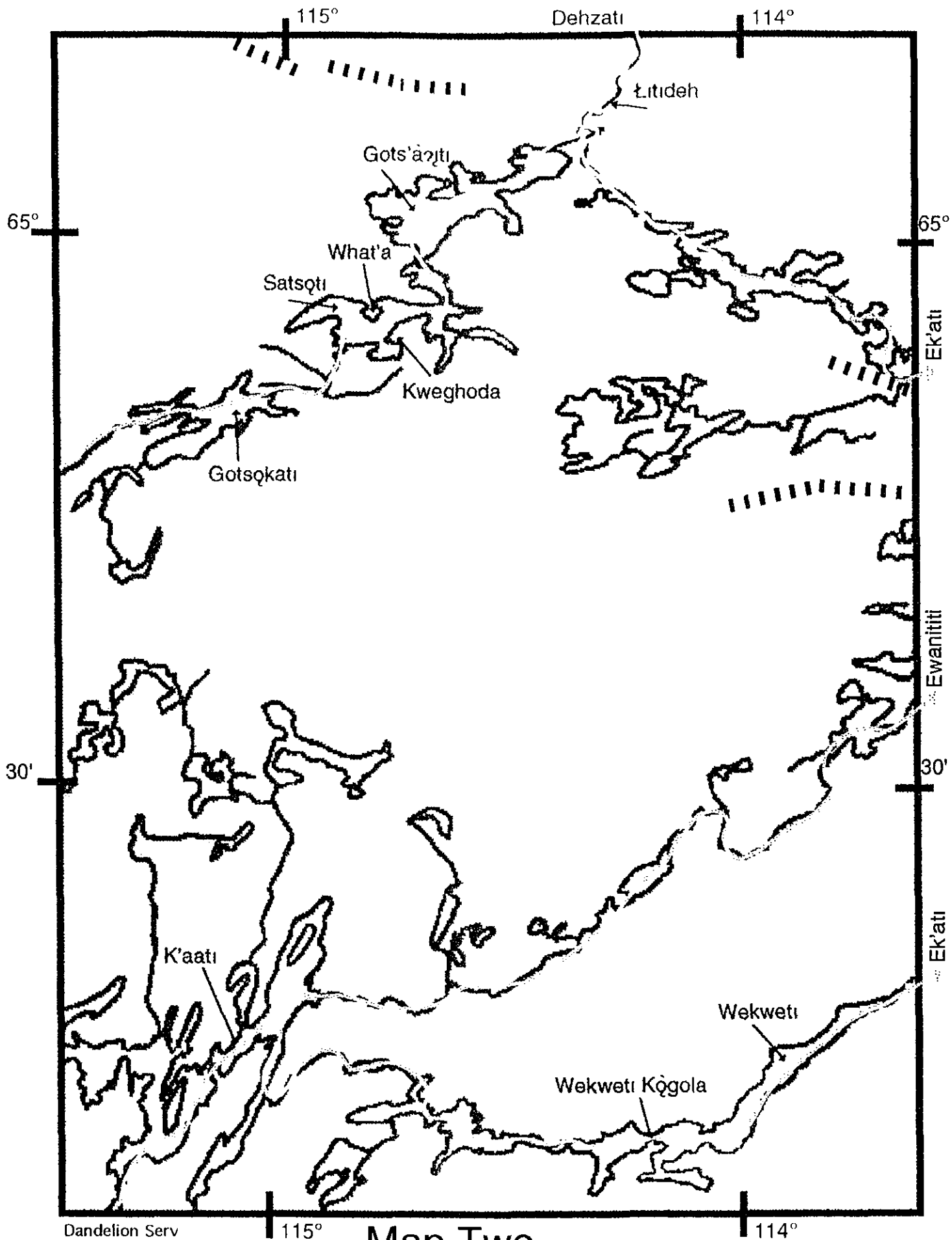
	fish
	fox denning area
	wolf denning area
	wooded area
	caribou migration route
	water-based travelling route
	esker
	winter travelling route



## Lake Names with English Equivalents

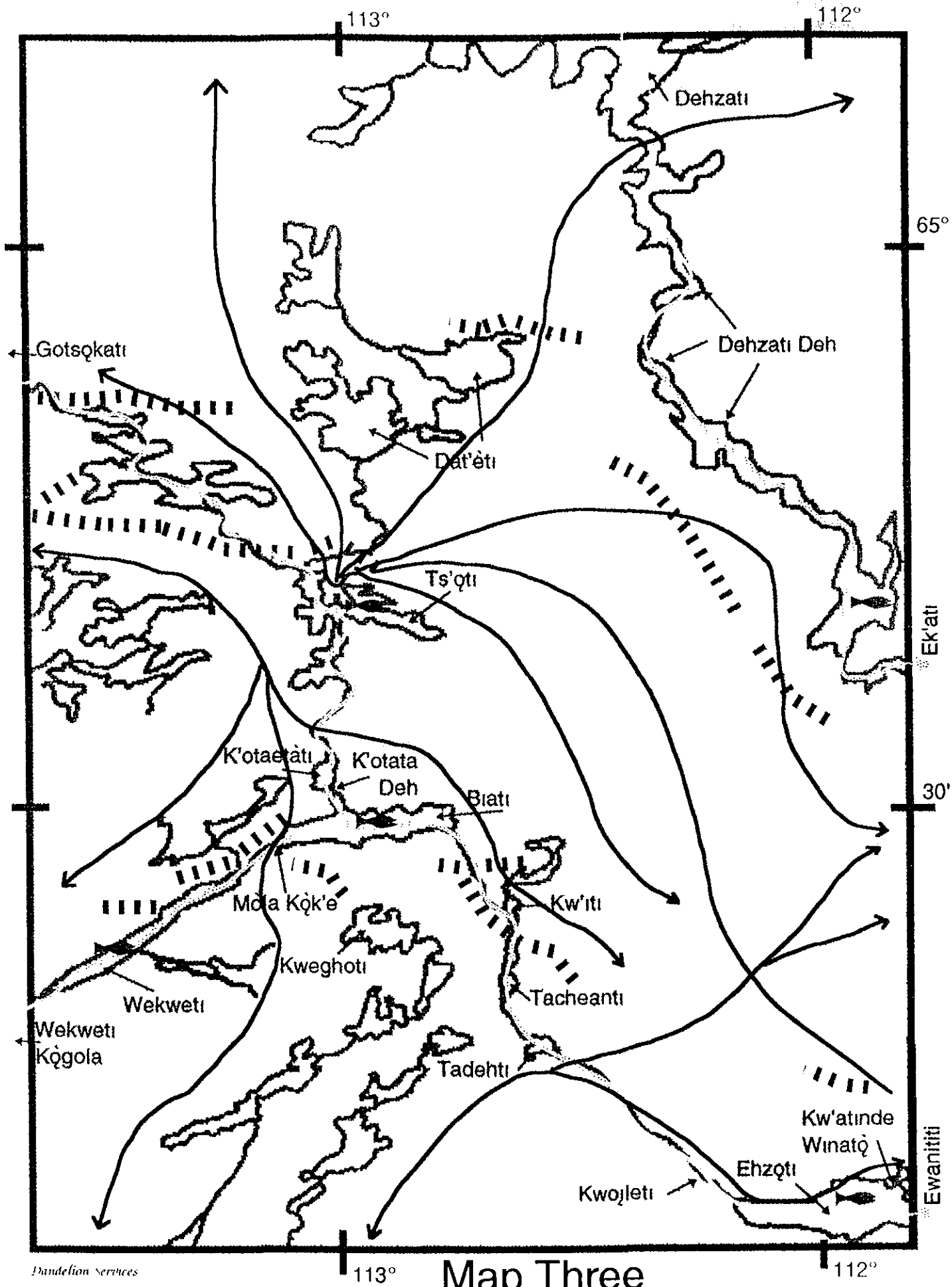
Biati	Winter Lake (map 3)
Digahti	Zinto Lake (map 1)
Ehzqti	Jolly Lake (map 3)
Ek'ati	Lac de Gras (map 4)
Ewanititi	Courageous Lake (map 4)
Gots'àqiti	Rawalpindi Lake (map 2)
Gotsqkati	Mesa Lake (map 2)
K'aati	Indian Lake (map 2)
Kwets'jiti	Black Lichen Lake (map 1)
Nandenizahiti	Exeter Lake (map 4)
Nqdxati	Mackay Lake (map 4)
Satsqti	Grenville Lake (map 2)
Simjiti	Faber Lake (map 1)
Tijiti	Ingray Lake (map 1)
Ts'qti	Little Marten Lake (map 3)
Wekwet'arqiti	Mattberry Lake (map 1)
Wekweti	Roundrock Lake (map 3), Snare Lake (map 2)
Wetfadzqti	Rabesca Lake (map 1)
Yabahti	Yamba Lake (map 4)



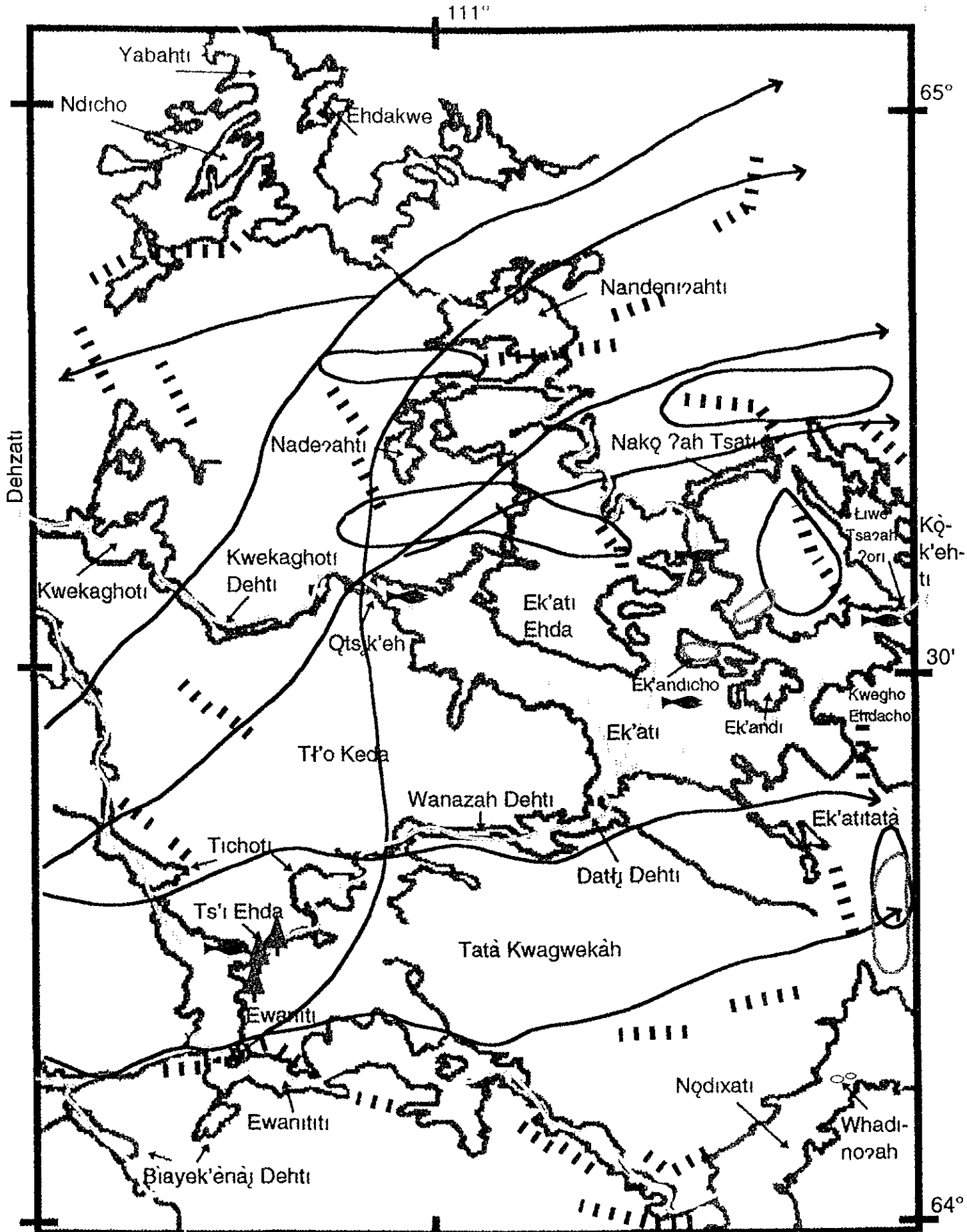


Map Two





Map Three



Vandellon Services

Map Four

## **Appendix Two:**

**Information North Article on Participatory Action Research**

# INFORMATION NORTH

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## Participatory Action Research in Rae Lakes, NWT: The Traditional Government Project

by Alice Legat

**R**AE LAKES, Northwest Territories is a Dogrib community located on the river system between Great Slave and Great Bear lakes, approximately 200 air km from Yellowknife. The community was created in the 1960s when six families decided to leave Fort Rae, located on the highway to Yellowknife. These families wanted to avoid the non-native influences and to continue living according to the beliefs, values and laws of the Dogrib.

Currently, the daily lives of the people in Rae Lakes reflect the "right way for the Dogrib" as well as the influences of the dominant society. Adults are very traditional and so are their children. For example, the community continues to have a *k'awo* or traditional organizer (leader), Dogrib is the first language and is spoken in all the homes, meat is shared, people are expected to respect others, and children are kept close to home. The dichotomy between the traditional and contemporary societies is especially reflected in the education system where children learn on computers in a new school, both parents and grandparents sit on the Education Committee, community members train as teachers and teacher-aids, English is the only language taught in the school, and non-Dogribs hold most paid positions associated with financial control.

The Traditional Government Project also reflects both ways. In 1992, then Chief of the Rae Lakes Dogrib Band, Peter Arrowmaker, approached Joanne Barnaby, the Executive Director of the Dene Cultural Institute (DCI). Ms. Barnaby, in turn, contacted the Arctic Institute of North America (AINA), with whom DCI had done joint projects in Lac La Martre and Fort McPherson, NWT using a participatory action research (PAR) method developed by Dr. Joan Ryan. Both Ms. Barnaby and Dr. Ryan approached me to direct the project as I had experience in northern communities and with community-based research. Dr. Ryan chose to remain involved as consultant to this project.

The PAR method is being used as it more easily accommodates community ownership and involvement, and ensures the local researchers become more knowledgeable about both Dogrib traditions and the approaches used by social scientists. Based on my experience, PAR is the most reliable method to use if a community wants to collect data that reflect the assumptions, perceptions and knowledge relevant to the community rather than those of the dominant society. Like other research methods, PAR has criteria that must be recognized and acted upon. Applied to the

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following

- 1) the community requests research,
- 2) the community and academics express honest research expectations,
- 3) the community participates in and maintains control of the process by appointing a community advisory committee (CAC),
- 4) the research process remains flexible within a consistent framework,
- 5) the local researchers receive comprehensive training,
- 6) the local researchers learn to conceptualize in both English and Dogrib,
- 7) the team works together to interpret and analyze the information, and
- 8) the elders critique, verify and approve all analysis, reports and manuscripts before release

The most important criterion of the PAR process is that the community requests the research. The community of Rae Lakes requested that its traditional government be documented so school curriculum could be developed and a self-government model could be designed. If the community does not request the research, it is unlikely that they will feel the research is necessary nor will they feel committed to the project.

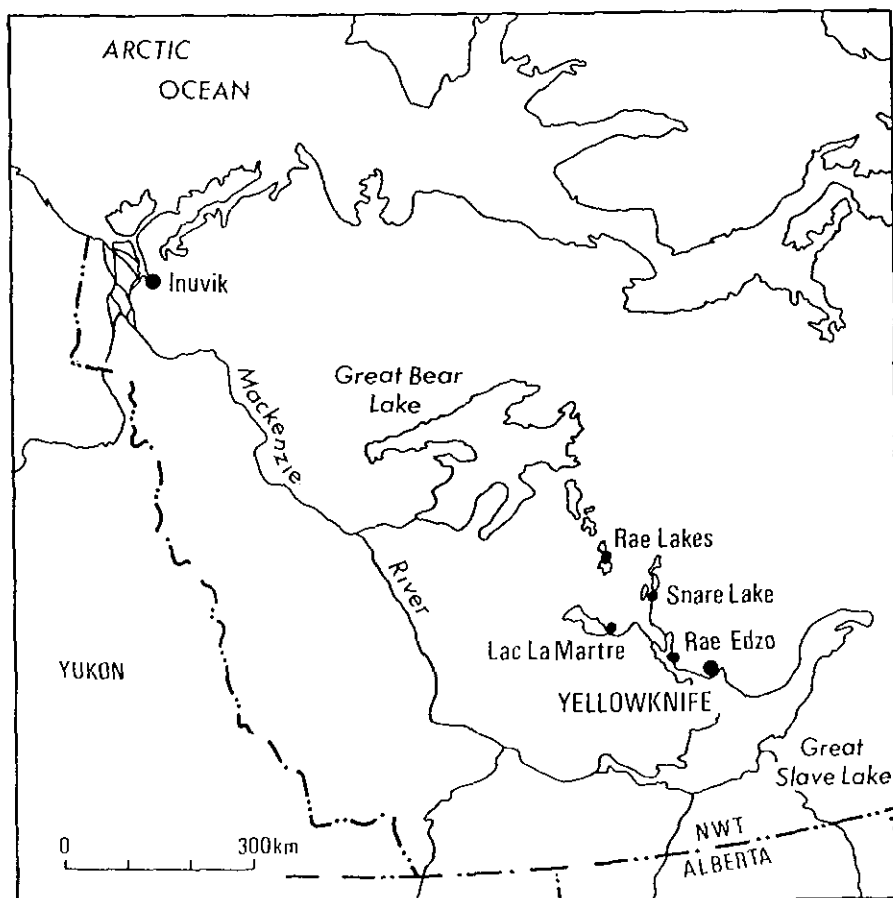
A second criterion is that both the community and the researchers involved express honest expectations. If this does not occur, those participating may be working with different goals and objectives, which can lead to confused and poor documentation. In December 1992 I attended two meetings with the people of Rae Lakes during which I expressed my understanding of what research the community wanted, the combination of people that usually worked well on the CAC and as researchers, and what I expected from the researchers. I was initially embarrassed about being so outspoken, but, if PAR is to work, all participants must understand and agree to the research process. Several elders responded. The discussion made clear that the research would focus on traditional Dogrib ways of governing (pre-treaty), both females and males would participate, the CAC would make final research decisions, the CAC would consist of elders who understand the right way for the Dogrib, people who used alcohol irresponsibly would not be hired as they would not be able to focus on the job, the staff would respect the old ways and elders, and be willing to learn from, listen to, and work with elders and a white woman.

A third criterion of PAR is community participation in the process. In Rae Lakes, the community selected the CAC, which developed the project guidelines and policy and selected the research staff. The CAC continues to oversee the direction of the research, selects the most appropriate elders to be interviewed at each phase, and ensures the researchers collect information in a way that is considered correct for the Dogrib. The committee

ultimately decides how the results from the research can be tested in a contemporary setting. All the elders involved verify the findings and critique the written manuscripts and reports whereas both Band Council and the CAC will oversee the release of data.

The Band Council and the elders take their role very seriously. The best example of this is a situation that at first seems to contradict just how seriously they take their roles. When I returned to Rae Lakes in January 1993, I thought that the CAC would be selected and we would quickly write the project policy, select the staff and start training. However, the CAC had not been selected, and although the Chief was very supportive, the elders were very quiet. This was not a good sign and I wondered what was wrong. The elders' behaviour contradicted their enthusiastic response at the initial meetings. I struggled with whether or not to ask the Chief to select the CAC, after all, in other communities the Chief had selected the CAC, and we needed to meet the funding deadlines. On the other hand, the community was responsible and this was their project. If the process wasn't respected now, it would certainly not be respected later, and we were, after all, looking at traditional governance.

I decided to wait. Eventually I realized the process was proceeding slowly because community members needed to discuss it outside of meetings until they came to an agreement. The elders thought the CAC should consist of the oldest members of the community since these people would be the most knowledgeable about the traditional ways of decision-making, selecting a leader, conflict resolution and making and enforcing laws whereas the Council members felt the CAC should consist of younger elders.



Map showing the Dogrib communities of Lac La Martre, Rae-Edzo, Snare Lake and Rae Lakes

who understood "self-government" I continued to wait. A few days later I was invited to a feast with approximately 30 elders of both genders and all ages as well as two Band Council members. The elders talked among themselves, asked me a few questions, and talked again before selecting Marie Zoe and Madelaine Drybone, the two oldest females, Andrew Gon and Jean Wettrade, the two oldest males, and Chief Henry Gon as the CAC members. Last July the Chief appointed John Quitte, the oldest male councillor, to take his place.

The CAC was equally methodical about hiring research staff. Several individuals completed application forms, but the committee only considered those few who came on their own initiative to talk to each of the CAC members and explain why they wanted the job. Although we had originally agreed to hire a male and a female, the CAC selected two women, Rita Blackduck and Sally Anne Zoe, who had the necessary skills — an interest in Dogrib knowledge, respect for elders, and an ability to speak both English and Dogrib.

I felt it was my duty to encourage the committee to hire a male as well as a female researcher since decision making and laws often differ for males and females. The CAC members replied that they were happy I could see the importance of male and female roles, but they considered Rita and Sally Anne the very best candidates. They felt that Rita and Sally Anne really understood the elders' desire to have the traditional government knowledge written down for future Dogribs. CAC member Jean Wettrade stated clearly and directly to me, "We hear you, do you hear us? There are no males in Rae Lakes that are not working, have the necessary skills, care about the old ways, and are reliable. These two women will be good." In other words, Sally Anne and Rita are respected by the elders. Both these women have been extremely good researchers. They are interested in old ways, curious to learn, good listeners and respectful to elders, and both want to share the research results with younger people. In February, we celebrated our first year together.

A fourth important criterion of the PAR process is flexibility within a structured framework. Good research demands that the participants and the research process are flexible and open to necessary change. The best example of remaining flexible is associated with the interview guidelines for the project. In early May 1993 Dr. Ryan joined us in Rae Lakes to help design the interview guidelines, which the researchers would use to draw out the information. The guidelines included Dogrib terms and phrases, questions designed to elicit discussion, such as "How were leaders chosen?" and both individual and group interview sessions with the male and female elders interviewed separately. However, after two months of using the guidelines, the CAC wanted to change the process. They told us:

- 1) to use older Dogrib terms and phrases so we could understand the concepts they were discussing,
- 2) to concentrate on the historical significance of specific traditional leaders so we could understand traditional leadership, decision making and laws,
- 3) to interview the elders in larger groups so they could build on what others had to say, and
- 4) to listen until all the elders had finished even if that took several hours.



Project researchers Rita Blackduck (back) and Sally Anne Zoe



CAC member Madelaine Drybone



Former CAC member Jean Wettrade (died April 15, 1994)

The CAC also became more specific about what should be discussed, which elders to interview on any given topic, and when to go on to the next topic.

The CAC changed the focus of the research process by creating a situation where the elders worked together to determine what should be documented and how to best draw out information. The elders consider Rita and Sally Anne's main responsibility as learning and conceptualizing the information in both English and Dogrib, rather than simply documenting it. This process is considered more traditional.

The elders are particularly concerned that Rita and Sally Anne learn the old Dogrib concepts and express them both verbally and in written form. This provides them with the necessary understanding to request more profound information from the elders, to incorporate the concepts into a curriculum, and to compare present and traditional Dogrib systems. Everyone involved agrees literacy in the native language is important if Dogrib concepts are to be used when Dogrib history and traditional government are incorporated into the curriculum. Unfortunately this has not happened because of limited funding. Both Rita and Sally Anne are attempting to write the Dogrib words, phrases and concepts in Dogrib, as translating them into English and then back to Dogrib for use in the curriculum is a waste of time and government money, and often results in loss of the true sense of the idea being expressed.

The elders' expectations of Rita and Sally Anne are consistent with the PAR criterion of a comprehensive training program to ensure that the expertise remains in the community, and that data collection and analytical skills are taught to the researchers. The changes that the elders insisted on ensured that Rita and Sally Anne learn the Dogrib way of collecting data and that Dogrib assumptions and perceptions are part of future interpretations. In addition, the researchers learn skills appropriate to documenting information according to social scientists. These skills include researching archives, reading published documents, listening well and eliminating background noise during interviews, cataloguing tapes and other documents, translating and transcribing the tapes, checking and rechecking Dogrib terms and concepts, learning to use old and complex Dogrib words, and questioning anything that is confusing. Some of these skills are similar to those the elders expected Sally Anne and Rita to employ.

Due to limited funding, I was unable to give Sally Anne and Rita the intensive academic training most local researchers receive at the beginning of a PAR project. Rather, they received on-the-job training two weeks a month, and the remaining time they worked on their own. This has had both negative and positive effects on the project. Rita and Sally Anne take a long time to translate the tapes into English because they have never received sufficient English upgrading. However, this situation has created a close working relationship between them and they assist each other as their skills are complementary. While Rita has an easier time with writing Dogrib, Sally Anne is more comfortable with writing English sentences. If they have a problem or are in doubt as to how to proceed, they either discuss it with the CAC or phone me. Conducting this research and having to solve problems on their own enhanced the situation in which Sally Anne and Rita feel a deep responsibility to document and understand the elders' information, and it has given them a real sense of ownership for the project.

A final criterion for a successful PAR project is to ensure that all reports and manuscripts are approved by elders before they are released. We accomplish this by reading each complete document, in Dogrib, at a meeting where elders provide feedback and criticism. The elders then decide whether or not to release the document. To date, we have read three documents:

- 1) Dogrib Traditional Government, A Report to the Royal Commission on Aboriginal People, 1993,
- 2) A Report to Dogrib Treaty 11 Council Assembly in Snare Lake, 1993, and
- 3) Terms and Concepts relating to Renewable Resources, an Interim Report for the Department of Renewable Resources, Government of the NWT, 1994

Immediately following the reading, which often takes several hours, there is much discussion among the elders. I felt neither appreciation, nor criticism, the elders just talked among themselves and then held a small feast. The appreciation and criticism came slowly over the next week. The following exemplifies the elders' statements: "I am looking forward to sitting and listening for five hours the next time you write something" (Madelaine Drybone, CAC member). "We have good meetings since this project started, but the older words need to be used" (Andrew Gon, CAC member). The elders have agreed to release all three documents to the funding agencies, however they clearly stated that the first was not to be published, copied or quoted because it was their words and they did not feel that they had completed their work.

Some researchers consider PAR to be too subjective to allow for rigorous data collection and reliable analysis. I believe that all social science is subjective and by acknowledging this subjectivity we are better able to carry out rigorous and reliable research. We admit that our assumptions, knowledge and perceptions are culturally bound up in our experience, beliefs and values. This admission frees us to respect the methods and results of research collected from a different cultural perspective. I have provided examples of how the elders, via the CAC, have insisted that the researchers learn and document the information in a way they perceive as relevant rather than learning and documenting according to Dr. Ryan's or my priorities and assumptions. The data have been collected in a methodical manner. The results are realistic because the PAR method supports community control of the research and the use of their assumptions rather than those extracted from the dominant society. It is because the community participates so intimately that the data are reliable and reflect the knowledge relevant to the community. It is time we let go of the myth that data collection is an objective exercise and acknowledge that experiences, emotions and culture affect research environments. We must respect that others besides social scientists are able to direct and carry out rigorous data collection and reliable analysis, and appreciate that their truths are different from those of the dominant society. **IN**

*Alice Legat is a Research Associate of the Arctic Institute of North America and Dene Cultural Institute*

# Snow Ecology: A Report on a New Initiative

by H G Jones<sup>1</sup>, J W Pomeroy<sup>2</sup>, D A Walker<sup>3</sup> and R Wharton<sup>4</sup>

**S**NOW plays a key role in the ecology of much of the earth's surface, especially in circumpolar and high-altitude regions, where ecosystems are under increasing stress from global changes in climate and local human development. Until recently, our knowledge of snow has been restricted to areas of study associated with specific physical, chemical and biological disciplines. Although this research has resulted in significant progress in understanding snowpack dynamics, there has been no concerted attempt to integrate the results of these studies to further our knowledge of snow as a life-support milieu and as a component of larger terrestrial ecosystems. In order to develop a better understanding of snow ecology through interdisciplinary studies, a nucleus of research workers from both the physical and biological sciences recently formed the Snow Ecology Working Group (SEWG). The SEWG was approved as a contribution of the International Commission on Snow and Ice (ICSI) to the International Geosphere-Biosphere Program (IGBP) at the ICSI Bureau Meeting in Vienna in August 1991. ICSI is a commission of the International Association of Hydrological Sciences (IAHS).

The objectives of the Working Group are to

- 1) facilitate exchange of knowledge and expertise on snow and snow-covered systems among researchers in the physical, chemical and biological sciences,
- 2) develop a conceptual framework for snow ecology as a science and an experimental methodology for the study of snow and snow-covered systems,
- 3) develop conceptual and applied comprehensive models for the processes, states, evolution and stability of snow ecosystems,
- 4) produce documents that outline the conceptual framework of snow ecology, the state of the science and appropriate experimental methods, and
- 5) organize an international conference with emphasis on the methodology and application of the conceptual framework to the development of models that explain the evolution of snow and snow-related ecosystems

To achieve these objectives, a Snow Ecology Workshop was convened by SEWG in Québec City, 3–7 June 1993. The workshop was sponsored by the Natural Sciences and Engineering Research Council of Canada, Hydro-Québec, the Canadian Polar Commission, the Institut national de la recherche scientifique (Université du Québec) and the Department of the Environment of the Government of Québec (Environnement Québec). The workshop was attended by university and government researchers and graduate students; the 20 participants included climatologists, physicists, chemists, microbiologists, botanists, plant ecologists and invertebrate and large mammal ecologists.

The format of the workshop consisted of state-of-the-science reviews followed by in-depth discussions on the linkages and feedback mechanisms among the physical, chemical and biological phenomena in snow.

The reviews on the first day traced the physical progression of snow from snowfall and snow cover formation on a global scale to snow metamorphism on the ground, snow redistribution and sublimation in forested and open environments, the melt of snow and chemicals contained in the snow, to the interaction between the snow chemistry and the biological components of snow (microbes, invertebrates and mammals). The second day considered the life cycles and habitats of snow microbes, such as bacteria, algae, fungi and small invertebrates, the accumulation of organic debris and the relationship of larger life forms, such as spiders, collembola and large plants, to snow in alpine and arctic ecosystems. The reviews of the third day were devoted to the larger mammals that live in and on snow, with special emphasis on the caribou.

In this manner we developed specific hypotheses on how the physical, chemical and biological components interact and modify each other in order to produce the multi-phase, multi-life form milieu we know as the snow cover. It is now evident that the snow cover is an ecosystem that evolves in response to meteorological and biological inputs and, in return, is fundamentally changing these factors.

Certain considerations may be drawn from the information presented at the workshop. One is that, as an ecosystem, snow may be considered analogous to a lake and, as an interdisciplinary science, snow ecology may be considered analogous to limnology. The snow ecosystem functions at three critical levels that are defined by boundaries at the snow-air and snow-soil interfaces:

- 1) **Supranival** — above snow, including large plants and animals and the atmosphere,
- 2) **Intranival** — within snow, including small plants, microbes, invertebrates, small mammals and snowpack properties, and
- 3) **Subnival** — below snow, including small plants and animals, microbes, invertebrates and the soil

A further consideration of this concept of snow as an ecosystem is that the snow cover is the mediator among microorganisms, plants, animals, chemicals, atmosphere and soil. Snow mediates because it functions as an

- 1) **Energy bank** — Snow stores and releases energy. It stores latent heat of fusion and sublimation and crystal bonding forces. The bonding forces are applied by atmospheric shear stress, drifting snow-particle impact and the impact of animals walking over the snow cover. The intake and release of energy at various times of the year thus make snow a variable habitat for intranival organisms and are a cause of their migration within the snow environment.
- 2) **Radiation shield** — Cold snow reflects most shortwave radiation and absorbs and re-emits most thermal infrared radiation. Its reflectance of shortwave radiation is a critical characteristic of the global climate system. As



snowmelt progresses, the snow cover reflects less shortwave radiation due to a change in its physical properties. This reflectance can be additionally reduced in the order of 10% by *in situ* life forms, such as populations of red snow algae.

- 3) **Insulator** — As a porous medium with a large air content, snow has a high insulation capacity and plays an important role in protecting microorganisms, plants and animals from wind and severe winter temperatures. Its insulation can result in strong temperature gradients, which fundamentally restructure the snow composition and provide opportunities and constraints for organisms living in the snow cover. In windswept areas specific organisms take advantage of enhanced snow cover insulation where vegetation is relatively dense, further interaction with this vegetation is presently unknown.
- 4) **Reservoir** — Snow is a reservoir for water, chemicals and organic debris, providing habitat and food sources for various life stages of microbes, invertebrates and small mammals. The physical and chemical properties of snow, especially radiation penetration, gas content, temperature, wetness, porosity, pH, inorganic chemistry and organic debris content control intranivean biological activity and in turn are influenced by the behaviour of nivean organisms.
- 5) **Transport medium** — Snow moves as a particulate flux as it is relocated by the wind in open environments or intercepted by vegetation in forests. It moves as a vapour flux because of sublimation, resulting in transport to colder surfaces or to the atmosphere. During melt, snow moves as meltwater in preferential pathways within the snowpack to the soil or directly to streams and lakes. These transport phenomena are taken advantage of by certain snow organisms but can also cause limitations to the success and survival of their populations.
- 6) **Host for a food web** — A food web that occurs both within the snow cover and at the snow-atmosphere and snow-soil interfaces involves many families and species of organisms. Within the snow cover, snow algae are primary producers grazed upon by primary consumers, including protozoa and small invertebrates. Smaller forms such as fungi and bacteria are decomposers and some invertebrates are probable detritivores. Invertebrates are preyed upon by other invertebrates and small mammals. Small mammals become prey to larger mammals, that either hunt them on the surface or dig into the snow cover to retrieve them. Large and small mammals also graze upon plants that protrude into the snow cover or are buried by it. Leachates from organic substrates are an important feature in this food web, particularly in the effect of plant residues and animal wastes upon microbial activity.

These snow ecosystem functions occur over time scales that are diurnal, seasonal and decadal. Furthermore, the functions have important spatial interactions at three scales.

- 1) **Microscale** — variation from centimetres to metres both vertically through the snowpack and horizontally across the snow cover, correlated strongly to individual plants, meltwater flow paths, terrain discontinuities, soil properties, food webs and local populations of intranivean inhabitants,
- 2) **Landscape/Mesoscale** — variation from tens of metres to kilometres, correlated strongly to the communities of the largest vegetation forms, elevation, slope, aspect, orography and exposure to the wind, and
- 3) **Macroscale** — variation from tens to thousands of kilometres, correlated strongly to persistent synoptic weather patterns, continental wind flows, location with respect to the poles, oceans, lakes and continental scale biomes.

After consideration of the critical issues in separate fields of snow investigation, and identification of the major linkages among living things and the physical and chemical properties of snow, the participants raised the following questions regarding snow as an ecosystem.

- 1) Can we devise tests of hypotheses regarding the structure and function of snow ecosystems?
- 2) Do snow ecosystems have a series of quasi-stable states?
- 3) What scales of states and processes are important from microscale to macroscale?
- 4) Do snow ecosystem variables and states cycle over time? Are these cycles correlated and do they enhance or dampen each other?
- 5) How may we scale snow ecosystem variables over space and time? How do we go from microscale to macroscale, diurnal to seasonal and decadal?

The SEWG intends to answer these questions as part of multidisciplinary studies occurring in various snow biomes. For more information regarding participation in these working group activities please contact Professor H. Gerald Jones, Institut national de la recherche scientifique-eau, Université du Québec, Ste-Foy, Québec, Canada G1V 4C7 (Fax 418-654-2562) IN

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# What's New

From the Editor's Desk: Following the advice of a majority of our respondents to the membership survey conducted last fall and, at the same time, reduce publication costs, we will no longer be publishing the separate news sheet "What's New at the Arctic Institute." First published in 1988, *What's New* was instituted as a vehicle to inform AINA members and other readers of events, ongoing projects and initiatives at the Arctic Institute. Since we still feel it is a worthwhile venture for members to be kept abreast of AINA activities and to share their research news with other members, we will be devoting space in *Information North* for brief news items relevant to polar research. This is your opportunity to share information with fellow AINA members so please keep us informed of new research projects, awards and grants received, upcoming publications or other news items that may be of interest to IN readers. Submissions will be accepted at any time and published subject to available space.

Reverend Guy Mary-Rousselière, AINA member since 1962, died on 23 April in a fire at his home in Pond Inlet, northern Baffin Island. In addition to his duties as a Roman Catholic priest, Father Mary-Rousselière's keen interest in the archaeology and anthropology of the Inuit led to his excavation of numerous prehistoric sites dating back as much as 4000 years.

AINA research associate Norman Hallendy has been appointed a research fellow of the Canadian Museum of Civilization where his photo documentary on spiritual places in S.W. Baffin is currently on exhibition.

Research associates Susanne Swibold and Helen Corbett have recently formed the Amiq Institute of Alaska, with Pribilof Aleut leader Larry Merculieff. Based on 13 years of research on the Pribilofs, the institute will focus on restoration of the Bering Sea ecosystem and healing processes among indigenous peoples whose lives are defined by the sea. Susanne and Helen recently returned from Japan where they presented a paper at a symposium, *Wildlife and Local Culture*, hosted by the Institute of Cetacean Research. In July they will depart on a three-month research project on the Commander Islands in Russia's Bering Sea.

Wanda Wuttunee, sponsored AINA research associate has accepted a position as assistant professor, Department of Native Studies at the University of Manitoba for 1 July 1994. While in Winnipeg, Wanda will be pursuing doctoral studies on successful economic development strategies employed by aboriginal communities across Canada and will maintain her association with the Arctic Institute. We'll miss you, Wanda!

As a result of budgetary constraints, the position of production editor at the Arctic Institute was abolished at the end of March. We thank Ona Stonkus for her nine years of service at the Arctic Institute and wish her all the best in future endeavours.

## Grants & Awards

Longtime member and fellow of the Arctic Institute, Josef Svoboda of the Department of Botany, Erindale Campus, University of Toronto, was recently awarded the Northern Science Award at a ceremony held at the National Arts Centre in Ottawa. This award is presented annually to an individual who has made a significant contribution to northern Canada through scientific research. Dr. Svoboda's considerable contributions to the field of Arctic plant ecology make him a most worthy recipient of the Northern Science Award. Congratulations Josef!

Research associates Joan Ryan and Alice Legat were awarded a \$65,000 grant over three years from the Social Sciences and Humanities Research Council of Canada (SSHRC) to continue the *Traditional Government Project in Rae Lakes, Northwest Territories*, profiled in this issue of *Information North*. The project also received funding for 1994-95 from the Oral Traditions Project of the Government of the Northwest Territories.

Shelagh Grant, AINA member and editorial advisor, and adjunct faculty, Trent University, Peterborough has been awarded a three-year SSHRC grant to research the Inuit oral history component of a study of the *Royal Canadian Mounted Police and Inuit in the eastern Arctic, 1922-1940*.

## New Publications

AINA's Arctic Science and Technology Information System (ASTIS) has recently published the *Northern Granular Resources Bibliography* as ASTIS Occasional Publication No. 13. The bibliography, containing 495 citations with abstracts, covers all aspects of gravel, sand and crushed rock for use in construction in Yukon and the Northwest Territories. Preparation of the bibliography was funded by the Land Management Division of Indian and Northern Affairs Canada. The bibliography is available free of charge, while quantities last, from Data and Information Officer, Land Management Division, INAC, 10 Wellington St., Hull, Quebec K1A 0H4 (Fax: 819-953-2590).

Research associate Robert O. van Everdingen is working on an eight-language *Permafrost Index* of some 650 permafrost and related terms, in English, French, German, Italian, Norwegian, Russian, Spanish, and Swedish, as chairman of the Terminology Working Group of the International Permafrost Association. Printouts of the current draft of the index (about 20 pages per language section) will be made available for approximately \$5.00 per language section, or \$30.00 for the complete set, as soon as final corrections for the German terms have been incorporated. van Everdingen is also cooperating with people at Moscow State University to convert their Russian/English *Glossary of Geocryology and Related Scientific Fields*, containing more than 3800 terms, into a WordPerfect database to enable printing of both Russian to English and English to Russian versions.

AINA's fourth offering in the Komatik series — *Shield Country: Life and Times of the Oldest Piece of the Planet*, by Yellowknife author Jamie Bastedo is now available for Cdn\$20.00 + 3.00 postage & handling (\$4.50 outside of Canada).

## INFORMATION NORTH

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Special Interest

## Conferences

**International Symposium on the Role of the Cryosphere in Global Change**  
7-12 August 1994, Byrd Polar Research Center, The Ohio State University, Columbus, Ohio, U.S.A.

Contact: Secretary General, International Glaciological Society, Lensfield Road, Cambridge CB2 1ER, U.K.  
Phone: 0223-355974  
Fax: 0223-336543

**45th Arctic Science Conference: "Bridges of Science between North America and the Russian Far East"**

25-27 August, 1994, Anchorage, Alaska, U.S.A.; 29 August - 2 September 1994, Vladivostok, Russia

Contact: AAAS Arctic & Pacific Divisions, Conferences & Special Events  
117 Eielson Bldg., P.O. Box 757800, Fairbanks, Alaska 99775-7800, U.S.A.  
Phone: (907) 474-7800  
Fax: (907) 474-5592

**1994 International Conference on Arctic Margins**

5-9 September 1994, Magadan, Russia  
Contact: ICAM 94, Geophysical Institute, University of Alaska-Fairbanks, Fairbanks, Alaska 99775-0800, U.S.A.

**Arctic Opportunities Conference**

12-15 September 1994, Rovaniemi, Finland

Contact: Mrs. Raija Kivilahti, Conference Secretary, P.O. Box 122, 96101 Rovaniemi, Finland  
Phone: +358-60-324-778  
Fax: +358-60-324-760  
E-mail: rkivilah@levi.urova.fi

**Coastal Zone Canada '94**

20-23 September 1994, Halifax, Nova Scotia, Canada

Contact: CZC '94 Conference Secretariat, Bedford Institute of Oceanography, P.O. Box 1006, Dartmouth, Nova Scotia, Canada B2Y 4A2  
Phone: (902) 429-9497  
Fax: (902) 429-9491

**Making Marine Mammal Management Work: Sustainability and Social Equity in the Coastal Zone**

20-23 September 1994, Halifax, Nova Scotia, Canada

Contact: Oran Young, Institute of Arctic Studies, Dartmouth College, Hanover, New Hampshire 03755, U.S.A.  
Fax: (603) 646-1279  
or Milton Freeman, Canadian Circumpolar Institute, University of Alberta, Edmonton, Alberta, Canada T6G 2E2  
Fax: (403) 492-5273

**Fourth National Student Conference on Northern Studies** (held in conjunction with the Association of Canadian Universities for Northern Studies 1994 Conference "Northern Science: Aboriginal and Non-Native Concerns")  
26-28 November, Ottawa, Ontario, Canada

Contact: 130 Albert Street, Suite 201, Ottawa, Ontario, Canada K1P 5G4

**International Conference on Northern Wilderness Areas: "Ecology, Sustainability, Values"**

7-9 December, Rovaniemi, Finland  
Contact: Arctic Centre - Vilhontalo, University of Lapland, P.O. Box 122, FIN-96101, Rovaniemi, Finland  
Phone: +358-60-324-758 or +778  
Fax: +358-60-324-777  
E-mail: asippola@roisrv.urova.fi

**5th Annual Common Property Conference: "Reinventing the Commons"**

24-28 May 1995, Bodo, Norway  
Contact: Associate Professor Audun Sandberg, Hogskolesenteret i Nordland, 8002 Bodo, Norway  
Phone: 47-081-17310 (+17200-sentralbord)  
Fax: 47-081-17369  
E-mail: audun.sandberg@isv.hsn.no

**2nd International Congress of Arctic Social Sciences (ICASS II): "Unity and Diversity in Arctic Societies"**

28 May - 4 June 1995, Rovaniemi, Finland, and Kautokeino, Norway  
Contact: IASSA Secretariat, Arctic Centre, University of Lapland, P.O. Box 122, FIN-96101 Rovaniemi, Finland  
Phone: +358-60-324-759  
Fax: +358-60-324-777  
E-mail: mpretes@roisrv.urova.fi

**5th International Offshore and Polar Engineering Conference**  
11-16 June 1995, The Hague, The Netherlands

Contact: ISOPE-95 The Hague TPC, ISOPE, P.O. Box 1107, Golden, Colorado 80402-1107, U.S.A.  
Phone: (303) 273-3673  
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**International Symposium on Glacial Erosion and Sedimentation**

20-25 August 1995, Reykjavik, Iceland  
Contact: Secretary General, International Glaciological Society, Lensfield Road, Cambridge CB2 1ER, U.K.  
Phone: 0223-355974  
Fax: 0223-336543

## **Appendix Three:**

### **David Chocolate's Sled Dogs Die From Poisoning**

Firstly, at *Simíti Mbehchíí* [Faber Lake - dog team trail] my grandfather had some traps set and he told me to go back for the traps. Because the traps might be covered with snow, he told me to go and clean them off. There were four dogs tied. Even if there were four dogs, he asked me if I were going to go with the dogs and because they would slow me down I told him I would go by walking.

We were living at *K'ahgoti Tiníwholí* [North end of Hislop Lake] was where we were living in one tent. I walked back and at *Kwísahti* [Mazenod Lake] point I made camp. Because there was no fish and we were in hard times I was carrying fish tail meat and a small piece of bannock, some tea and some matches. I had a little bit of matches. So then I camped there, on *Kwísahti* [Mazenod Lake] point I camped and on the dog team trail, I had crossed the lake. On the lake I walked to *G'xati* [Sarah Lake] and when I got to *G'xati* [Sarah Lake] it got dark.

By the shore, because there was *tlígha* [row of broken ice] by the shore and I was afraid of walking into *tlígha*, so I walked a ways away. I walked real fast. Suddenly, to the middle of the lake, there was a bit of clouds and it snowed a bit with it and there was a bit of wind too. Suddenly I saw something out on the lake. When I first came here I thought I had seen nothing and so I stopped and looked, but nothing.

I had a few matches on me so I lit three but nothing. So with all my strength I yelled "Oooo" but nothing. I whistled too but nothing. It did not move. So then I walked unto the land and made a fire on the ground. I made a fire on the ground and walked up the hill and walked around on the land. There was a big rock and I cleared away the snow from it and made a fire and I gathered of fire wood. I gathered of fire wood and I had made it quite comfortable when my uncle David pulled up on the shore with his dog team.

As he walked up to me, he asked me to unhitch his dogs, so I cut down two spruce trees and down by the shore I tied up the dogs. One spruce had three dogs and the other spruce had two dogs. He was gone. He had seen it and had gone to see what it was. It was dark. It had been a while and I had made a good fire when he threw some meat on the ground by me.

The meat, it being such a big lake they wouldn't throw meat on such a great lake for the purpose of harming another. So that it may sustain someone, they probably put it here," that he said. He spoke like that. I never thought of anything. I never thought of it doing anything to us at all. Nothing at all. But then, he cut some meat and told me to throw them to the dogs so I did. Some time later, I took a piece of meat and cut a stick for it. I cut a stick for it and made it very sharp. I cut a

very thin piece of meat as it was liver

But then, just when I was about to put it on the stick and I was fingering the meat, I noticed it felt kind of gritty like. So I asked why it was gritty like and he said, "Its probably because the meat is no good. Why bother with it. Why don't you throw it to yonder dog," he said to me. So I threw it to the dog and not long after we threw some meat to the dogs, the dog started to kick about. It started to thrash about and it fell over and I walked over to it. As I walked to it and touched it, it was like wood.

So then, nothing. "It probably choked on a stick," is all he said. So then I pulled on the dog chain and when I threw it against the ground the dog's tongue stuck out. Right away he thought of it. Him. But I never thought to think of anything nor did I think to think in that way. "It doesn't look right. It doesn't look right at all. It appears we threw discarded poisoned meat at the dogs. Not likely any of the dogs are alive. Check the dogs down below to see if they are still alive."

So I went and lo, the dogs were lying about very stiff. All of them. So I told him, "None of the dogs are alive." "Yazeh, It is not right. We must of given discarded poisoned meat to the dogs so don't touch anything nor put anything to your mouth and don't put anything inside of your mouth," he told me. So I had made some tea and that I threw away. And with that, I went down to his sled and pulled out his towel from his pack sack.

As soon as I took his towel out, I took it to him and we started to wash ourselves. We washed our hands. After we washed our hands real good, we removed the chains from the dogs necks. After that I cut a spruce branch and hung the chains on it. And the dog harnesses we hung on a tree. He was carrying some blankets with him and we hung all of the blankets over a pole. As soon as we threw the sled over and because we couldn't do anything else nor eat either and because I still had to check the traps we moved on in the night.

As we walked on in the night, he said to me, "I'll make camp here while I wait for you," he said to me. And I said "yes" to him. As soon as we made fire, I left his company. He had a flashlight which I carried on the inside of me. I had five traps and I checked all five traps. As soon as I checked all five traps I went back to him and he still had the fire going. When I returned to him, we went on our way again during the night. We left. We walked along the shore where the dogs were and we kept walking and walking.

When we reached *G'xaʔi* [Sarah Lake] portage, our socks were all sweaty so he suggested we dry our socks so we decided to stop and make camp. So we lit some dry twigs and dried our socks. When we dried our socks real good we went on our way again. We walked and we walked. There was a bit of snow with wind. It was like that, like that. With that we reached *Kwítsati* [Mazénod Lake]. On *Kwítsati*, during the night we walked and walked. With that we walked up hill on dog sled trail

We continued walking. Who knows how late it was. When we got close to *K'ahgoti* [Hislop Lake], there was a ts'o pond that had a willow point that we arrived at. I told him, "lets rest here," and he said, "yes." As I removed my snowshoes and laid them on top of each other, I sat on them. I had fallen asleep. He was sitting like that too. I had fallen asleep for a bit when I awoke. He had fallen asleep for a bit too when he awoken. He said to me, "You awake? How are you feeling?" I told him I was feeling fine. So he said, "Let's leave, " so we left.

So when it was about eleven o'clock, my late grandfather on *K'ahgoti* *Tiníwholí* [Hislop Lake - north end of lake] was living there and we got back about eleven in the morning before noon. Only then we had something to eat. After we had something to eat, because he lived alone on *K'ahgoti* [Hislop Lake - island at South of lake]. He use to. After he ate he went back [David]

So that poison that was set out there, had they said they had done this, maybe that wouldn't have happen to the dogs. But because they didn't tell the people and we threw the poisoned meat to the dogs nothing happened to us. (Charlie Apple: 05/30/95)

The Dogrib have always fought for the land and have always been responsible for it, as a tradition this means the grandchildren will have a good life with plenty of natural provisions. They know the *ndè* has helped and will help the Dogrib people survive. They do not want a situation to be created that causes both the animals and the Dogrib to live in a pitiful manner. Phillip Dryneck (05/12/95) says

We can't say that is good. That which the people have lived on is where they have discovered riches. *Kqk'ehṭi* and that area is where they found diamonds. Our elders used to work that area and now they have set it up so that they could live well from it and instead we remain poor as a result. Our ancestors worked hard in seeing us through. Edzo did much for the people in bringing peace. He made peace with Akaitcho and since then people have fed one another and in that they have brought each other through. When Monfwi signed treaty in 1921, within the Boundary, he never said to search for 'Sombak'e' [places of money]. He never said to mess with the land in this way. We have never heard that said. Some of the elders that are here have witnessed the signing of the treaty .. Monfwi said, "As long as the sun rises, as long as the river flows, and as long as this land shall last, nothing will change for my people"

There is an abundance of animals... This could be a loss to us. The animals feed their young just as we do our own. It will be good if they [Whites] were to mind what is on the land. (Suzie Rabesca: 05/12/95)

### Dogrib Elders' Analysis of White Behaviour

The elders' main concern is whether or not Whites can be trusted to respect the *ndè* in this new situation. In an attempt to come to a conclusion, the elders reviewed their traditional knowledge as well as their recent observations of White behaviour. In other words, they scanned history, sharing information about when Whites have been trustworthy and when they have been not been trustworthy. They also shared their opinions early in these discussions. Pierre Wedzin (05/12/95) stated:

They [Whites] look up to money as if it were their god. They are impossible .. If we think there is no hope, there will be no hope as the white man is very ambitious. They work, and we can not see them with our own eyes. They work with hard rocks, but to them it's as if it were pliable wood .. We as a people depend on words [which are sacred and carefully chosen], yet those who have come [representing the Whites] aren't the boss





**DENE AND INUIT TRADITIONAL KNOWLEDGE:  
A LITERATURE REVIEW**

Leon Sadownik

and

Heather Harris

For Dr Marc Stevenson and Dr Cliff Hickey  
Canadian Circumpolar Institute  
University of Alberta

April 21, 1995

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## **Appendix I-A2**

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### **I. Introduction**

This literature review has been initiated as part of the environmental and social impact assessment process which is to be undertaken by BHP Minerals in preparation for diamond mining in the Lac de Gras area of the Northwest Territories. Traditional ecological knowledge has been designated as a significant area of research in this process to be given equal consideration along with the scientific research. Rescan Environmental Services has been contracted to undertake the impact assessment. Rescan has contacted Dr. Marc Stevenson of the Canadian Circumpolar Institute at the University of Alberta to undertake the traditional knowledge research component. Dr. Stevenson has contracted the current writers, Leon Sadownik and Heather Harris, to undertake the literature review.

This literature review will examine documents which contain traditional knowledge of the Dene and Inuit of the Northwest Territories. Many of the documents which contain such information are not traditional knowledge studies but other types of documents such as environmental impact assessment hearings, ethnographic studies and oral histories. No traditional knowledge studies available to us referred directly to the Lac de Gras area, although some referred to areas very close by. It is hoped that this literature review will indicate the kinds of information which could be gathered in the traditional knowledge study which is to follow. This literature review should also indicate the value of such information in environmental and social impact assessment and the on-going monitoring of impacts.

### **II. Traditional Ecological/Environmental Knowledge in the Western Northwest Territories**

In recent years some resource managers and academics have begun to realize the value of Traditional Ecological Knowledge (TEK). There have been a limited number of such studies in the western Northwest Territories (NWT). The Dene Cultural Institute (DCI) has undertaken several TEK studies, the most relevant of which is the one conducted in Fort Good Hope and Colville Lake. The government of the NWT has explicitly recognized the value of TEK in a document entitled, "Report of the Traditional Knowledge Working Group" (Legatt 1991), and is working to integrate it into existing programs and program development. Little of the material we found referred directly to the Lac de Gras area but much was available for surrounding areas inhabited by the Dene and Inuit. The material documenting TEK indicates the kind of data which could be acquired in a TEK study of the area of direct concern. Materials from environmental impact assessment (EIA) and social impact assessment (SIA)

studies of the general area indicate the kinds of concerns the Dene and Inuit have regarding their land

### **III. The Study Area**

The Dene call their land Denendeh, the land of the people. It extends from close to the coast of the Arctic Ocean at the mouth of the Mackenzie River to Great Slave Lake and east to Hudson Bay. The peoples who inhabit Denendeh call themselves Tlicho (Dogrib), T'atsaot'ine (Yellowknife), Denesoline (Chipewyan), Deh Gahgot'ine (Slavey), Shihtagot'ine (Mountain), K'ashot'ine (Hareskin) and Dinjii Zhuh (Gwich'in) (Dene Nation 1984). All speak closely related dialects of the Dene or Athapaskan language.

The diamond mining operations proposed by BHP will occur in the traditional territory of the Dogrib and Yellowknives. At the time of European contact the Lac de Gras area was used by the Yellowknives (Gillespie 1981). The Yellowknife population declined, mainly due to introduced diseases, until the influenza epidemic of 1928 reduced the number of Yellowknives so much that they were forced to amalgamate with the Dogrib to survive. Thereafter, the Dogrib, with the absorbed Yellowknives, utilized former Yellowknife lands, including the Lac de Gras area. In recent years, as Dene populations have risen, the descendants of the Yellowknives have begun to reconstitute themselves as a people.

The proposed diamond mine will also impact on the lands of the Inuit formerly known as the Copper Eskimo, who live north of the Lac de Gras area around Coronation Gulf and on islands north of the Gulf. The Copper Inuit have for generations extensively used the Contwoyto Lake area which is within 50 kilometers of Lac de Gras.

#### **1. Dene Attitudes Towards Their Land**

The Dene have a close and enduring relationship with their land and all its inhabitants. They see themselves and all other species as part of the land, which they view as a loving mother who provides very well for them. In the words of Isadore Kochon, a Dene elder of K'ahbamtue (Colville Lake) (Dene Nation 1984 7),

*"This land fed us all even before the white people ever came to the North. To us she is just like a mother that brought up her children."*

The Dene cannot conceive of a mentality which advocates exploiting an area as much as possible to extract its wealth and then abandoning it. To them, the land is a provider of eternal security if treated with respect. Dene elder, Charlie Chocolate, said (Dene Nation 1984 91),

*"This land is sort of our industry, providing us with shelter, food, income, similar to the industries down south supporting the White peoples "*

The Dene see their land as being so much more than just a provider of sustenance. They see it as being full of history. Every feature of the landscape has a name which tells its history (Dene Nation 1984:7).

The Dene regard spirituality as an essential aspect of survival on the land. Elder George Blondin of Deline (Fort Franklin) said, "the Creator gave our people medicine powers to help them survive the hardship of living" (Dene Nation 1984:13). The Dene believe that all people have spiritual power, but that some have special powers given by the Creator with which they can help all people. There were even special times when these powers would be used to benefit everyone. In summer, many Dene would gather together for a Ti Dance where medicine people would sing their prayer songs and would invoke the Creator to help the people (Dene Nation 1984:14).

The value which the Dene place on tradition is not an attempt to return to the past. They believe that the opportunity to live on the land as hunters, trappers, and fishers must be preserved as a choice alongside any decision to participate in the industrial economy (Dene Nation 1984:12). As with most aboriginal people, the Dene want to be able to choose those aspects of their traditional culture which they wish to retain and to be able to integrate into their society those things from Canadian society which they perceive to be useful.

## **2. Dene Land Tenure and Authority**

There are many peoples in North America who speak dialects of the same language and call themselves Dene, but the peoples of concern in this study are those who now belong to a political organization called the Dene Nation. Members of the Dene Nation see themselves as having a common culture, spirituality, oral history, laws, political organization and economy (Dene Nation 1984:11). They are organized into larger political groups, to which they sometimes refer as "tribes", such as Dogrib and Yellowknives. These groups, in turn, are made up of regional groups named after a major resource or topographical feature found in the area they inhabit (Johnson and Ruttan 1993:77). The regional groups were composed of a number of small groups of relatives.

The basic units of Dene society are extended family groups, which have a leader, usually an elder, recognized by consensus. Spirituality is seen as an important part of leadership. Today, a blend of traditional spirituality and Christianity is invoked when important decisions are being made (Dene Nation 1984).

The use of specific areas was agreed upon by consensus so that all could be provided for. The Dene had a strict law against excluding anyone from access to resources. The movement of family groups on the land was determined by the availability of food species and other resources necessary for survival (Johnson and Ruttan 1993. 83-84).

Regarding the way the Dene organize use of their lands, Chief Daniel Sonfrere (Dene Nation 1984 9) said,

*"Before even the white people came or even since the white people came, when people were making their living trapping and hunting, although the boundaries are not written on maps, the people from each community realize and respect other people's areas, although they are not written, although they are not drawn on the maps, they have respect for each other's areas "*

George Barnaby described the way the Dene see the "ownership" of their land. He said (Dene Nation 1984:59),

*"Our life is part of the land. We live on the land and are satisfied with what we get from it. No one person owns the land, it belongs to all of us. We choose where we want to go and our choice is respected by others whether in the settlement or in the bush. We have no word in our language that means wilderness, as anywhere we go is our home "*

This does not mean that the Dene have no concept of exclusive right of access to territory, but they see such rights as being theirs to determine. The use of parts of Denendeh by individuals and families is agreed upon by consensus, as is agreement to share the land with non-Dene. The Dene recognize as equal citizens of Denendeh the Cree people who fled north to escape epidemics 200 years ago and the Metis people who live among them (Dene Nation 1984 10-11)

### **3. Affect of Outsiders on Dene Land Tenure and Political Structures**

After thousands of years of being the sole occupants of their lands, Dene were encountered by European explorers and fur traders. At first the Dene believed that the newcomers would not present any problems. They were weak and few in numbers. According to Steven Kakfwi,

*"We could not conceive that they would not see the world as we do. The Dene had no experience or understanding of a people who would try to control us, or who would say that somehow they owned the land that we had always lived on" (Dene Nation 1984 16)*

The fur traders expanded their activities and influenced the Dene to shift the focus of their economy away from hunting and towards trapping. When this occurred the Dene sometimes suffered. When time was spent trapping that had once been

spent hunting, starvation could result. Provisioning the trading posts with supplies also put pressure on local animal populations. These two factors combined with the introduction of European epidemic diseases frequently caused great hardship among the people.

More white people began to arrive and in 1899 the Canadian government signed Treaty 8 with the Dene south of Great Slave Lake and some Cree. In 1921 Treaty 11 was signed with the Dogrib, Slavey, Gwich'in and Hareskin. The Dene interpreted the treaties as recognizing them as a nation, but soon found that the treaties tried to extinguish their land rights. At the signing of Treaty 8, Chief Diygeese of the Dogrib said,

*"My people will continue to live as they were before and no white man will change that. The people are happy as they are" (Dene Nation 1984 17)*

The next few decades were a time of great turmoil for the Dene. The newly established territorial government passed game regulations which caused hardship for the Dene. The influenza epidemic of 1928 caused the loss of one-sixth of the Dene population. The depression of the 1930s resulted in an influx of southern prospectors and trappers, who, ignorant of conservation practices, greatly reduced the number of animals. In 1942, 2,000 American soldiers arrived to build a pipeline from Norman Wells to Whitehorse. The American soldiers were only in Denendeh for three years, but the damage to the people's lives and lands remains, as Amelia Gratix from Tthebachaghe (Fort Smith) notes:

*"We were very shocked to find ourselves one day with a whole army descended on us. We were unprepared. Our way of life changed drastically. The disruption of people's lives lasts forever" (Dene Nation 1984 18)*

After the Second World War the price of furs, upon which the Dene had depended for much of their cash income fell, creating additional hardship. Added to the loss of cash income was the loss of food from beaver and moose owing to the imposition of quotas. These quotas were based on limited information on the part of "scientific" managers and caused hardship for the Dene who depended upon the resources for survival (Johnson and Ruttan 1993:102). Partly because of the hardship and partly for administrative convenience, the government forced people to move into settlements. This movement off the land interrupted traditional land-based activities and disrupted the passing on of traditional knowledge between generations. The Dene found themselves becoming more sedentary, more dependent upon the government for support and more unhappy because of new social problems. Throughout hard times, though, the Dene never abandoned their traditional values and continued to reinforce and reaffirm their relationship with the land. In the late 1960s, rising political awareness among the Dene began to create a means for asserting these important values.



In 1967, Yellowknife was designated the capital of the Northwest Territories and the administration moved there from Fort Smith and Ottawa. Of this period the Dene say,

*"Although we were the majority of the population in Denendeh, we were finding ourselves to have less say in the administration and laws of our land. Every year more mines were discovered and opened, roads were built, parks proposed, oil and gas wells drilled without our consent or often our knowledge"* (Dene Nation 1984:19).

By the late 1960s the Dene realized that they would have to organize themselves politically if they were to survive as a distinct nation. In 1968 they created the Indian Brotherhood of the Northwest Territories.

In 1973 the Dene filed a caveat declaring ownership of Denendeh. Mr. Justice William Morrow of the Supreme Court of the Northwest Territories ruled that the Dene had a right to put forward a claim to the land. His decision was later overturned.

In 1975, the Indian Brotherhood of the Northwest Territories and the Metis adopted the Dene Declaration which laid out their demand for recognition of independence in their traditional territories. The Berger inquiry of 1975 to 1977 into proposed oil and gas pipeline development made the aboriginal people of the north feel that they were finally being heard. Justice Berger recommended that there should be a ten year moratorium on any major development in the Mackenzie Valley, allowing time for land claims to be settled and for orderly development.

In 1978 the Indian Brotherhood changed its name to Dene Nation to proclaim formally that they were a nation (Dene Nation 1984:35).

In 1987, the Dene decided to form the Dene Cultural Institute which has a mandate to preserve and promote Dene culture through research and education. Traditional environmental knowledge was chosen as the first area to be investigated because it is so central to Dene culture (Johnson and Ruttan 1993:2). The pilot research project, undertaken in Fort Good Hope and Colville Lake, will be extensively quoted in this study.

#### **IV The Yellowknives**

The anthropological literature of the last fifty years claims the Yellowknives are extinct. According to Gillespie (1981:285), the Yellowknives were no longer identifiable as a distinct group in the twentieth century. On the other hand, a publication produced by the Dene, **Denendeh**, refers to the Yellowknives as an identifiable group with common traditions and interests (Dene Nation 1984:9). It

seems that the Yellowknives were clearly a distinct group until population losses forced them to amalgamate with the neighbouring Dogrib and Chipewyan, and remain so until they have been able to increase their numbers sufficiently to reconstitute themselves as a band. No doubt, at least some Yellowknife lineages have remained intact during the relatively short period since they stopped functioning as a separate group.

Yellowknives traditionally utilized lands in the transitional boreal forest and adjacent barren grounds. During the nineteenth century there were alterations in the occupancy of their lands owing to their relations with neighbouring peoples and the establishment of trading posts.

The economy of the Yellowknives centered around the movements of the Barren Ground caribou. According to Gillespie (1981:285), the range of the Yellowknives corresponded to some degree to the Bathurst caribou herd.

The Yellowknives occasionally travelled to Fort Churchill early in the eighteenth century, but trading posts were not established in their territory until late in the century. Soon after, according to Gillespie (1981:285), the Yellowknives acquired a warlike reputation, plundering the Dogrib and others, primarily under the leadership of Akaitcho. In 1823, the Dogribs took their revenge on the Yellowknives, attacking them, killing an entire encampment of 34 people. Gillespie (1981:286) claims that this was a loss of one-fifth of the Yellowknife population at that time and the event precipitated the decline of the group.

The "decline" of the Yellowknives as a distinct land-based social unit involved the incursion of Dogribs into their traditional territories and the movement of some Yellowknives out of their traditional territories to join other Dene groups. According to Gillespie (1981:286), the sharing of territories by Yellowknives and Dogribs began with a process of intermarriage and amalgamation. The process of incorporation of the Yellowknives into Dogrib and Chipewyan groups continued into the twentieth century, especially after the great losses from the influenza epidemic of 1928. Many of the remaining Yellowknives were incorporated into the communities of Yellowknife Bay, Snowdrift and Fort Resolution.

With rising populations the Yellowknives have recently "reconstituted" themselves (Dene Nation 1984) and are now attempting to get the government to honour their treaty rights and entitlements.

## **V The Dogrib**

Helm (1981:296-7) names seven regional bands for the Dogrib, each named after its geographical locality. Each regional band was divided into local bands composed of groups of extended families. The extended family groups were usually called after the names of their leaders (Helm 1972:76, 1981:297).

The occupied lands of the Dogribs today (including those with Yellowknife ancestry who once occupied Yellowknife lands) lie between Great Bear and Great Slave Lakes and between the lowlands east of the Mackenzie Rivers to Artillery, Aylmer and Contwoyto Lakes. Dogrib territory is heavily forested in the west near the Mackenzie and becomes progressively less vegetated to the east. Their territory includes tundra which is used seasonally for caribou hunting. The lands of the regional bands were not strictly delineated, as utilized territories could overlap and members frequently changed groups (Helm 1981:297)

One of the Dogrib regional bands, the Decila Hoti, travelled to Snare Lake for the spring caribou hunt and were joined by members of other regional bands as well. Dogrib caribou hunting grounds extended northeast of their usual range to Point Lake, and in some years they travelled as far as Contwoyto Lake in the barrens. The Wulede Hoti regional band often followed the Yellowknife River to Snare Lake and beyond to reach their fall caribou hunting grounds. The more westerly Etati Dogrib band travelled up the Emile River to reach their fall caribou hunting grounds (Helm 1981:297).

According to Helm (1981:298), before about 1950 the majority of the Dogrib people spent most of the year living on their hunting territories and some continued that life until the 1960s. The hunting life involved a seasonal round which included the men travelling to the trading post in late June or early July to trade the beaver and muskrat furs which they had taken in the spring hunt. The men then gathered their families and returned to the land in late July and early August. In the fall the women went to the fish camps to dry fish, while the men went to the edge of the forest to hunt caribou which were returning from the barrens. Caribou skins were in prime condition for the production of clothing at this time of year. The men usually returned to their families with a bale of skins as well as a bale of dried meat. Throughout September, production of dried fish continued. During the first weeks of October, freeze-up occurred and gill nets were removed from the water until the ice was thick enough for the nets to be reset under the ice (Helm 1981:298-9).

November and December were prime trapping and caribou hunting time. The furs were in peak condition and the caribou were travelling through the forest in large herds. When a herd was sighted, hunters headed out to meet them. In December the Dogribs returned to the trading posts to trade their furs and join in the Christmas celebrations (Helm 1981:299).

January and February could be a difficult time of year because fish, hare and other fur-bearers were in short supply and sound carries so well in the intense cold at that time of year that it was hard to approach moose and caribou (Helm 1981:299).

By March the weather was milder and hunting, trapping, fishing, and snaring improved. Many Dogrib travelled to Snare Lake for the spring caribou hunt. The caribou were plentiful as they concentrated along the lake shore on route to their calving grounds and summer pastures on the barrens (Helm 1981:299).

In April and May the Dogrib returned again to the post to sell their furs, attend Easter services and participate in traditional festivities. At the end of April the men went off to the spring beaver and muskrat hunt. By June the large waterways were open and the men returned to their families in the camps and hamlets from where the cycle began (Helm 1981:299). The beginning of a new yearly cycle began with the gathering of the Dogrib at the trading post in late June (Helm 1981:299).

## **VI The Inuit**

The Copper Inuit are the westernmost of the three groups known as the Central Inuit. The name given them, which they do not recognize, derives from their extensive use of surface deposits of copper (Jenness 1922:42; Stevenson 1994:346). The southern lands of the Copper Inuit are mostly tundra with forested areas along the Coppermine River and along the southwestern fringe of their territory. Large patches of willows are found throughout their land. The area around Coppermine has always been well populated, according to Farquharson (1976:33), because of the rich resources available there including caribou, seal, grizzly, whitefish, char, trout, grayling, waterfowl, wolves, wolverine, musk-oxen and even moose. The Copper Inuit were distinct from other Central Inuit groups in that the extended family was not the basis of social organization, rather Copper Inuit nuclear families were "fiercely independent" (Stevenson 1994:354). The Copper Inuit did have named groups with recognized territorial boundaries, but their larger settlements usually consisted of members of several different bands (Stevenson 1993:358).

Traditionally, the Copper Inuit yearly cycle would begin with the people leaving their snowhouse villages which they established on the sea ice during winter, for the interior during the last half of May. According to Jenness (1922:205), although herds of migrating caribou were available, the Copper Inuit were largely uninterested in hunting them in spring. At this time, they also overlooked basking seals which could be found on the sea ice surface (Damas 1984:398). Fishing through the ice on lakes was the preferred subsistence activity in early spring (Damas 1984:398).

The Copper Inuit did not practice open water sealing in summer. From late May until November, their main sources of food were caribou, fish, waterfowl and small game, the emphasis varying with season and locale. During spring and early summer, fishing through lake ice predominated. From August to November, caribou hunting dominated. This was the time when the animals were fattest and

the hides were in peak condition for the manufacture of clothing. Fishing for arctic char during their return inland from the sea interrupted the caribou hunting season. The char were fished on streams at weirs. Different groups of Copper Inuit had different economic emphases. Fishing was more important on southeast Victoria Island while caribou hunting was more important from Bathurst Inlet to Perry River where the large Bathurst caribou herd was found (Damas 1984:398).

European contact with the Copper Inuit was first recorded by Hearne who described the bloody encounter of a group of Copper Inuit with Dene warriors in 1771 (Hearne 1772:155). But it was not until after 1916 that traders arrived in the region and began to substantially influence the traditional way of life (Farquharson 1976:33). After that time, trapping became much more important to the Copper Inuit. By the late 1920s there had been many deaths among the Copper Inuit from introduced diseases such as influenza and tuberculosis (Stevenson 1993:351).

Farquharson provides a fairly detailed description of Inuit use of the Contwoyto Lake area which is just northeast of Lac de Gras (1976 41-42). He says the area was very good for fox trapping and for hunting but, because there were no seals available at this inland location, not many Inuit remained there for the winter before the introduction of the rifle which allowed more caribou to be killed (Farquharson 1976:41). Farquharson claims that there were many river crossings in the Contwoyto Lake region where the Inuit killed caribou in both spring and fall (1976 41). He says that the entire area around the lake was hunted very intensively and that the people of the area depended very heavily on fish, which they took from all major lakes (1976 41). Barren Ground grizzly and musk-oxen were taken in the Contwoyto Lake areas, as were large numbers of wolves and wolverines. Farquharson claims the area was more intensively used by the Copper Inuit than most other areas they occupied (1976 41). In the 1960s, many Copper Inuit began to move into the settlement of Coppermine but some continued to live year round at Contwoyto Lake, while others lived in Coppermine during the winter and stayed at the lake for the rest of the year (Farquharson 1976 41).

One factor involved in the movement of the Copper Inuit to the settlements was the availability of wage labour and government services which began in the mid-1950s. Another was a decline in the caribou population (Damas 1984:409). According to Brody (1976 206), the Inuit believe that the decline was due to the cyclical nature of land mammal populations, not the introduction of rifles as the authorities believed.

The introduction of the snowmobile changed the lifestyle and land use patterns of the Copper Inuit. The ability to travel farther in less time made it possible to continue hunting in traditional areas while living permanently in the settlements.

## **VII. Dene and Inuit Traditional Ecological Knowledge**

### **1. Indigenous Peoples as Resource Managers**

The Dene view of the relationship between people and the plants and animals upon which they depend for survival is very different from that of Western scientific resource managers. The Dene believe that, if they take care of the plants and animals and treat them with respect, they will always be there to be used. Western resource managers, on the other hand, believe there is a need for externally imposed regulations to protect resources (Johnson and Ruttan 1993:205).

This model is based on a European world view whereby human beings control nature and every individual struggles to maximize economic benefit. But this goes against the central tenets of Dene society which continue to operate to this day. And as Freeman (1989) points out, the evidence directly contradicts this model, in that the most desired food species in the north are still plentiful and most are actually increasing in numbers. Johnson and Ruttan (1993:211) say, "Despite the continued disruptions of European settlement and cultural inundation, Dene traditional ecological knowledge, values, beliefs and conservation strategies continue to provide effective managerial and regulatory practices at the local community and regional levels, independent of government authorities." However, Johnson and Ruttan say, there are threats to this balance today in the form of development, pollution, and over-use which require the wisdom of traditional knowledge more than ever before. While traditional knowledge is needed more now than ever, this valuable source of information is slipping away with the elders, making it urgent not only to record it now, but to use it in a meaningful way.

Johnson and Ruttan (1993:181) claim that empirical ecological knowledge is only one part of Dene environmental knowledge; the second part is a code of ethics which governs the interaction between people and their physical and spiritual environment; and the third part is composed of harvesting strategies which ensure maintenance of healthy resource populations. Double day (1993:52) also expresses this position when she says we must consider "traditional ecological knowledge as an element of a world view rather than as solely instrumental knowledge or as mere technology."

When attempts are made by resource managers to utilize traditional knowledge, selected aspects of this knowledge are added to the Western resource management system as discrete pieces of environmental data rather than utilizing the traditional system of management as a coherent whole, without which the discrete pieces mean little. In other words, traditional ecological knowledge is often taken out of context and interpreted from a perspective (usually scientific) different from that which gave meaning and value to that knowledge in the first place. This was

expressed repeatedly as a major concern by Inuit attending the 1992 Inuit Circumpolar Conference. One Inuk said (Brooke 1993 33),

*"What many of the southern scientists fail to understand, even those who have worked here a long time and are fully accepted in what they do, is how the knowledge Inuit have is really connected to our culture. They may not be exactly the same thing but they almost are. When we think of something or discover a new fact, we also think of all the interconnections between that fact and everything else. And so it is with our science it is going to be connected to everything within our culture."*

There has been considerable debate in the scientific community over the efficacy of traditional ecological knowledge in the management of resources. The best evidence for its efficacy may lie in the fact that the Dene and Inuit have thrived for millennia in challenging environments. In spite of this, non-aboriginal resource managers and scientists often disparage traditional ecological knowledge as unable to contribute to the management of resources. This led Dene Andrew Chapeski to write, "The prejudice has been persuasive enough such that there has often been a tendency even to deny the existence of indigenous resource management regimes and their attendant customary laws." (Ryan 1994 19) Ryan supports Chapeski's view that the Dene actively and effectively manage their resources when she says (1994:19), "The hunting and trapping practices of the Dogrib people still involve good stewardship based on traditional knowledge and ritual beliefs adapted to contemporary technology."

The Inuit as well as the Dene have a system of resource management. Charlie Gruben told the Berger inquiry at Tuktoyaktuk about traditional Inuit leadership in the management of resources. He said,

*"When we were young we had a Chief, Mangilaluk. He tell us not to kill this and that. We don't do that because we want to listen to our chief, so good, we don't over-kill. It was better than game wardens we got today, I think. That's the way the people used to handle their game that time. We don't kill game just for the sport, we just kill what we need and that's it" (Berger 1977 98)*

## **2. Life on the Land**

Life on the land is not an out-moded existence, an artifact of the past, to be experienced through memory or dusty museum exhibits. Hunting, trapping, and fishing contribute importantly to a viable and sustainable way of life in an environment that supports few other sustainable economic activities. Full-time employment is scarce in northern communities. Hunting can and does provide a significant percentage of northerners' diet while trapping can provide cash income needed for the "bush" existence. But life on the land is so much more than just a

way to make a living. It has high cultural, social, emotional, and spiritual values, which cannot be evaluated in monetary terms.

The central tenant in Dene hunting and trapping is sustainability. Only as many animals as can be eaten or whose skins can be processed are taken. If numbers of animals seem to be declining in an area, the area is allowed to rest. Joe Masuzumi (Johnson and Ruttan 1993:196) said,

*"When fish or animals are getting scarce you always move to another area. This way you give the land and animals a chance to reproduce. You look after fish like this too."*

But the Dene also believe that not trapping an area also reduces the number and vigor of the animals there. If beaver are not trapped for five or ten years, they will eat the available food supply and will suffer from over-population, disease, starvation and fights caused by over-crowded conditions (Irving 1988:7, Johnson and Ruttan 1993:195). Joe Masazumi (Johnson and Ruttan 1993:195) claimed, "When the wildlife species are over-populated they die off, same as for fish." The Inuit hold the same belief. They believe that human hunting is an important part of the ecological system. They believe that species which are not hunted will decline. Because of this, they believe that hunting quotas can be inimical to the species they are supposed to protect (Brody 1976:203).

The Dene consider respect for animals as essential to maintaining an on-going relationship. Not wasting animals is the most important aspect of this. One way that waste is avoided is by not killing unwanted animals. This is accomplished through the trappers' astute knowledge of animal behaviour which indicates how traps should be set so as to catch the desired animals and avoiding the undesired ones (Irving 1988:7).

The most efficient use of animals is made possible by extensive ecological knowledge combined with an appropriate system of sustainable utilization. A few documents indicate the extensiveness of the traditional ecological knowledge of the Dene. The Fort Good Hope study (quoted extensively below) is one example compiled from the combined knowledge of many Dene. Another fine example is the book written by John Tetso (1970), which describes the vast range of knowledge he had of life on his land.

### **3. More Than Just Animals**

A traditional medicine research project (Ryan 1994) undertaken in the Dogrib Dene community of Lac la Martre indicates the value of traditional ecological/environmental knowledge and the extensiveness of the use of plants and animals found in the region. This study gathered 400 pages of data on the use of 65 plants and 47 animal parts in healing and the maintenance of health.



Although animals as a source of food are usually considered in EIA studies, the use of animals, and in particular plants, as sources of medicine is often neglected.

The Lac la Martre traditional medicine study also emphasizes the importance of world view in the maintenance of health in Dene society. It points out that the preservation of species of animals and plants upon which people depend for survival is not enough for well-being. It is the integration of people, animals, plants and other aspects of creation into a balanced whole that results in well-being. That is why extinguishment of land title and cash compensation for loss of rights to resources may not be a culturally appropriate solution for many First Nation peoples.

#### **4. The Oral Transmission of Traditional Knowledge**

The knowledge of the Dene and Inuit was, at one time, entirely communicated in oral form. Today, First Nations people are taking advantage of new forms of transmission of information including the recording of oral histories in printed form. Sahtu Dene George Blondin has provided a very fine example of how successful this can be in his book, **When the World Was New** (Blondin 1990). In this book of oral histories, he describes life on the land for his people from ancient times until recently. This book presents an inside view of the relationship between the Dene and their environment. It indicates the wealth and variety of ecological knowledge the Dene have. It names the species hunted, fished, and trapped. It describes how, where, and when they are taken, their habitat and behaviour. Blondin relates how these activities are organized and how the catch is distributed. He continually emphasizes the importance of medicine power and the spiritual relationship between people and animal and plant species. And Blondin describes the adversity suffered by the Dene caused by European contact.

Blondin recounts some unique and interesting aspects of the symbiotic relationship between people and other species. In one story he relates how his father, Paul Blondin, was hunting one day when he heard a raven calling. George writes (1990:156) that:

*"Ravens can't kill animals themselves, so they depend on hunters and wolves to kill food for them. Flying high in the sky, they spot animals too far away for hunters or wolves to see. They fly to the hunter and attract his attention by croaking loudly, then fly back to where the animals are."*

Paul followed the raven to two moose and shot them, providing food for himself and the raven.

In another story (1990:211-2), George Blondin describes Dene knowledge of grizzly bear behaviour and methods of grizzly hunting. He describes how a bear tries to evade those following him by repeatedly backtracking and jumping from

his trail into bushes where his tracks are hard to detect. He then relates how the Dene know the bear they are tracking is getting close to his den because he starts circling. Although the den is very difficult to see, the Dene recognize a "bear tree", the kind of tree near which a grizzly has its den. He also describes the ambivalent feelings that the Dene have regarding their relationship with bears, which they consider to share characteristics with humans.

Dene trapper John Tetso has written a similar book full of Dene ecological knowledge (1970)

The Inuit, too, recorded knowledge in narratives and in songs as well. Songs about hunting and travelling refer to the land, describing a well-loved way of life hunting caribou and other animals and fishing at various locations throughout their territory. Landscape features along travel routes are sometimes described in songs. Place names are full of history for the Inuit, just as they are for the Dene (Arima 1976:218). Arima only utilized early documents in his oral history study, but he refers to the existence of recent documents written by Inuit as well.

## **5. Examples of Traditional Knowledge of Specific Animals**

### *A Caribou*

Caribou is the major resource in the Lac de Gras area and throughout much of Dene territory. The Bathurst caribou herd's range encompasses the Lac de Gras area. Traditional knowledge regarding this herd is scarce in accessible literature but a study of traditional knowledge regarding the Bluenose herd indicates the kind of data concerning caribou which can be obtained. To indicate the depth and breadth of knowledge which can be obtained in such studies we have related the results in considerable depth.

One of the four species which were studied in the Fort Good Hope-Colville Lake traditional ecological knowledge study was caribou. The barren-ground caribou of the area are the "Bluenose" caribou which has its calving grounds at Bluenose Lake, between Coppermine and Cape Parry. The Dene said the caribou go to the barren grounds in spring to calve and to "renew their hair and hooves" (Johnson and Ruttan 1993:112). In the winter the Bluenose caribou inhabit forested areas near the Mackenzie River or, according to the Dene, if there is little snow and few storms, they often stay on the tundra (Johnson and Ruttan 1993:113).

The Dene say that wolves are the main predator of caribou. Predation occurs mainly when the caribou are on the winter feeding grounds and few are killed by wolves during migration (Johnson and Ruttan 1993:114). A difference of opinion was expressed regarding selective predation. Some said the wolves killed mainly weak caribou, others said the wolves killed healthy ones when there were many available (Johnson and Ruttan 1993:114). The Dene said grizzly bear, lynx and

wolverine also preyed upon caribou. One informant told the researchers that "grizzly bears kill a lot of caribou too in summer on the tundra" (Johnson and Ruttan 1993 114). Another said, "lynx ...clings to its (caribou's) back and chews on the neck" (Johnson and Ruttan 1993:114). Wolverine were reported to kill wounded caribou (Johnson and Ruttan 1993 114-5).

The Dene told researchers that the caribou and moose rarely shared the same range. The reasons given include different food preferences and irritation that moose experience when they encounter noise produced by caribou (Johnson and Ruttan 1993:115)

According to Johnson and Ruttan (1993:116), the Dene were very familiar with the spring and fall migration routes of the caribou. They said that the fall migration is usually led by large males, followed by cows with calves and then by old males. The fall migration does not follow clearly defined trails but, rather, moves in a particular direction. The Dene said that the reason the caribou migrate in fall is to obtain winter food, which is mainly lichens, and to avoid the winds and harsh weather on the tundra in winter (Johnson and Ruttan 1993:117-9).

The Dene said that the spring migration begins as early as April, but occurs mainly in May. The migration does not follow any particular route. The caribou travel to the tundra to calve and to obtain summer feed (Johnson and Ruttan 1993 119)

The Dene consider weather and snow conditions to be important factors affecting caribou migration. They say caribou avoid deep snow, windy lakes and crusted snow. In deep snow the leaders take turns breaking trail for the herd and they must stop often to dig up lichen. The animals rest in brushy areas or sheltered bays during migration. Informants said that caribou avoid crusted snow and will begin their migration when there is wet snow or rain. In both spring and fall, the caribou prefer to migrate in soft snow conditions (Johnson and Ruttan 1993 120)

The Dene said that hunting did not seriously affect caribou migration except if the leaders were killed. They said that the herd might turn back for the rest of the winter if the leaders were killed during fall migration. Most hunters said that only a few animals from the front of the herd should be shot during fall migration and the rest should be left (Johnson and Ruttan 1993:121).

Wolves which follow the caribou herds are said by the Dene to have no effect on the migration routes, but that oil companies working in the area have contributed to changes in migration routes (Johnson and Ruttan 1993:121).

Regarding mating behaviour of the Bluenose caribou, the Dene said, that mating occurs in October, at which time, bulls fight and some are killed. Some said the males keep "harems" of females until the rutting season is over and then the males and females separate and continue their migration into the forest. The calves are

born in late May or June on the tundra near Bluenose Lake (Johnson and Ruttan 1993:121-122).

Although traditional ecological knowledge is not usually quantitative, the Dene are very well aware of population trends. They say that the Bluenose herd began increasing about ten years ago. The Dene say that scarcity of caribou is caused by their mistreatment. They also say that provisioning of trading posts in the past must have had a serious impact on caribou populations and that wasteful hunting today could do the same. The Dene said that regional weather patterns could also affect caribou populations in local areas (Johnson and Ruttan 1993:123).

Before the 1960s, the much publicized "decline" of caribou was attributed by government agencies and the press to native over-hunting and predation by wolves. Dene informants did not even mention a decline in caribou herds for that period nor did they mention subsistence hunting or wolf predation as possible causes of caribou population declines. According to Johnson and Ruttan (1993:124), "Traditional Dene also believe that adherence to traditional rules for hunting and use of caribou assures their continued existence and that the subsistence use of caribou by a few people has little effect on the large herds."

The Dene of Fort Good Hope and Colville Lake identified three other kinds of caribou in addition to the barren ground caribou. These are the woodland caribou, the mountain caribou and the small caribou. According to the Dene, the woodland caribou is a large, dark coloured animal found in forested areas on both sides of the Mackenzie River. When the Bluenose are in their winter range they mix with the woodland caribou. These animals are said to mate and calve a month earlier than the Bluenose. They are said to have their calves on the high ground between Fort Good Hope and Norman Wells (Johnson and Ruttan 1993:126-7).

According to Johnson and Ruttan (1993:127), the mountain caribou is not regarded as a subspecies distinct from woodland caribou by the scientific community but is seen as distinct by the Dene. The Dene say it is yellowish in colour and stays in the Mackenzie Mountains. They say it migrates in large herds from the alpine tundra in summer to the foothills and lowlands in winter (Johnson and Ruttan 1993:128).

The small caribou were the fourth type of caribou named by the Dene in this study. It was said to be a small caribou which lived on the tundra, often in association with the Bluenose herd. Johnson and Ruttan say that it may be a group of Peary caribou which has immigrated from the Arctic islands or it may be a subspecies closely related to Peary caribou (1993:113).

The Inuit too, have an enormous amount of knowledge about the caribou. The 1976 **Inuit Land Use and Occupancy Project** documented some of this knowledge. The Inuit described changing trends in caribou ranges and

populations (Brody 1976:206) They said that there were several reasons for the increase in caribou numbers which was occurring at the time of the study and that the sheer increase in numbers was resulting in the expansion of range (Brody 1976:206) They were even able to predict where the range expansion would take place, based on knowledge of places previously occupied by the animals (Brody 1976:206).

The Inuit described the time, location, and geography of the places where the caribou calve and the fact that the calves are, "for the most part, born within 24 hours, in large herds" (Pie Koksut quoted in Brody 1976:208)

Caribou behaviour was also described, the Inuit reporting that the caribou sometimes walk onto glaciers to escape the swarms of mosquitoes in summer (Brody 1976:208). At other times they live in the valleys and flatlands, using valley passes to travel through mountains (Brody 1976:208). The Inuit reported that there are islands and places along the coast where the caribou have never lived nor are they likely to (Brody 1976:208) They said with the exception of these small areas, "the entire region is used or needed by the caribou" (Brody 1976:208). The Inuit say that the caribou, more than any other land animal, exhibits population cycles "at which humans can only wonder" (Brody 1976:208).

The Inuit described caribou predation, saying that the wolf preys almost exclusively on caribou Wolves follow the herds, choosing their quarry from the edge of the herd. They are able to kill healthy, adult animals, but the caribou seem unafraid which the Inuit speculate means that the caribou know when the wolves are hungry (Brody 1976:208).

The Inuit described their caribou hunting techniques. They said that a good hunter can focus so closely on a caribou that he comes to think like the animal They say caribou are afraid of men and dogs so that hunters in the past had to approach them disguised as another caribou, carefully using the wind and terrain to enter the herd. Surprisingly, the Inuit say that the caribou are not afraid of the sound of a snowmobile and will even approach it in curiosity, making the killing of caribou much easier today (Brody 1976:208)

### *B Moose*

In the traditional ecological knowledge study undertaken at Fort Good Hope and Colville Lake, the Dene described moose summer habitat as places where there are plentiful willow and birch for the moose to eat and wet places where there is old grass and willows During the hot months of July and August the moose stay in damp areas and keep cool by going in and out of the water. The moose move to higher ground in forested areas before the September-October breeding season. The Dene say that the moose move about in winter, mainly in areas where willow are found (Johnson and Ruttan 1993:130-1).

The Dene report that moose calves are born between the middle of May and the beginning of June near water. The cows choose areas of thick brush and trees for calving to avoid predators. They also choose areas with plentiful food near muskeg and dried lake beds. The Dene say moose cows are so protective of their calves that wolves will not approach a cow and calf (Johnson and Ruttan 1993 140-2).

The Dene described the varying effects of fire on moose, saying that intense fires or fires in early spring can harm moose by damaging their food supply and killing calves, but that light burns can benefit moose in the long run by providing regrowth of willows and grass (Johnson and Ruttan 1993 131-3).

The Dene say that the primary predator of moose is wolves. The wolves hunt the moose in packs, taking advantage of weather, snow conditions and terrain. For instance, when the snow is crusted, the moose cannot run fast because they break through the crust but the lighter wolves can run on the crust, easily catching the moose. Lynx and wolverine were reported to prey on moose occasionally as well (Johnson and Ruttan 1993:134-5).

The Dene say that moose and caribou occasionally inhabit the same area but there is no competition between them because they eat different foods. The Dene report that rabbits and beaver share moose habitat and food in the form of willows (Johnson and Ruttan 1993:136-7).

According to the Dene, moose populations have increased during the last two decades. They attribute this to movement of moose into the area from the south and increased moose habitat resulting from fires (Johnson and Ruttan 1993 142).

### *C Beaver*

The life cycle, behaviour and habitat of the beaver are very well known by the Dene. The beaver is both an important source of food and cash income from its pelts.

The Dene say that the beaver usually inhabit small, semi-permanent lakes with bottoms of mud and black soil. Johnson and Ruttan explain that these are mainly thermokarst lakes (1993 145). Beavers sometimes inhabit larger, permanent lakes when these have suitable soil for dens and lodge construction and protection from wind and drifting ice. Beavers also locate near appropriate vegetation such as black spruce, poplar, white birch, and shrubs. Some beavers prefer streams if the water flow is correct, the soil is appropriate and food available (Johnson and Ruttan 1993 144-6).

The Dene say that beaver build their lodges where they will receive maximum sunlight and where food is available. The size of the lodge is dependent upon the number of animals residing within. They reported that a lodge for only two

beaver will be less than five feet above the water level, while a lodge for a large family of beavers can be more than six feet high and fifteen feet across (Johnson and Ruttan 1993:146-7). Dene trapper John Tetso said (1970:40) that the size of the food pile in front of the lodge also indicates the size of the resident family.

The Dene report that the beavers build dams to maintain water levels so that their lodges will not freeze up in winter. They say that beavers are very sensitive to any changes in water level and will investigate such change and repair a break in the dam (Johnson and Ruttan 1993:150)

The Dene describe how beavers effect the environment by controlling water levels. When they abandon a lake, they break the dam, draining the lake. Terrestrial vegetation grows in the drained areas and terrestrial animals replace aquatic species (Johnson and Ruttan 1993:152)

The Dene say that the main predator of beavers is the wolverine which will open lodges to kill them. Black bears prey on beavers as do wolves on occasion when they encounter them in the bush (Johnson and Ruttan 1993:153).

Extensive knowledge of beaver behaviour and reproduction allows Dene to estimate accurately the population size and structure of beavers on their land. This detailed knowledge allows Dene to harvest beaver at a high, but sustainable rate (Johnson and Ruttan 1993:155-9).

The main causes of beaver deaths were said by the Dene to be old age, starvation or freeze-out but that occasionally they are found dead of unknown causes which were suspected to be gas or oil spills (Johnson and Ruttan 1993:160-1)

#### *D Marten*

The Dene reported that marten were found in a wide variety of habitats, in winter and summer, from wooded areas to treeline habitats of mixed woods and tundra. The common element was a supply of "mice" and/or rabbits. The Dene said that marten usually stay in one area, moving only if food species are scarce. They said that marten compete with other carnivores for food but are not hunted by other carnivores because they are too fast and are good tree climbers. Some Dene reported that there are years when marten are scarce due to fluctuations in their food species. Other Dene said marten are always plentiful because mice are always available. Some informants said that it takes two to five years of rest for an area to regenerate when marten populations are low (Johnson and Ruttan 1993:161-167)

#### *E Fish*

Although the most in-depth traditional ecological knowledge study for the area which we accessed, that of Johnson and Ruttan (1993), did not examine fish, it

recognized the importance of fish to the Dene. Other documents of all kinds which referred to Dene land use also emphasized the importance of fish in the Dene diet throughout the year. George Blondin (1990) and John Tetso (1970) describe fishing in many locations throughout Dene territory in nearly all seasons. In all types of environmental impact hearings, Dene expressed their concerns for the fish and their habitat. A traditional knowledge study of fish would no doubt be fruitful.

## **VII. Traditional Knowledge in Environmental Impact Assessment and Social Impact Assessment**

### **1 Traditional Knowledge and Scientific Knowledge**

Some Western resource managers are starting to become aware that the Dene and Inuit possess a far more comprehensive understanding of animal populations, behavior, and habitat than do scientists. Nakashima (1990, 1993) provides a very good example of this in his comparisons of Inuit knowledge of the Hudson Bay eider and scientific knowledge of the ducks. According to Johnson and Ruttan (1993:106), the Dene believe that their harvesting strategies are effective, relevant in today's world, and worth passing on to the younger generation. Although they admit that there are sometimes transgressions of traditional hunting laws and values within the community, that does not invalidate the system. Deviance from acceptable behaviour occurs in every community, aboriginal and non-aboriginal alike. The Dene have strong sanctions against those who violate animals. Laws concerning proper treatment of animals are consistently regarded as among the most important and sacred in Dene societies. Those who violate such laws endanger the well being of the entire society and therefore feel the wrath of their family, community, and even supernatural forces. Dene Bella T'Seleie, said "there is great social pressure when these rules are not followed because our survival depends on the lands and animals" (Johnson and Ruttan 1993:182).

Johnson and Ruttan (1993:168-9) found in the Fort Good Hope-Colville Lake traditional ecological knowledge study that the Dene "share a common understanding with scientists of many ecological concepts espoused by the Western scientific community" including "ecosystem" and "food web". They gave an example of an elder who explained "in as much detail as any scientist" the effects of drainage and permafrost on two plant communities (1993:169). Johnson and Ruttan (1993:169) said that the Dene understand ecotones and make extensive use of their biodiversity.

The Dene are very aware of the complex interrelationships between species. Bella T'Seleie said,

*"Everything in this world is interconnected and it won't be long before all these problems (pollution) start affecting us. It's when we start trying to change the*



*environment and try to wipe out certain species, even something as small as the mosquito that we begin to break down the environment"* (Johnson and Ruttan 1993 183)

Johnson and Ruttan (1993 200) claim that one of the most important contributions that traditional ecological knowledge can make to resource management and environmental protection lies in its holistic view of the environment. They say (1993:200)

*" an experienced traditional hunter uses an approach which views the habitat and the moose as one unit. Inexperienced people, including some biologists tend to focus their attention on specific, isolated components of the ecosystem or animal populations. They often overlook less obvious but important factors or interrelationships that are critical to the survival and productivity of the population. For example, a biologist may see moose and an abundance of a preferred winter food species during a summer moose study and assume that it is excellent winter range. However, the Dene hunter/trapper knows the habits of moose and its use of habitat, sees no evidence of winter feeding (i.e. winter droppings, browsed twigs etc.) and deduces or knows from experience that moose do not use the area in winter because of excessive snow depth, crusted snow or some other factor."*

Johnson and Ruttan (1993:200) claim that Dene ecological knowledge is more utilitarian than Western scientific data because it is linked to survival, whereas scientific research may or may not be directed towards an answer to a practical problem. They also conclude (1993 201) that traditional knowledge may be more detailed than scientific knowledge because of the greater opportunity the Dene have to observe species in their habitat. Dene hunter/trappers may have a lifetime of experience observing animals throughout the year as well as access to the information of past generations and other community members, while the scientist may be restricted to a short field season.

## **2. Indigenous People's Observations of the Effects of Development**

### *A Dene*

According to Johnson and Ruttan (1993:107), Dene TEK contains observations about the effects of development on the environment. They say that local people are often the first ones to see the presence of disease in animals or a change in the quality of their flesh (1994:107). Dene Richard Kochon, of Colville Lake, worried about the effects of oil development (Johnson and Ruttan 1993:108):

*"The ice road, the oil company made, it had a lot of diesel oil on it. This can't be good for fish. We worry about things like that because we only have our land to depend on and what we get from it."*

Peter Charlie of Old Crow told the Berger inquiry that the caribou have followed the same migration routes for many years. He said that the people can rely on the caribou following the same route each fall and can therefore go to the same places to hunt them each year.

*"Every fall, my children go to the river, and they get the meat from where these caribou migrate. Now today, I hear about the pipeline that is going through, it's going to spoil all these routes where the caribou migrate"* (Berger 1977 36-7)

Dene experience with hydro-development includes the Talston River Project begun in the late 1960s. The Pine Point mine required power for its operations and it was decided that a dam on the Taltson River, which flows into Great Slave Lake, would be the source of the mine's power needs. Unfortunately, the benefits for the natives continue to remain a controversial issue. At a NWT Water Board Hearing held in September, 1993 (Taltson River Project :13) Mr. Helwig, a representative of Northwest Territories Power Corporation (NTPC), could not explain the rationale behind the decision not to remove trees prior to the flooding of the Nonacho Reservoir. What seemed to him to be a simple mathematical calculation based on slope and the expected rise in water levels became, for one scientist, a qualitative issue.

*"I think it is important to consider on the reservoir, that the land itself was relatively low lying so that while the actual vertical measurement is relatively small, the flooding was extensive and the shoreline changed quite dramatically"* (ibid:48)

In a slide presentation, the scientist added that not only has transportation over water become more dangerous, due to submerged snags, but extra care must be taken when coming to shore, especially when "the water is low (ibid 46) ". To reinforce the qualitative issue even further, Dr. Bielawski spoke of the differences that native people have with developers and researchers regarding the health of fish (ibid..49):

*"There are some problems with the research, but the general consensus from the developer's view seems to be that there is no appreciable or worrisome effect. There is no appreciable effect on the commercial fishery and not a lot of attention paid to the traditional fishery. The other view that we have is that the fish are too skinny, the (sic) have cysts, the dogs get sick on the fish and the consensus is that the fish do not have their own food and therefore they are unhealthy and we cannot eat them."*

The lack of consultation by NTPC was brought to the fore in the testimony made by Annie Catholique, a resident of Lutsel K'e (Snowdrift) (ibid 31-32):

*"There is grave yards with our relatives there and now all the land is flooded Now it is all under water Now my little sister, one little boy, one little girl, my brother, and now they can't find those graves so they will put me some place else.*

A lot of things are missing We used to put our nets in there for fish. We used to have very good fishing with hooks and nets My dad used to do things like that. Now it looks sick. Moose, beavers, caribou, muskrats; that is what my dad used to trap and brought us up with. Now you can't see anything "

Annie Catholique also expressed concern about the safety of traversing the ice since the water flow now depends on the demands for power (ibid:31):

*"Last winter two men who trapped around there all their lives and who know their way around drowned They went through the ice with a skidoo . you haven't thought about what the Dene people of the North think We are the people of the land "*

Not only has the ice become more precarious, according to the intervenors at the Taltson hearing, but there is also the danger of encountering open water, even in the middle of winter following flooding due to increased water flow. Mr. Lockhart spoke of the need for better communication between users of renewable resources and the NTPC (ibid 38).

*"Natural seasonal variability is compounded by artificial manipulation of water levels and this in turn affects ice conditions at any given time over the winter, on different parts of the sub-system That to us, poses serious constraints and conditions for our travel over the area which our Elder [Archie Catholique] has indicated How do we know if we do not have any communication, when the water level is dropping or increasing? How do we know if there is ice there, that below the ice the water level has gone down "*

Jerry Paulette, Chief of the Salt River First Nation, indicated that "Treaty Indians in our area were never really consulted when this Dam was established in the late 1960s " Mr Paulette also spoke of the inherent contradiction found within the

Department of Indian and Northern Affairs (ibid.26).

*"I find it kind of contradictory for the Federal Government to say that they want to deal with lands and resources with our people and at the same time they are allowing for developments to occur. In the first place there is no consultation process to ask our people whether or not we approve or what our concerns would be "*

Chief Paulette and Henry Beaver both had concerns about Indian Affairs' recommendation that NTPC be granted a 25-year licence Just as in the Lupin application, there was a move on the part of the proponent to extend the life of the

licence for purposes of "stability" and to reward Echo Bay Mines for a job well done. In addition, Mr Beaver raised a concern which was also articulated during the Norman Wells hearings - how well can environmental concerns be dealt with after a company has received a licence?

*"In looking at your [Department of Indian Affairs] paper, you say that the public concerns can be fixed after a little while, after it is known about the Licence and that the Licence can proceed I really have a concern when things go like that You say that you can fix it If I had a concern, you can fix it regardless You can never fix the land It takes thousands of years, hundreds of years to fix the land Indian Affairs maybe feel that they are the Creator themselves, but the Creator is the only one that can fix the land So if you regard yourselves as the Almighty, then yes you can make a recommendation like that But, until I see some miracles happening in Indian Affairs, I think you should retract your recommendations Thank you" (Taltson River Hydro Project 1993:28).*

If part of the consultation process is to provide communities, that may be impacted by development, the funding to hire or conduct their own research projects, then in the eyes of people like Irvin Norn, a Deninu Ku'e, the performance of Indian Affairs has been inadequate. Band councils do not have the resources that will allow them to send people to hearings like the NTPC Water Board hearing

*"Even to come here, your Department has not given any support to the Bands We have requested it . It is very frustrating for the grass roots people of the communities to make presentations and not to have the administrative support to be able to do that" (ibid :29)*

Mr. Felix Lockhart shares Mr Norn's opinion (ibid 30):

*"We are concerned about the effect on the fish, and the habitat of fish etcetera, which you [Indian Affairs] have recognized as a biophysical factor You have undermined this concern because you have not consulted with our people "*

Chief Daniel Sonfrere of Hay River testified to the Berger inquiry that hunting has begun to change because of development. He said,

*" it's pretty hard for us to find anything because there are too many roads going in different directions There's too many people around We have to go quite a ways to get what we want off our land Yes, even some people (are) complaining about the fish they're catching in this river because . it taste of fuel . " (Berger 1977 78)*

Johnny Klondike, a trapper from Fort Liard, expressed similar concerns:

*"Before the pipeline came into our country I lived there and raised my family, and I used to hunt fish, meat, fur, marten, lynx and moose. But now there is a seismic line, with trucks rolling back and forth on it, and planes flying overhead and it scares the moose and the game away. Ever since they came in I couldn't make a living out on the country" (Berger 1977 79).*

Jean Amourous of Rae Lake told Berger that mining had already affected the caribou herds in Dene territory. He said that when mining and road building began in the area, caribou stopped coming through the Lac la Martre area. Caribou had not gone through there since 1956. When hunting for caribou on the barren grounds, they found none of that species, but they saw moose instead which had "run away from this part of the country. . because of industrial activity." He went on to say that, "when the winter road is open, caribou don't come across it" (Berger 1977 80).

Chief Gabrielle Hardisty, of Wrigley, spoke at the Norman Wells Project hearings about the effect of a highway on caribou movements (Volume 5 318)

*"I give you the example of the Dempster Highway to MacPherson. The people have very few caribou in that area where the highway went through. Ever since that, everything walked away and never came back."*

Joe Martin of Colville Lake told the Berger inquiry that seismic trails affected the marten. When seismic trails are cut, the marten disappear, and even in those which remain the fur is not the same (Berger 1977 80).

Archie Catholique, member of the Lutsel K'e Band Council, spoke to the Talston River Project hearing about the changes that Elders had noticed over the past 25 years (Taltson River Project 1993 34)

*"My Elders told me that there was all kinds of game at Nonacho Lake. A lot of wildlife but I don't see that today. You can't see the small islands, and the nesting areas where the birds used to lay their eggs. They are all gone. There are not very many ducks, muskrats or beaver. There is nothing whatsoever. The fish itself is not fit to eat."*

Dene experience with mining has also generated ambivalent feelings. Don Balsillie, representing the Deninu Ku'e First Nation of Fort Resolution spoke at the Taltson River Hydro hearings about the Pine Point Mine:

*" [it] utilized a very large tract of land for the purposes of extracting a non-renewable resource. The environmental devastation of Pine Point Mines still leaves a bad taste in our mouth. It has never been adequately addressed or dealt with" (ibid.:80).*

With respect to the impact of pipeline projects on vegetation, especially trees, Dave Proctor spoke these words in Fort Franklin (Norman Wells Project Vol. 4 250-251):

*"Well, I was raised down south and I have only come North about 10 years ago and they say there can be no environmental impact from this pipeline."*

Trees up here take a long time to grow, you go over to the Bay there and trees that were planted approximately 15 years ago, I know, and they are not much more than 15 feet high. Plant the same tree down South and in 15 years see how high it is going to be.

You start tearing the land apart and digging the trench to bury this pipe in, it is not going to just cover up in the space of a few years like it does down South."

Dene people, like Henry Beaver, are concerned about the trade-offs between jobs and the nature of the environment "Whatever we leave for this generation is going to display how we lived (Taltson River Hydro Project 1993:92)." However, in the pursuit of jobs from companies like NTPC, the results have been disappointing According to Mr. Beaver, only 3% of the people from his community were employed by the Power Corporation (ibid 93)

*"If Mr Kidd [NTPC] is serious about changing the attitude of the Power Corporation, I would like to see it on the employment side of it Money talks and bullshit walks That is the way it is We need money nowadays to do anything Anything we have to do costs money In order to get some place to do something, we have to do something and employment is one of them "*

With respect to development itself, Mr. Beaver places only one condition: "we want to be able to have a say in what is going on" (ibid. 95). At present, a forum like the Water Management Board is ineffective in addressing the needs and concerns of native people. First, the terms of reference are so narrow that it is difficult for native people to participate in a capacity which respects the way they see the world Issues such as education, land claims, compensation, and communication seem to fall on deaf ears. Yet, in the native worldview, all these aspects of culture derive from the ultimate source of life - water.

In response to a question by Mr. Pearce of the Norman Wells panel concerning the blockade of highway development just south of Wrigley, Chief Hardisty responded as follows

*"We did it because we wanted Dene people to get the first chance of what is coming and today it is still the same Our land, let us get that fixed first Let us get our land settled first and we will deal with other people" (Norman Wells Project Vol. 5 321)*

*B Inuit*

The Inuit believe that if the water is polluted then existence is impossible. Martha Akoluk of the Burnside Hunters and Trappers Association of Bathurst Inlet testified to the Northwest Territories Water Board in hearings regarding the Lupin Mine. She said,

*"We are dependent upon the land for hunting trapping and fishing. We could not live here if the water is polluted"* (Lupin Mine 53)

Inuk Bobby Algona has concerns about tailing ponds and the possibility of hunters eating animals which have drunk water from them. "But what if the animal comes along and drinks from that water that's being pumped from the pond there (Lupin Mine:55) " Tommy Pigalak, representing hunters and trappers from Coppermine, expressed his concern that fish travel back and forth along rivers and into Contwoyto Lake where chemicals from the Lupin Mine enter for two months of the year. He said: (Lupin 60) "Because the fish are going back and forth through that river. There might be some fish down there that has been in Contwoyto Lake. "

Joe Etokiak, mayor of Cambridge Bay, raised a question regarding effective monitoring of the environment which goes beyond acute lethality tests (Lupin Mine: 65-66). He is concerned that smaller organisms will become toxic and will eventually work their way up through the food chain, poisoning people. He was concerned about the long term licenses the mining company sought, asking for shorter licences so that there would be more accountability and more regular input from the community.

Simon Kataoyak, testifying to the Berger inquiry at Holman, demonstrated his understanding of the importance of ecological relationships when he said that pollution in the ocean would cause a die off of the smaller animals which would eventually result in the death of animals higher on the food chain. He said,

*" if an oil spill occurs the things we're going to get rid of first is the shrimps (and) what they eat. Seals are going to live a little longer time but what the fish and whales eat are the things that are going to be first to be killed. Then the seals are going to be killed. "* (Berger 1977:56-7)

Inuk Vince Steen expressed similar concerns to those of Simon Kataoyak. He told the Berger inquiry that pollution resulting in the destruction of animals would mean

*"The Eskimo population and culture is finished, because you (will) have to live as a white man and you (will) have nothing left. You have no more seals to feed the foxes. You've got no more fish to feed the seals, and you've got no more seals to feed the polar bears. "* (Berger 1977:67)

### 3. More Than Just Money

In assessing the value of resources, the Dene take a very different view from Westerners. To the Dene, the animals and plants upon which they depend have value far beyond the economic. Life on the land fulfills spiritual and emotional needs which can never be assessed in dollars

According to Brooke (1993:16), an important feature of sustainable development and environmental impact assessment is the recognition and protection of cultural diversity. She quotes the guidelines for environmental impact assessment which were drawn up for a proposed hydroelectric development in northern Quebec (1993:17). The guidelines say that the proponent is required to consider seriously the impacted group's conceptual and symbolic system which reflects the groups' image of itself and can determine its reaction to change. Without such understanding, the guidelines say, the impacts of development cannot be assessed.

The Berger inquiry into the expected impact of the construction of a pipeline through Dene and Inuit territory led to an unprecedented outpouring of concern by aboriginal peoples regarding the effects that development might have on their land. In his report, Berger (1977:xxi) said that "the great majority of them expressed their fears of what a pipeline would bring: an influx of construction workers, more alcoholism, tearing of the social fabric, injury to the land, and the loss of their identity as a people."

A young woman, Louise Frost from Old Crow, testified to the Berger inquiry that she saw the result of the pipeline as being the destruction of the land, benefit accruing only to southerners, rapid, poorly thought out development, no permanent jobs for northerner and imposition of white culture and values (Berger 1977:36).

An Old Crow elder, Alfred Charlie, told Berger his concerns regarding the proposed development of Crow Flats. He said the Old Crow people did not have jobs, so

*" they don't put money in the bank, but when they want to make money, they use Crow Flats for a bank, they go back there to trap and hunt muskrat so they use it as a bank "* (Berger 1977:37).

Alfred Charlie went on to say:

*"He heard lots of good things about the pipeline from different people from the oil companies but we don't hear no bad things, everything is going to be perfect. But there's going to be trucks, there's going to be bulldozers and other vehicles that travel over the land, and all these travel by power, and they will be refuelling different places and they are going to spill a lot of oil on the ground. They will pollute the water with it. Perhaps fish will get sick from this, too. Suppose we eat*



*fish like that and people don't expect to live healthy with that kind of food Our main food in Crow Flats is muskrat and supposing we eat sick muskrat from this polluted water" (Berger 1977 37).*

Marie Bruce from Old Crow testified at the Berger inquiry that a "Meaningful existence.... is probably the most important thing in a person's life." (Berger 1977 37) She expressed fears that Old Crow would boom and then bust. She said, "It will be very hard to go back to your own way of life when this happens."

James Allen, a native Yukon Lands and Forest Service employee at Old Crow told the Berger inquiry what he believed would happen with the influx of workers that development brings. He said,

*"If the pipeline moved a camp of 800 men near Old Crow, I think it would be disastrous for the community as a whole Many of the social diseases which have destroyed many Indian communities in the South would move in, such as alcoholism, child abuse, mental and physical health problems, broken homes, broken marriages, and many other points that break down a healthy society Also, where there are 800 men, some sort of liquor outlet soon follows Liquor would become easily obtainable in the village The white people say money is the root of all evil, but in our Indian communities today, liquor is the root of all evil" (Berger 1977 38)*

Frank Elanik of Aklavik told the Berger inquiry how important the caribou are to the Inuit, Dene and Metis He said, "My family eat about 30 caribou a year if I had to buy from the Bay, I don't know how I would live " (Berger 1977:54).

Dora Gully of Fort Franklin was recorded as saying (Dene Nation 1984 21).

*"A long time ago there were not any white people around our country then and not many problems so we didn't worry about our children But now all the older people are worried very much about their children Because there are so many alcohol problems, and we don't know what is going to happen to our children*

*Now we hear about pipelines and highway and Bear River dam - these things make us more worried than before Of course they are on our land so we have to think hard about it This make us feel bad "*

Agnes Andre said (Dene Nation 1984 52):

*"We want a settlement where we can keep our land till the end of the earth and not have our future relatives to have to fight for it again and again, possibly till our land is ours no more We want to keep our land, we don't want money. We want a settlement where not only us and our children will be happy, but our great-grandchildren "*

Richard Nerysoo of Fort McPherson testified at the Berger inquiry concerning what their land means to the Dene and the fears they have of development. He said,

*"...we see our land as much, much more than the white man sees it To the Indian people our land really is our life. Without our land we cannot - we could no longer exist as people If our land is destroyed, we too are destroyed" (Berger 1977:94).*

Dene Charlie Snowshoe expressed his concerns regarding how far-reaching the effect of development could be. He said,

*"Now Judd Buchanan ok'd for them to drill up here (in the Beaufort Sea) This is the main source, the main place where the fish are always coming Our people depend on that fish, and if we have a blowout, goodbye fish" (Watkins 1977:30).*

Testifying at Tuktoyaktuk, Inuk Jimmy Jacobson explained his desire to reserve land for the Inuit which would never be developed. He said, "...if the pipeline ever come up, the people will be rich for only one or two years " Then when the money was gone, "They got something to fall back on." (Berger 1977:95).

Dene Rene Lamothe told the Berger inquiry the problems created by the imposition of an industrial economy upon a hunting society. He said,

*"...the hunting economy permitted a man to support an extended family, whereas the wage economy does not adequately support an immediate family within the expectation that the industrial economy raises We have elders alive now who supported up to 40 people*

*We are a people caught in an industrial economy with a mind prepared for a hunting economy The expectation that women have of their men (and) the men of the women (are) not being realized in everyday life (which) results in frustrations, confusions, misunderstandings and anger that net broken homes" (Berger 1977 150).*

Agnes Edgi of Fort Good Hope expressed her concern to the Berger inquiry concerning the fact that Dene are attached to their land and do not consider moving away for work as an option. She said:

*"We, the Dene people, were born on this land of ours We are not like the white people who go wandering around looking for work They are not like us who have a home in one place They, the white people, move from one town to another, from one country to another, searching for jobs to make money" (Berger 1977 150)*

Elizabeth Colin of Fort McPherson expressed her concern to the Berger inquiry regarding the alcohol that accompanies development. She said:

*" what will happen if the pipeline comes through, and there is going to be a lot of money, and a lot of the Indians are going to be affected by alcohol? Maybe they will just drink more to try to forget what is happening to them" (Berger 1977:156).*

Marie Anne Jeremicka of Lac la Martre voiced her concern over the possibility of sexual exploitation of women with the arrival of outsiders that development brings. She said:

*"There will be about six thousand men working on the pipeline and mostly these men will be from the South. What will it mean to us young people? It means, if these men come, they will take our young women away for a year or two. probably shack up with them, make them pregnant, and leave them alone after the job is done. What will these young women do? They don't have education. Where will they get the money to support their children, and what will they do for a living?" (Berger 1977:157)*

Fort Good Hope elder, Cassien Edgi, expressed similar concerns, regarding the fate of young Dene women in the face of rapid development. She said,

*"What is going to happen if the pipeline goes through Fort Good Hope? Drugs, booze, family break-up and trouble. In the past we have a handful of white men. Still, how many girls have kids without fathers and live on welfare? If the pipeline goes through there will be thousands and thousands of white people" (Berger 1977 157).*

Georges Erasmus expressed his view of how development should proceed in Denendeh (Dene Nation 1984.62),

*"Development has to be something that is transferring control to the people. If you look at either pipelines, or sawmills, or dams, or new mines, we are not against any of those kinds of things. What we are saying is that development should be orderly, it should be planned, it should be at the pace of the local people, it should benefit local people."*

## **IX. Sources and Resources**

Johnson and Ruttan encountered some of the same problems during their traditional environmental knowledge study at Fort Good Hope as we encountered in this literature review. In attempting to review relevant literature for their area, they found "scant literature available" (1993:73). They often had to extrapolate from nearby Dene groups as we have. Johnson and Ruttan found that historical and ethnographic accounts of the area rarely made specific references to empirical

ecological knowledge or traditional rules of environmental management (1993:74). Most important of all, they found it difficult to discuss "'environmental' knowledge in isolation of the broader cultural context in which it is embedded" (Johnson and Ruttan 1993:74). We also hold this as a major concern, believing that technology and technique are a small part of what makes it possible for the Dene and Inuit to survive in their lands. Having a social organization that was able to distribute people over time and place, over the land and the seasons, so as to best utilize resources effectively and sustainably, is as important as efficient technology. And, probably more importantly, so is having a spiritual worldview which fosters sustainable utilization while forbidding the over-exploitation of any species.

Much of the material relevant to this study was in the form of development inquiry hearing transcripts and early travellers' reports. In both kinds of documents, hundreds of pages might yield only a few paragraphs of relevant data. Because inquiry reports are more recent and more directly related to the issue at hand, we focused on them and were therefore forced virtually to ignore the travellers' reports.

Most of the documents obtained came from the University of Alberta library, the Canadian Circumpolar library and individuals at the University of Alberta. Some of the documents we used came from our personal libraries, others were produced by Dr. Marc Stevenson, Dr. Cliff Hickey, Dr. Milton Freeman, and Shirleen Smith.

Although we made many phone calls in our search for materials, especially to the Northwest Territories, and several of the people to whom we spoke tried to be helpful, the extremely limited time frame made it impossible for us to obtain documents from them. Pamela Le Mouel, of the Northwest Territories Water Board, kindly sent us several useful documents. Susan Irving of the Prince of Wales Northern Heritage Centre made several helpful suggestions which were impossible to follow up in the time available. We went to the Alberta Environmental Resources library but the documents we wanted were out. They have been recalled but have not yet arrived. We spoke to Marilyn Kinsky, a lawyer who wrote a report on native opinions of the impact assessment process. She told us that her sources came from the FEARO library in Ottawa. We attempted repeatedly to contact the library of Arctic College with no success. Similarly, we contacted the Science Institute of the Northwest Territories and the Department of Indian Affairs in Yellowknife. In both cases we were told someone would get back to us with suggestions for research materials but neither did and we did not have time to pursue it.

## X. Conclusion

There seems to be very little traditional ecological knowledge recorded in readily available documents for the area immediately around Lac de Gras. The Dene Mapping Project probably contains much data in this regard but we did not have access to it. There may also be such information in travellers' reports or environmental impact assessment studies, but we believe that our literature review was comprehensive enough to indicate that such data are quite limited in such public documents. The data in the **Inuit Land Use and Occupancy Project** for the Contwoyto Lake area, which is very near Lac de Gras, does indicate, though, that the area is very productive and has been very extensively used by the Dene and Inuit. This indication of the area's productivity makes it very urgent that the proposed uses of the area be properly assessed.

Although we had little data which pertained directly to Lac de Gras, we were able to determine from Dene and Inuit traditional knowledge studies undertaken in adjacent areas the kind of data which might be obtained in a study of the region in question. We expect that those who use or have used the area could describe the species they utilized there or found significant in other ways, the kind of habitat they require, the kinds of species interactions which occur there, and what will likely be some of the effects of development. Other traditional ecological knowledge studies and Dene and Inuit input into land use hearings indicate local users have a considerable understanding of the complexity that the effects development can have on their environments. Previous studies made it clear that the Dene and Inuit were often aware of deleterious effects of which scientists and resource managers were unaware. One example of the significance that traditional knowledge can have on proposed development was the Bloody Falls hydro electric project. Ron Kidd spoke of a hydraulic study that was taken in preparation for this project near the community of Coppermine. He said,

*"As a matter of interest, it was through local knowledge that we abandoned the possibility of a generating station at Bloody Falls because it was from the people that we learned of the tremendous ice build-up, not every year, of ice downstream of the falls and the falls would simply wash right out. So it was simply not a feasible undertaking"* (Talston River Hydro Project 1993:59).

Because of the limited time and sources we had to work with, we have more unanswered than answered questions, but there are several themes which we encountered repeatedly in the materials we read. One of these was that the land means so much more to the Dene and Inuit than its economic value. What the land means to the people is not easily expressed by them and cannot be translated into monetary terms. Aboriginal people repeatedly stated that the destruction of the land and their way of life, which is dependent upon the land, is the destruction of them as a people. It is a common attitude among the Canadian public that all people, the Dene and Inuit included, are motivated primarily by economics. This

attitude contributes to the mistaken perception that aboriginal peoples are willing to exchange their land and resources for monetary compensation if an acceptable price can be agreed upon. In our research, we encountered this attitude directly, with no subtlety attached. Virtually all statements made and documents produced by aboriginal people and organizations work to dispel this misconception, but it is deeply ingrained in the European mentality. We expect that the disagreements between the Dogrib Treaty 11 Dene and the Yellowknife Treaty 8 Dene over the Lac de Gras area will contribute to that perception. Because of the history of the Dogribs and Yellowknives occupation and land use in the area, the government may find it difficult to satisfy both parties in any settlement or compensation. The solution must be found by the Dogrib and Yellowknives themselves.

Related to the belief of the Dene and Inuit that their land is worth more than money is the fact that they insist that their way of life is not an anachronism, but a viable existence for them now and for a very long time into the future. They want to preserve the land and its resources so that future generations of Dene and Inuit can continue to live as Dene and Inuit. As individuals, they see themselves as only being here for a short time, but they see their cultures as eternal and they see themselves as the guardians of these cultures, as having a responsibility to protect both land and culture as the inheritance of future generations.

Another related theme and strongly held conviction was that the traditional economy was still very strong today. The Dene and Inuit rely heavily upon country food as a source of nourishment, both physical and spiritual. They prefer traditional foods and believe that they provide benefits simply unmatched by store-bought foods (Usher *et al* 1995). Also at issue is the fact that the cost of imported food in the north, especially the more remote communities, is prohibitive. Many Dene and Inuit have limited opportunities to obtain wage employment and, consequently, would find a satisfying existence very difficult without traditional foods.

The issue of land claims seems to have been a common theme throughout the community hearings that we reviewed for this study. Very often, the Dene and Inuit who testified at hearings into use of their lands refused to discuss a particular project, but wished to discuss the issue of ultimate political control in their territory. Depending on the perspective chosen, the term "land claims" evokes completely different meanings. Frank T'seleie, Chief of Fort Good Hope, reminded the Federal Environmental Assessment Panel during the Norman Wells community hearings that he was displeased with the term "land claims":

*"I want to correct you on the term 'land claims'. We are not claiming this land. This is our land. That is the point that has got to be made"* (Norman Wells Project Vol. 3:244).

Notwithstanding the insistence of many Dene and Inuit testifying at land use hearings about the issue of control over their traditional lands, that they are very often not entirely opposed to development, they want control. They want to be able to decide what is tolerable for them. They want to know what the trade-off is between benefits and costs for them and the cumulative environmental and social impacts of the project under consideration. And they are not willing to accept everything the developers and government say at face value. The Dene and Inuit expressed very strongly at several hearings that they have been deceived repeatedly before and it is going to be more difficult to do it again.

The indigenous people of the north have had a considerable amount of experience with development today and their perception of it is almost entirely negative. In the past, there have been many promises from developers and the government concerning the benefits that will accrue to native people. In reality, the benefits have been extremely limited and the impacts devastating to their traditional lifestyle. We tried to look for what the Dene and Inuit perceived to be beneficial in industrial development and found virtually nothing save for the money that jobs bring which can be used to support the subsistence economy. It may not be that it has to be that way, but if the people of the north are to gain from development, there must be considerable input from them into such projects because they know best the kinds of effects which are likely to occur in their communities.

Control over the pace and amount of development was the primary issue of concern expressed by the Dene and Inuit. Other related issues included royalties. The bottom line to them is that it is their land. They would also like to see meaningful employment for their people. An absolutely consistent view has been that, while local people get a few labour jobs during construction of a project, they are never involved in management and receive even fewer jobs after the construction phase is over. We even encountered an example where a native employee on a large project inquired why more local people were not hired and was told that they did not have the experience. In fact, the company was flying inexperienced white workers from Edmonton and Calgary, rather than bringing them from nearby communities. There is a mistaken perception in industry that native workers are unreliable and quit a job within a few weeks when, in fact, the average length of stay for local native workers is very often many times longer than for imported non-native workers. That has been the experience of the aluminum smelter in Kitimat, British Columbia.

The companies also need to consider developing and training native workers. Employment at the lowest level is not very satisfying for anyone. The companies need to invest in the education and training of native employees if they expect people to feel satisfied with their participation in the project. Aboriginal employees working at the lowest levels have always been victims of the boom and bust nature of northern resource development. Education and employment at higher levels can help to address that problem.

There is also a need for companies to balance employment in their operation with the traditional economy for native workers. The traditional economy is still important to virtually all aboriginal people in the north and accommodating employees so that they can continue their participation in that economy should not be that difficult to arrange. The use of rotational employment (e.g. 6 weeks on the job and 2 weeks paid leave off the job) takes care of the need for local workers to hunt. It has been reported on by Hobart (1981) and is practiced by Kennecott among others in their diamond exploration program today. Related to this is the issue of cultural sensitivity. There may very likely be cultural institutions in the communities of aboriginal workers which override job considerations which the company could accommodate, such as lengthy involvement in funeral proceedings for relatives who may not seem that closely related in Western terms

The challenge to industry impacting aboriginal lands is to go beyond the strictly environmental and economic. Industry needs to address a much broader range of issues if it is to work successfully in the north. Mining and other industries also have to accept responsibility for the destructive effects that their operations can have on small, remote northern communities. Past projects have clearly shown that results of development can destroy the traditional economy and culture, while contributing to increased rates of alcoholism, suicide, high unemployment, feelings of inferiority in the face of more educated and wealthy southerners, and the demeaning experience of racism

Another apprehension shared by the Dene and Inuit concerns the size and extent of the area which is affected by a project. They are concerned with the possible impact on the extensive ranges of migratory and non-migratory species, the extent of affected drainages, air-borne pollutants, etcetera. They want to know who and what will be affected, and to what degree. They also may have very different standards compared to southerners, concerning what is an acceptable degree of risk. For example, just knowing that an animal species contains trace amounts of contaminants may be enough to dissuade use (Usher *et al* 1995)

We found while reading the documents we accessed for this study that it was very often difficult for the people to express their traditional knowledge because it is so imbedded in their culture. This was especially so for the Inuit. When concern over the use of an area or a resource was not well expressed in a hearing, that did not mean that the information or knowledge underpinning that concern did not exist. The lack of clarity may derive from the difficulty of expressing such knowledge in a foreign language with foreign terms and concepts, in a strange situation to people who the Dene and Inuit know understand the world in very different ways. Brody (1976:203) reinforces this idea, saying that in spite of the immense detail of Inuit environmental knowledge, "Ecological information, so vital to hunters, so central to living in the Arctic, is not easily conveyed." This problem can only begin to be overcome through extensive research undertaken through community-based methodology and painstaking work of translation of



words and concepts The entire worldview of the Dene and Inuit must be respected, interpreted, and translated as well as is possible before developers, resource managers and others can begin to understand the potential contribution of traditional knowledge to environmental impact assessment

The Dene and Inuit expressed concerns that their knowledge be respected for its intrinsic value, the wisdom and experience of hundreds of generations, and that this knowledge be passed on to future generations through support of traditional land-based activities The elders recognize that the chain of oral transmission of knowledge is being broken and are, therefore, often anxious not only to have it recorded in other forms so that it is not lost, but validated and used in culturally appropriate ways. They always keep in mind, though, that their wisdom must be used properly, not exploited.

If industry is to operate successfully in the north, they must be willing to accept that they are operating on land which belongs to aboriginal peoples. They must understand that First Nations people are intelligent and aware, that they value their life and traditions as they are now, and that they are not willing to sacrifice the life they love for an uncertain future. Mr. Alex Lacorne, speaking through an interpreter at Dettah, NWT (Norman Wells Project Vol 12 952) said the following:

It is very hard to believe that a pipeline will go through and the technical people are saying that there would not be any destruction occurring in the pipeline steel.

But eventually it is going to happen one way or another, because we have observed that there are major cracks when it gets very cold, and it is very hard to believe what the technical people are saying.

Industry in the north must accept the fact that the people who have lived there for millenia have a tremendous richness of knowledge about their environment and about how their society works in this environment. Industry must accept the aboriginal people's knowledge and aspirations as the foundation for their operations Native people with a good grounding in their culture are the ones who are best able to accommodate and manage change. If industry can accept the people's knowledge as valuable, a win-win situation can be created.

The indigenous peoples of the north have thrived there for millenia because they have both the environmental knowledge and the value system necessary to sustain them in such a challenging environment. Primary among Dene and Inuit values is that which proclaims that the earth and all its inhabitants must be respected. If this dictum is followed the earth will provide for people eternally. When a lack of respect leads to unsustainable use of resources, disaster and death will follow for people. This is a lesson of which a few Westerners are starting to become aware. All would do well to listen to the First Nations people who understand this.

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## **Videos**

**Alaskan Pipe Dream: The Oil Line From the North** 1973 Time-Life Multimedia -the pipeline's threat to the environment and to the Inuit's way of life, deals with Inuit illness, alcoholism, drug abuse and suicide

**Alcohol in My Land** Kinetic Film Enterprises -discusses the effect of settlement and alcohol on Inuit society.

**The Berger Inquiry** 1976 Native Communications Group -highlights from the Berger Inquiry.

**Coppermine: Consequences of Contact With the Outside** National Film Board -epidemics which struck the Inuit at Coppermine upon contact with southern Canadians.

**Cree Hunters of Mistassini** 1974 National Film Board -a Cree family in their hunting camp

**The Cree of Paint Hills** 1976 National Film Board -the Cree of Makatua River, James Bay strive to preserve their way of life in the face of imminent hydro development.

**Dene** 1972 Canadian Filmmakers Distribution Centre -the consequences of settlement to the Dene.

**Dene Nation** 1979 Canadian Filmmakers Distribution Centre - Dene self-determination.

**End of the Earth People** National Film Board -traditional way of life of the Hareskins.

**Fires of Spring** Boreal Institute for Northern Studies-Slavey and Cree use of fire to promote preferred habitat for plants, game and fur-bearers

**Flooding Job's Garden** National Film Board-a Cree hunter discusses the loss of his land flooded by Hydro Quebec.

**Fort Good Hope** 1977 National Film Board-filmed during the Berger Inquiry, the Dene view of the effects of development.

**A Frontier, A Homeland** T V Ontario Marketing-contrasts attitudes of whites who go north for short periods to earn high wages to native's views of the land as home

**Grassy Narrows and White Dog** 1975 National Film Board-effects of large-scale industry and mercury poisoning on the lives of the people

**The Inquiry Film** 1978 National Film Board-Mackenzie Valley Pipeline hearings: conflicting views of industrialists; Inuit, Metis and Dene; and non-native northern residents.

**I Was Born Here** 1976 Boreal Institute for Northern Studies -Dene relationship with their land and their fears for the future

**Mackenzie Valley Pipeline: A Native Perspective** 1975 Native Communications Group -native position that development should be controlled by natives and that land claims should be settled before any development

**Man Who Chooses the Bush** 1975 National Film Board -a Metis trapper from Fort Chipewyan explains why he returns to the bush every year.

**Martha** 1984 Pido Productions -story of elder, Martha Rabesca, who lives alone 70 miles north of Fort Good Hope.

**Our Land Is Our Life** 1974 National Film Board -Cree of Mistassini explain that monetary compensation and jobs cannot replace their way of life.

**Saving a Big Planet** T V. Ontario Marketing -impact of oil discoveries in Alaska on the environment and native lifestyles.

**Spring Beaver** 1975 University of Alberta -documenting spring beaver trapping at Chipewyan Lake.

**Summer of the Loucheux** 1983 Tamarack Films -Loucheux summer fishing camp.

**Trapping is a Way of Life** Department of Renewable Resources, Government of the Northwest Territories-trapping and life on the land near Fort Franklin

**Treaty 8 Country** 1982 Canadian Filmmakers Distribution Centre West -hunting life is threatened by large-scale development.

**We Remember** 1976 Canadian Filmmakers Distribution Centre-Slavey and Gwit'chin discuss their views of the future, life on the land, the fur trade, epidemics, the discovery of oil at Norman Wells and the signing of Treaty 11.



## **THE DENE MAPPING PROJECT: PAST AND PRESENT**

[ Presented at GIS'93, 7th Annual Symposium on Geographic Information Systems in forestry, environment and natural resources management February 15 - 18, 1993, Vancouver, B C ]

### **INTRODUCTION**

In 1974 the Dene Nation leadership decided to carry out a traditional land use and occupancy study to document the Dene interest in the Northwest Territories. There were a number of objectives of the project both cultural and non-cultural. One prime objective was to form the basis of a land use database to support land claims discussions. This study used a unique information source -- hunters and trappers. Hunting and trapping trails provided a geo-coding mechanism (a way of determining location on the earth) and hunting and trapping activities provided land use and resource attributes.

In 1981, it was decided to computerize the information collected under the Dene land use and occupancy study. This was known as the Dene Mapping Project. Computing facilities at the University of Alberta were used for this project. Information products generated by the Mapping Project were used by the Dene and Metis in support of land claims negotiations.

At the present time, it is no longer feasible or desirable to use the computing facilities at the University of Alberta. Reasons for this, fundamentally relate to cost, accessibility, and functionality. Efforts are currently being directed to provide data access and manipulation using micro-computer hardware and software technology.

### **THE DENE MAPPING PROJECT: AN OVERVIEW**

Historically, the Dene have lived in and used a vast area of northern Canada. This area



includes much of the western Northwest Territories, most of the Yukon, and northern portions of British Columbia, Alberta, and Saskatchewan. At the beginning of the 20th century, this area even extended into Alaska.

In the early 1970's, under the leadership of the Indian Brotherhood of the Northwest Territories, a research project was funded to document the land-based renewable-resource economy of the Dene. In 1974, a traditional land use and occupancy study was formally initiated based on the trails and activities of hunters and trappers. Approximately 600 trappers were interviewed. This was about 30% of all the Dene/Metis trappers in the Mackenzie River Valley. Information was manually recorded on 150 large mosaic map sheets. Associated with the map information was detailed biographical information on dates and seasons, activities, species of animals, modes of transport, as well as other relevant details.

A number of communities participated in the land use and occupancy study. These consisted of

Delta Region	Aklavik, Inuvik, Fort McPherson, Arctic Red River
North Mackenzie	Fort Good Hope, Colville Lake, Fort Franklin, Fort Norman
South Mackenzie	Fort Wrigley, Fort Simpson-Jean Marie, Fort Liard, Nahanni Butte, Trout Lake, Fort Providence-Kakisa, Hay River
North Slave	Rae, Edzo, Lac La Martre (Marian Lake, Snare Lake), Rae Lakes, Yellowknife, Detah
South Slave	Resolution, Fort Smith, Snowdrift

For the most part the map sheets used were 1:250,000 UTM, although some 1:500,000 Transverse Mercator and 1:1,000,000 Lambert Conformal map sheets were also used depending upon availability at the time.

A variety of information was marked on the map sheets. These included hunting and trapping trails, fishing areas, species sought, the years, seasons, and frequency of use, and in some cases cabins, camps, and important cultural sites.

The methodology used for data acquisition revolved around a questionnaire and the recording of land use information on topographic maps with a variety of symbology.

A major objective at this time was to determine the maximum extent of land use and occupancy during the time period 1890 to 1975 (in some communities this was extended to 1983)

## THE DENE MAPPING PROJECT INITIAL COMPUTERIZATION

In 1981, the Dene Mapping Project was born. The purpose of this project was to computerize the information gathered under the traditional land use and occupancy study previously carried out.

This project utilized the facilities at the University of Alberta. This primarily consisted of a large mainframe computer (IBM 360 type), early style digitizing tables, and a large colour pen plotter.

Trails were broken into segments and digitized from the original map sheets used for data acquisition. Trail segments were coded to allow for linkage to individual, community, and map sheet.

Two primary databases were generated: (1) trail database and (2) biographical/segment database.

### (1) Trail Database

The trail data consists of digitized lines (trail segments) representing the location of trapper activity. It was initially entered using a "blind digitizing" process. Staff training, digitizing equipment reliability, physical quality of the original paper maps, and the degree trails were offset for easier recognition all affected accuracy. A checking and correction process was used to verify digitizing quality. The end result is digitized trails, which while not spatially precise at small scale applications, have tremendous cultural and historical significance and are more than adequate for land use purposes.

Information which was digitized from the original map sheets was input at different scales and projections (UTM, Transverse Mercator, and Lambert Conformal). This added some complication since one projection and scale will not match another projection and scale without additional processing.

## (2) Biographical/Segment Data

Associated with the digitized trail data is tabular data which was originally coded onto paper forms. There are two distinct sets of tabular data: one containing biographical/use data and the other containing, what is known as, segment data.

The biographical/use data contains a rich assortment of information. This includes

- Community and map source information
- Trapper biographical information
- Dates pertaining to activity, frequency, and seasons. Major season specification was allowed for as well by the month.
- Modes of travel and number of people
- Activities undertaken (16 categories)
- Species sought (24+ categories)

Additional non-specific information was also allowed for

Related to the biographical/use database was segment data. This was secondary data which provided linkage between the biographical/use data and the actual digitized trail segments. It allowed for a many-to-many relationship to exist. That is, one biographical/use data record can apply to one or more trail segments and one trail segment can refer to one or more biographical/use data records.

Custom software was designed and implemented to allow for the extraction of trail information based on a relational database query of the biographical/use data. Trail maps could be plotted as well as large grid maps which provided rough thematic style maps.

As indicated earlier, trails pertaining to an individual were broken into segments since the activities of a given individual often varied. An important consideration of the data computerization process was that DATA NOT BE GENERALIZED OR AGGREGATED PREMATURELY. While data aggregation/generalization would make data input easier, it also would severely impact downstream useability.

The data tagging and digitizing process required the use of three, two person teams trained in the subject matter and the digitizing services of the Computing Services.

Department at the University of Alberta. The elapsed time for this phase of the project was about 1-1/2 years. The end result was about 41,000 trail segments and a relational database describing the land use history of approximately 1/3 of all Dene/Metis renewable resource harvesters in the Mackenzie Valley, with information dating from as early as 1890, to recent times.

By linking the trail segments with the biographical/use information collected it was possible to identify specific hunters/trappers, the communities they live in, years and seasons that trail segments were used, the frequency of use, methods of travel, activities which took place there, and species sought. It was possible to generate specific harvest activity plots for species such as caribou, beaver, or muskrat, for either an individual or an entire community for a given area and a given time period.

End products were generated in the form of colour coded overlays which a community could utilize given their existing paper base maps.

## THE DENE MAPPING PROJECT CURRENT SITUATION

Currently, it is no longer feasible or desirable to use the computing facilities at the University of Alberta. Reasons for this, fundamentally relate to cost, accessibility, and functionality. The cost to use the University system and to maintain and to modify existing custom software is prohibitive. In addition, the computer operating system upon which the current programs are based, is being phased out over the next two years. The issue of hands on accessibility is also very important as well as added functionality/useability.

To address the above concerns, efforts are currently being directed to provide data access and manipulation using micro-computer hardware and software technology. In doing so, the desire is to develop a low cost approach which will allow the Dene to make practical use of the digital map and related data which has been collected over many years at substantial cost, while at the same time not hindering future developments or plans.

In order to allow for data access to proceed, two important steps had to be accomplished. The first involved platform migration/media conversion. This meant moving the data from the mainframe environment (including converting data formats and file structures) to the micro-computer world. The second step involved designing and

implementing custom software which would allow for access to the data. The second step was expanded to put in place software packages and procedures to provide basic data extraction (based on database queries) and for subsequent drawings to be produced of trail segments.

### Integrated Micro-computer System

The next anticipated step, is an integrated micro-computer based system which will store and maintain the trail and related data. Software components will be needed for map production and map data analysis. Some of the issues which will have to be addressed during this phase include map projection differences of the original trail segment data, proper data modelling, and the obtaining of base data. Since the geographic area of interest is so vast, buying all of the individual base map sheets needed would be prohibitive in cost. Alternatives, such as Digital Chart of the World, are being investigated.

### CONCLUSION

The Dene Mapping Project, utilizing early 1980's computer technology, collected and processed a large volume of traditional land use and occupancy data. Great care was taken to capture this data such that downstream useability would not be hindered. During the years, this data has been used for a number of purposes. These include

- overlapping Dene/Metis-Inuvialuit land use in the Inuvialuit settlement region,
- Dene/Metis claims negotiations with the Federal Government,
- discussion of border placement between Denendeh and Nunavut

With the data becoming accessible in the micro-computer environment, it is anticipated that a major component will be education. Educational packages on the Dene history and on the traditional and current Dene land use will be available. Research, both ethnohistorical and archaeological, will be facilitated.

Using this data within a GIS context will allow for better discussion concerning overlapping land use (e.g. involving hydrocarbon/mineral exploration and development) and will enhance land claims negotiations.

It is anticipated that the traditional land use and occupancy information will form an

important component of an overall integrated land information system for the Dene Nation

## ACKNOWLEDGMENTS

The authors would like to express their thanks to the following

The community of Wrigley for their kind permission to use portions of their community data for research purposes

## MAP COMMENTS

### MAP TITLE

### MAP DESCRIPTION

[X]Study Area

study area map Extends from 109 to 114 degrees longitude and from 62 5 to 66 degrees latitude Effectively a UTM projection, zone 12, reference meridian 111 degrees, NAD 27

✓ [X]Community Trails

all community trails -- all the same colour

✓ ? Community Trails

all community trails -- different colours

Indexed Community Trails

all community trails, index or legend for each community

Detah Community Trails

all trails for the community of Detah

Lac La Martre  
Community Trails

all trails for the community of Lac La Martre

Lutsel K'e  
Community Trails

all trails for the community of Lutsel K'e  
(Formerly Snowdrift )

Rae - Edzo  
Community Trails

all trails for the community of Rae - Edzo  
(It is believed that Snare Lakes was included as part of the Rae-Edzo data files )

Rae Lakes  
Community Trails

all trails for the community of Rae Lakes

Yellowknife  
Community Trails

all trails for the community of Yellowknife

✓ [X] Activity Zones

activity zones and areas generated for all trails for all communities

✓	<b>Caribou</b>	trail zones which have any type of caribou hunting associated with them
	<b>Wood Caribou</b>	trail zones showing only wood caribou hunting (Given the localized appearance, this data may not have been recorded fully)
<hr/>		
		[The following caribou maps were extracted using Season From and Season To information The 'S' series of maps indicates the Same "From Season" and "To Season" matched the criteria The 'E' series of maps indicates Either the "From Season" or the "To Season" matched the criteria It is believed that season 1 = Fall, season 2 = Winter, season 3 = Spring, season 4 = Summer ]
✓	<b>Caribou S11</b>	caribou trail zones, season from AND season to = 1
✓	<b>Caribou S22</b>	caribou trail zones, season from AND season to = 2
✓	<b>Caribou S33</b>	caribou trail zones, season from AND season to = 3
✓	<b>Caribou S44</b>	caribou trail zones, season from AND season to = 4
✓	<b>Caribou E11</b>	caribou trail zones, season from OR season to = 1
✓	<b>Caribou E22</b>	caribou trail zones, season from OR season to = 2
✓	<b>Caribou E33</b>	caribou trail zones, season from OR season to = 3
✓	<b>Caribou E44</b>	caribou trail zones, season from OR season to = 4



---

[Additional species and activity trail zone maps ]

✓ <b>Bear / Grizzly</b>	trail zones with bear or grizzly hunting associated with them
<b>Beaver</b>	trail zones with beaver hunting/trapping associated with them
✓ <b>Fishing Activity</b>	trail zones which have any kind of fishing activity associated with them (whether summer or winter)
✓ <b>Fox</b>	trail zones showing fox hunting or trapping (includes both coloured and white fox)
<b>Lynx</b>	trail zones showing hunting or trapping of lynx
✓ <b>Mink / Marten</b>	trail zones showing mink or marten
✓ <b>Moose</b>	trail zones with moose hunting associated with them
<b>Muskox</b>	trail zones with muskox hunting associated with them
✓ <b>Non Winter Activity 1</b>	an estimate of non-winter extent, trail zones which do <b>not</b> have any travel by dogteam, snowshoe, or skidoo or any kind of ice fishing activity
<b>Otter</b>	trail zones with otter hunting/trapping associated with them
✓ <b>Trapping/Snaring Activity</b>	trail zones which have trapping or snaring marked as an activity
✓ <b>Travel Activity</b>	trails zones which were marked as travel activity
✓ <b>Winter Activity 1</b>	an estimate of winter extent, trail zones which have travel by dogteam, snowshoe, or skidoo or any kind of ice fishing activity are shown
✓ <b>Wolf</b>	trail zones showing wolf hunting or trapping

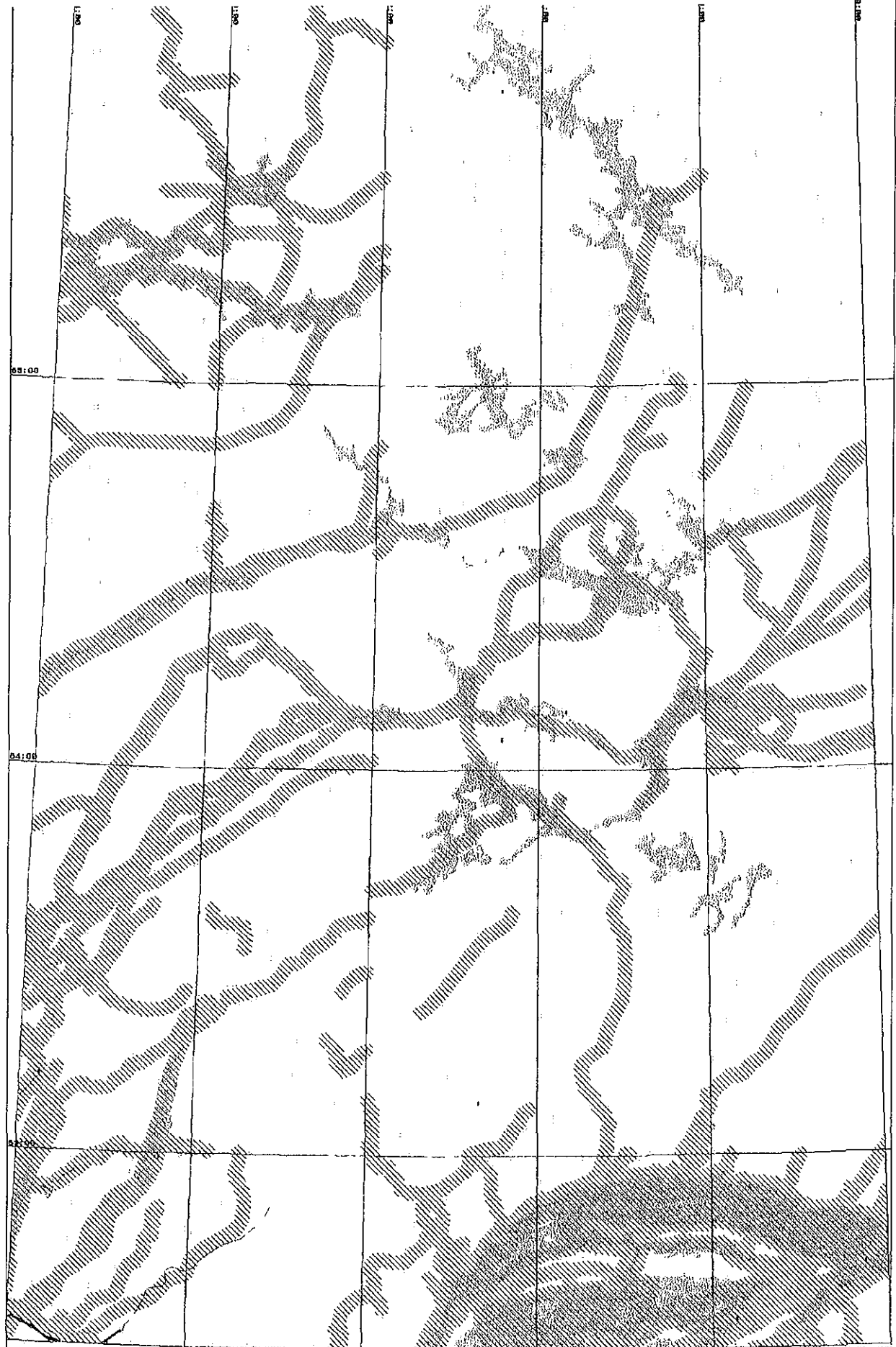
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## **Miscellaneous Notes/Comments**

Data was examined but no maps were produced for the following criteria

<b>Berries/Roots Gathering</b>	no trails marked in study area
<b>Buffalo</b>	very little, only a few trails marked, may or may not be any in study area
<b>Mountain Goat</b>	no trails marked in study area
<b>Squirrel/Rabbit</b>	very little, only a few trails marked, may or may not be any in study area
<b>Weasel</b>	very little, only a few trails marked, may or may not be any in study area



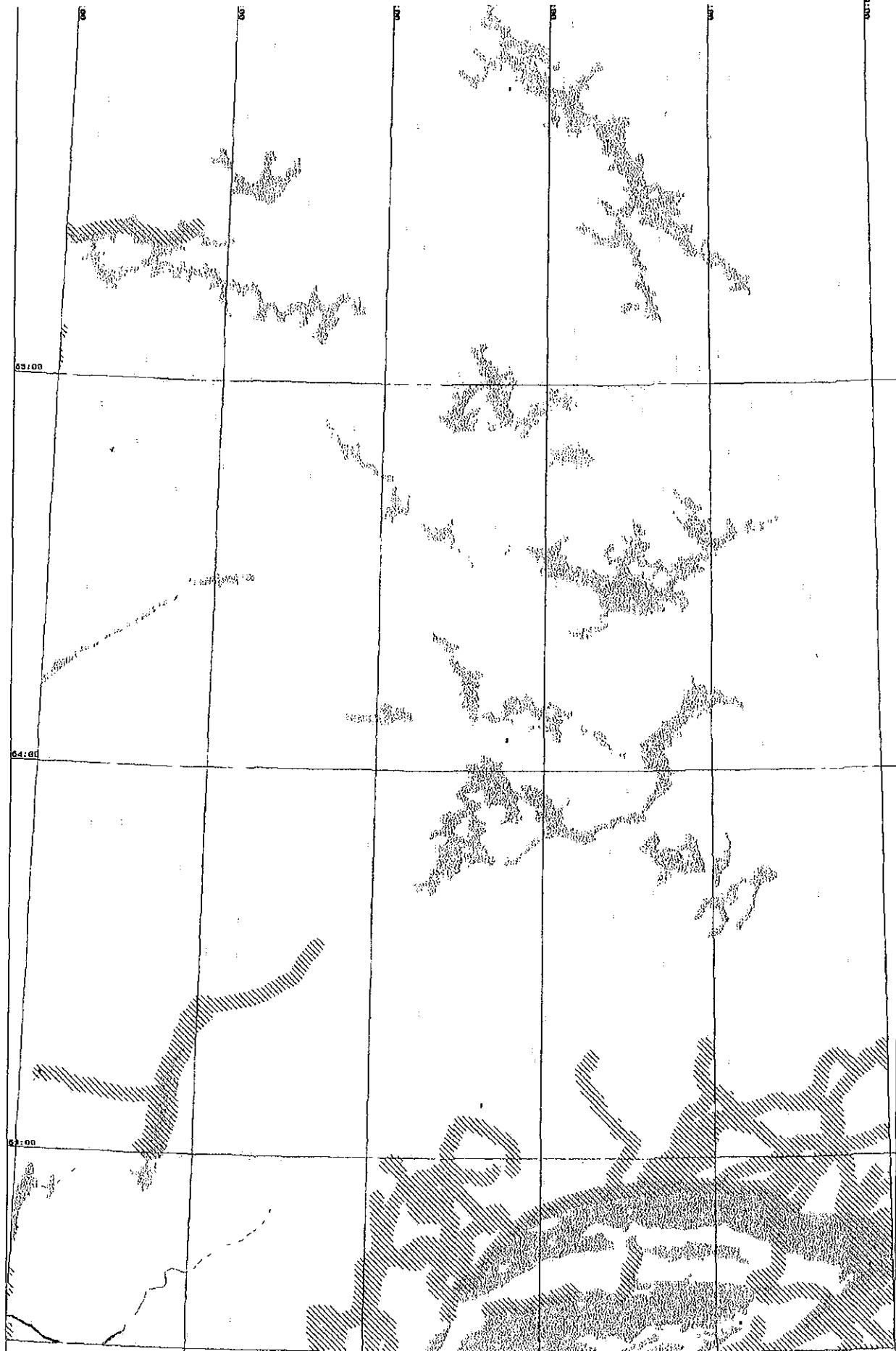
Space Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000



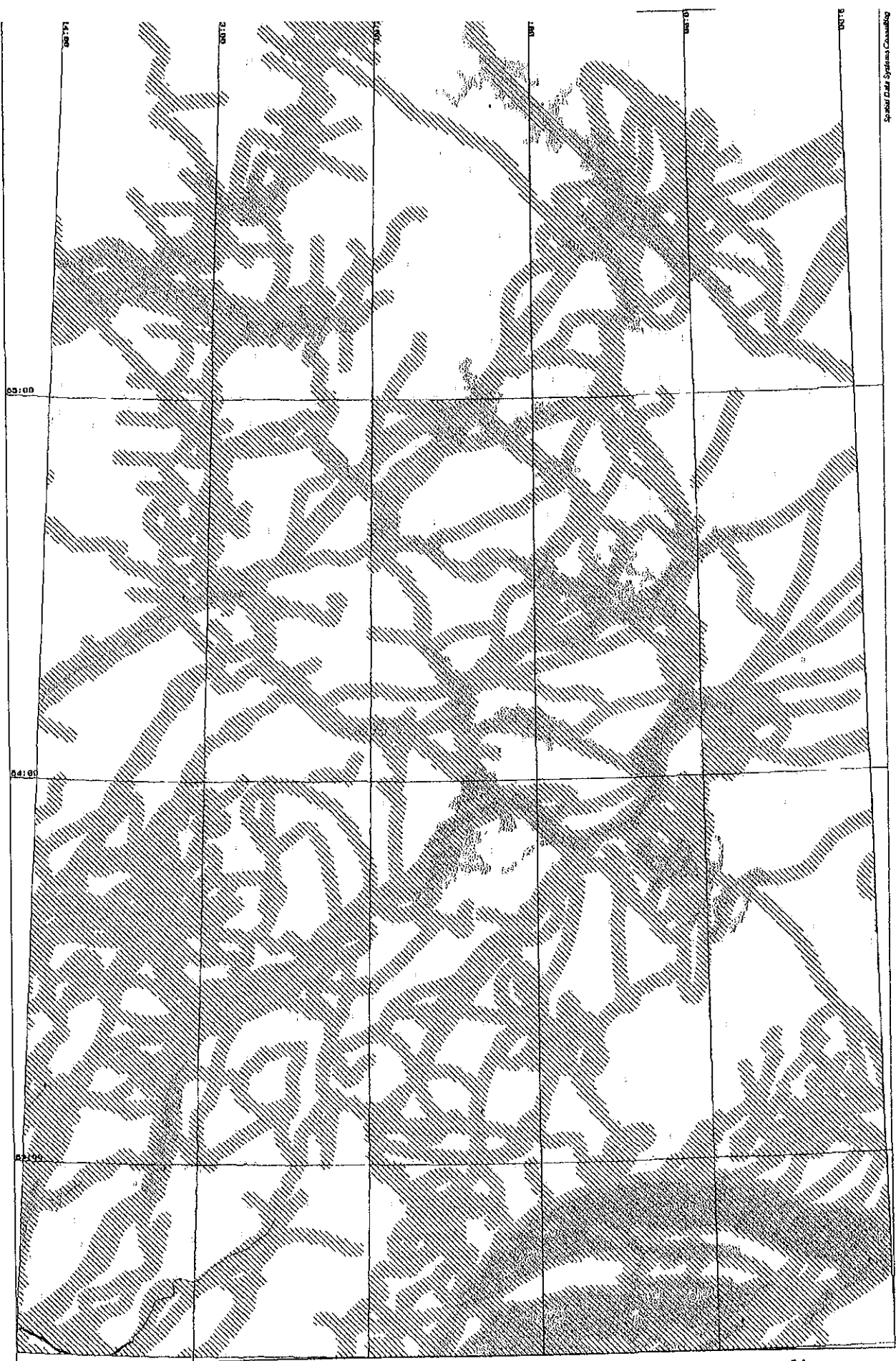
Travel  
Activity



Dene Community  
Trail Data

Scale in Meters  
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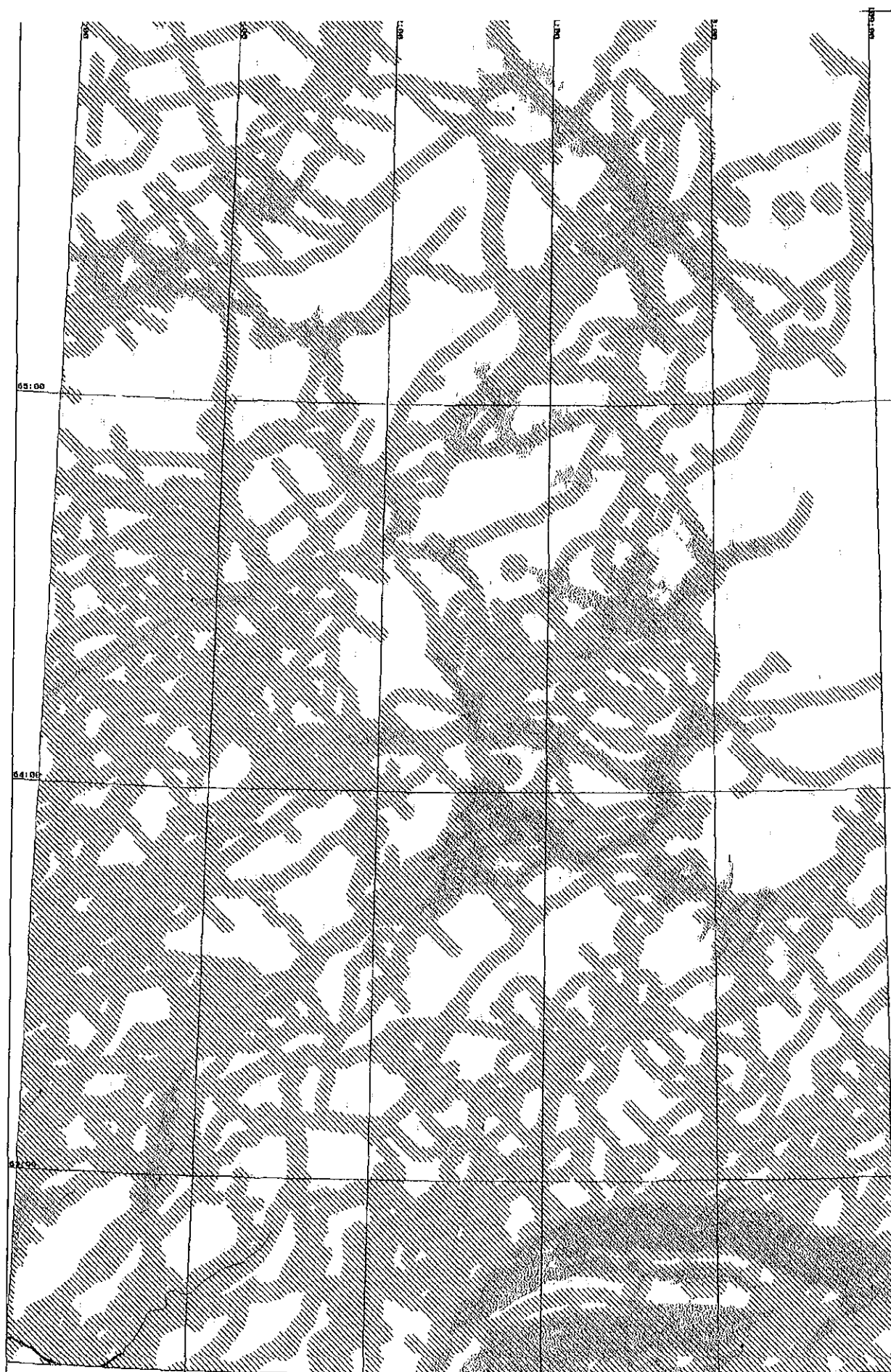
 Otter



Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

Non  
Winter  
Activity 1



Spatial Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 Winter  
Activity 1



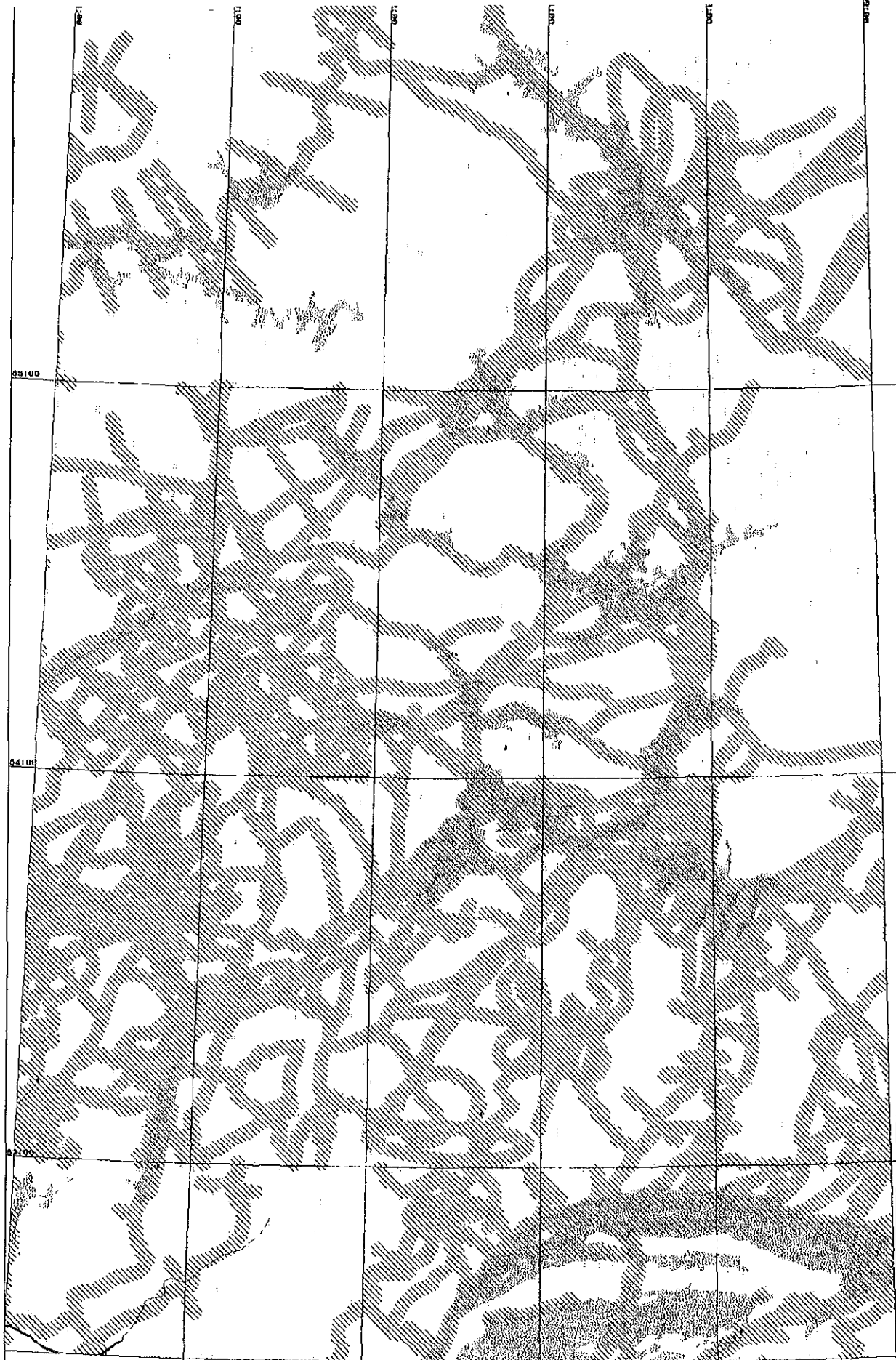
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Dene Community  
Trail Data

Scale in Meters  
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 Trapping  
Snaring  
Activity





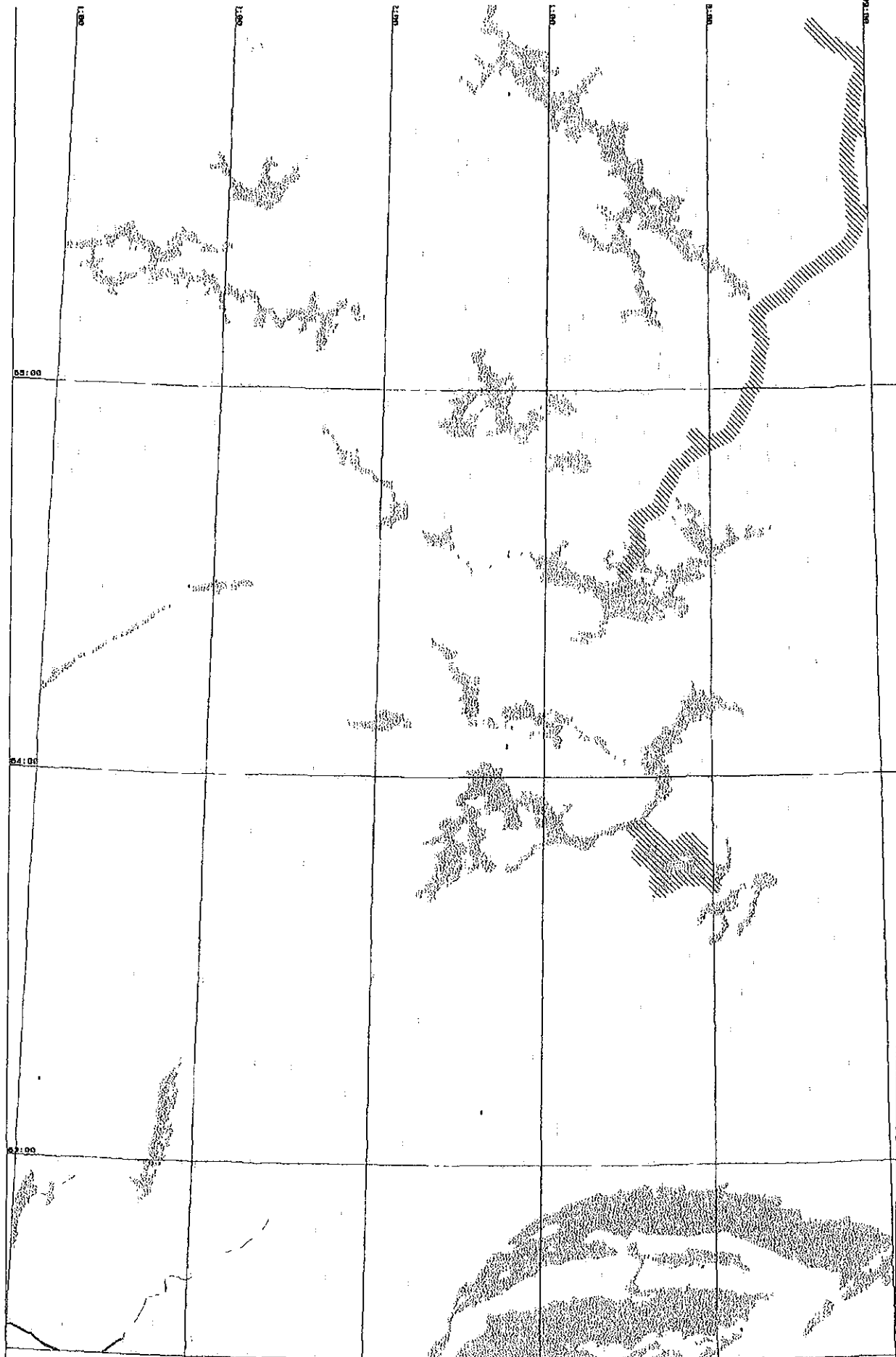
Special Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
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 Wolf





Source: Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
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 Muskox

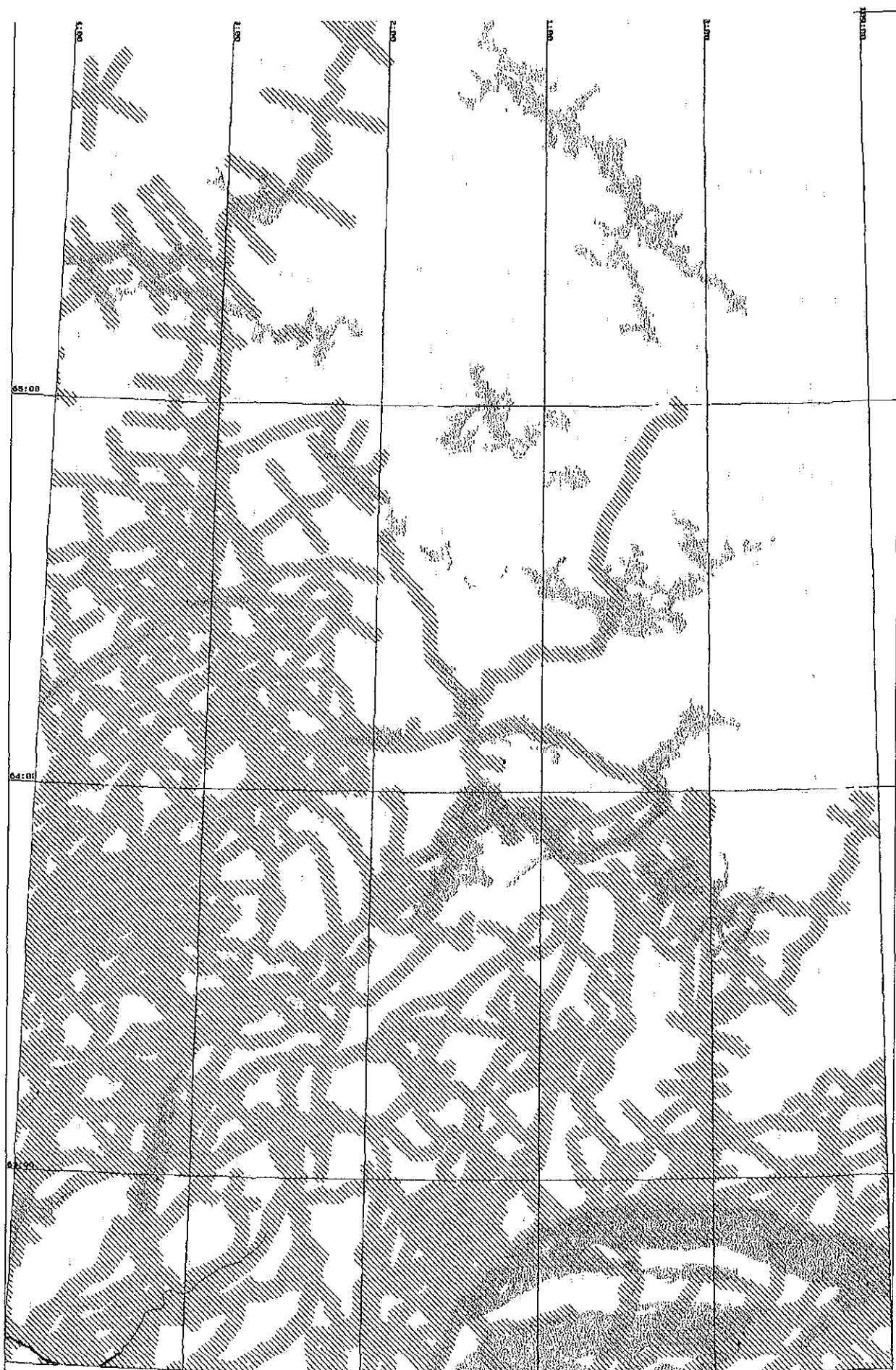


Spotted Data Systems Consulting

Dene Community  
Trail Data

Scale in meters  
0 6000 24000 40000

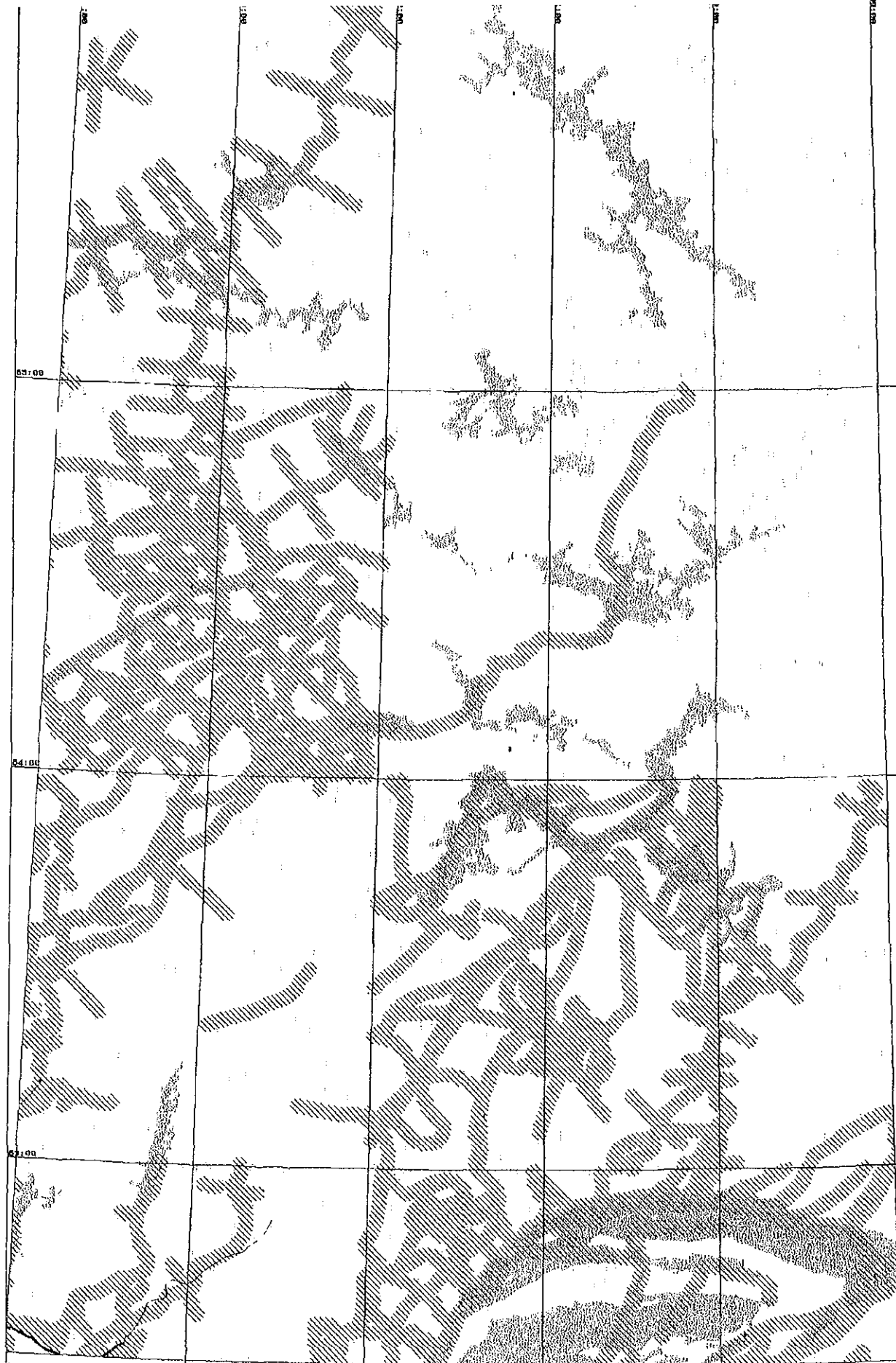
 Moose



Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 Mink  
Marten



Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 Lynx



Spatial Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 Fox

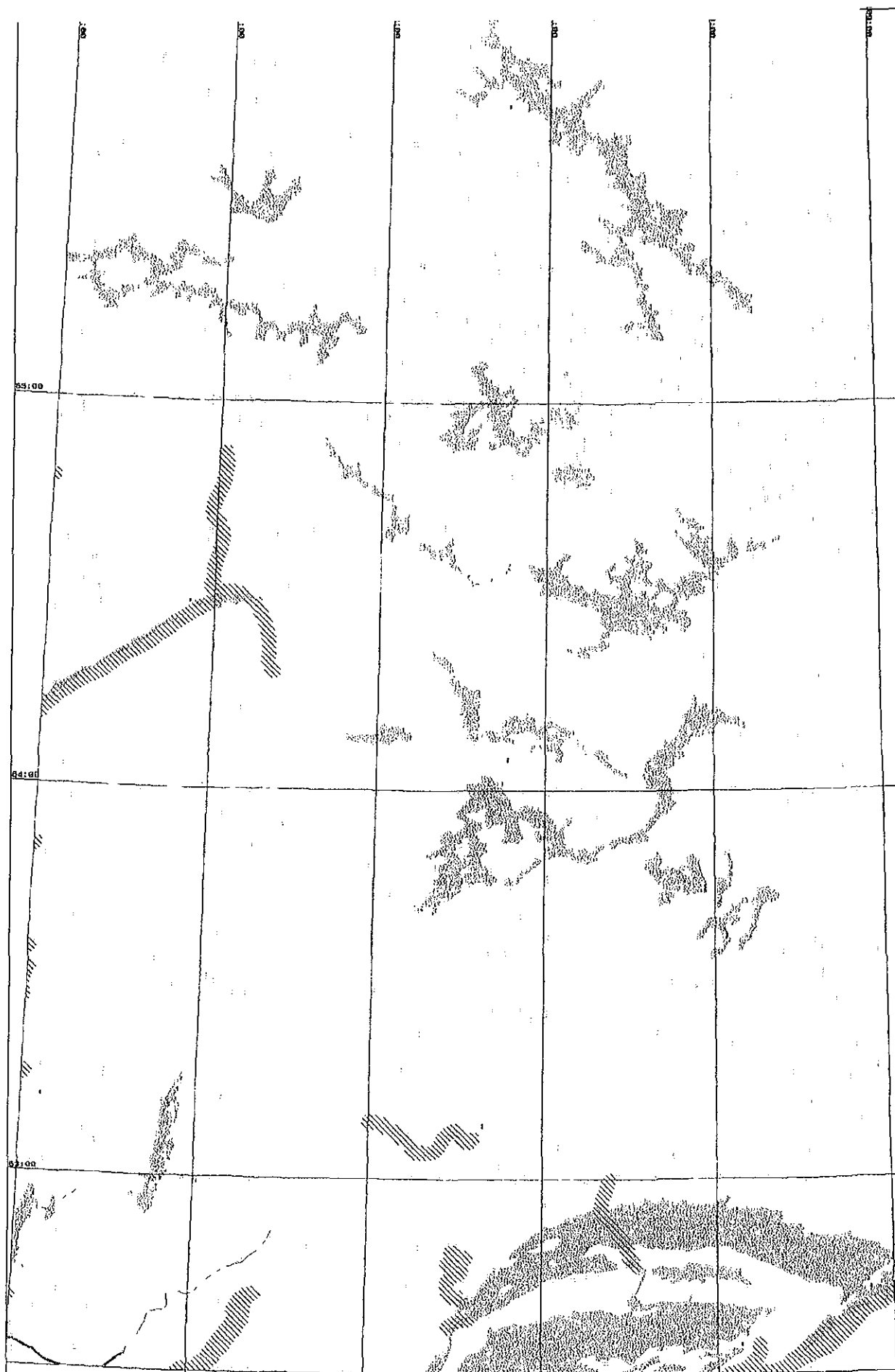


Source: Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 Fishing  
Activity

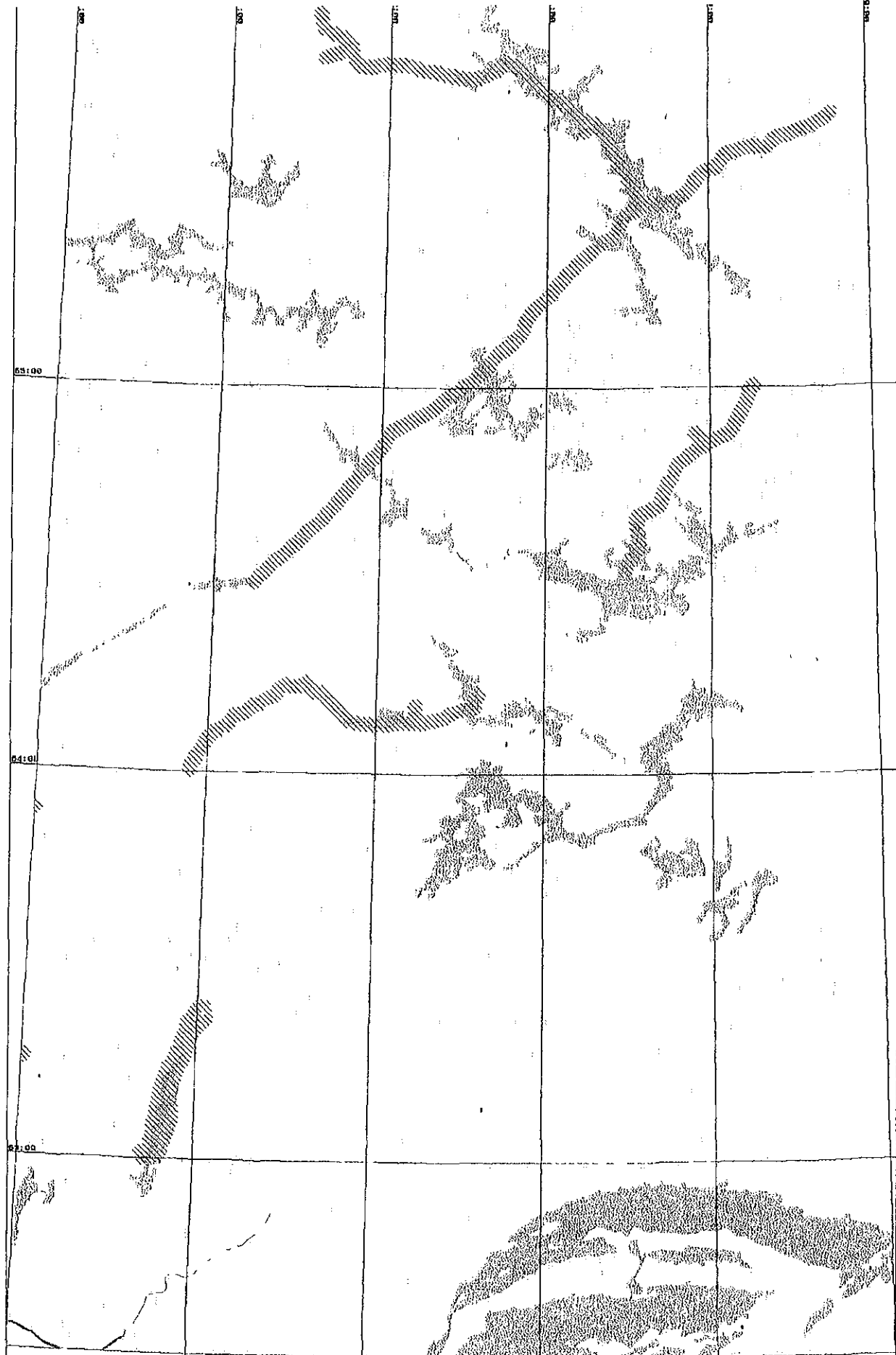


Dene Community  
Trail Data

Scale in Meters  
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 Beaver





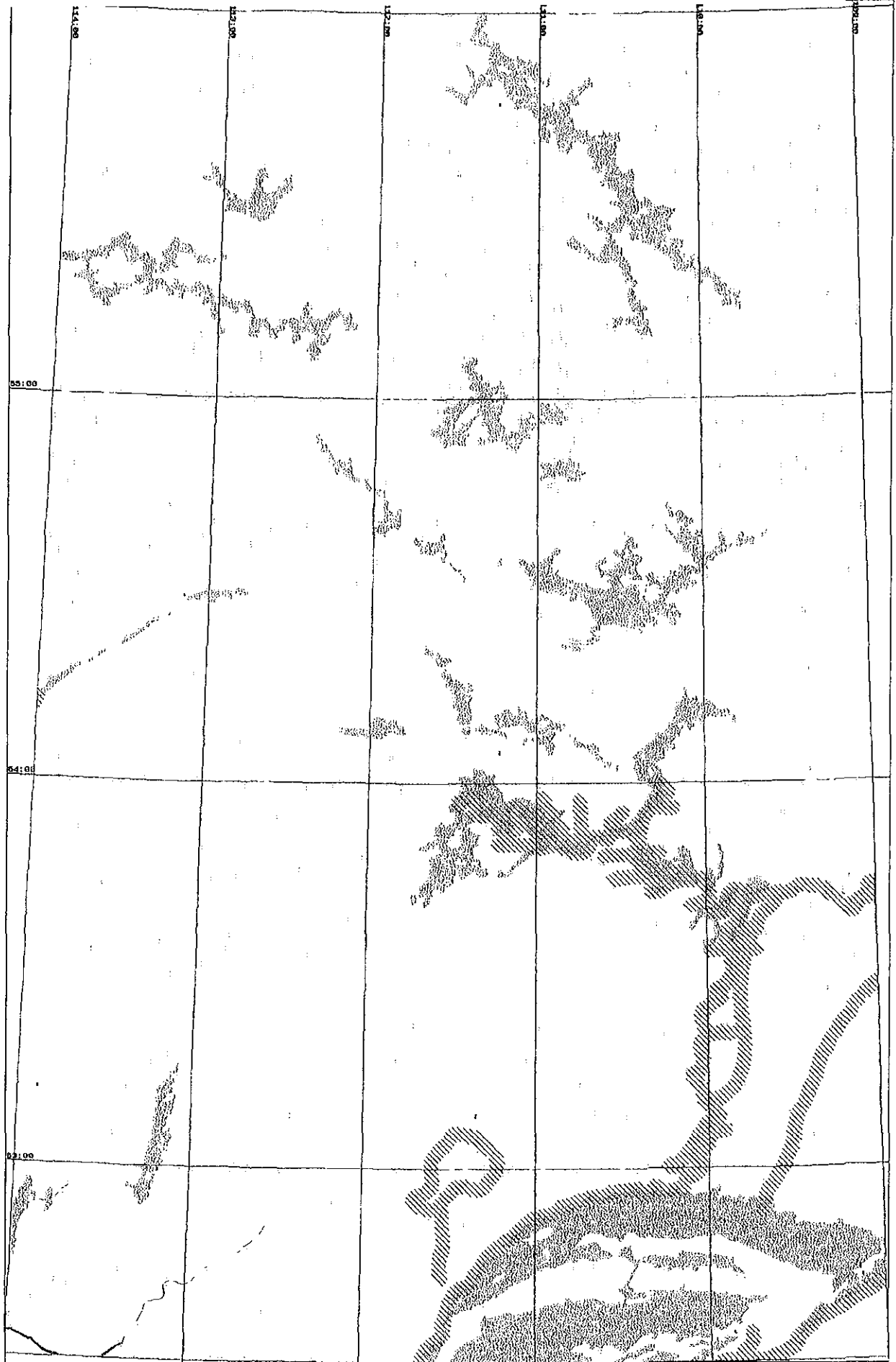
Dene Community  
Trail Data

Scale in Meters  
0 9000 24000 40000

 Bear  
 Grizzly

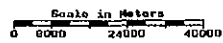






Spotted Data Symbols Consulting

Dene Community  
Trail Data



 Caribou  
E33



Source: Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
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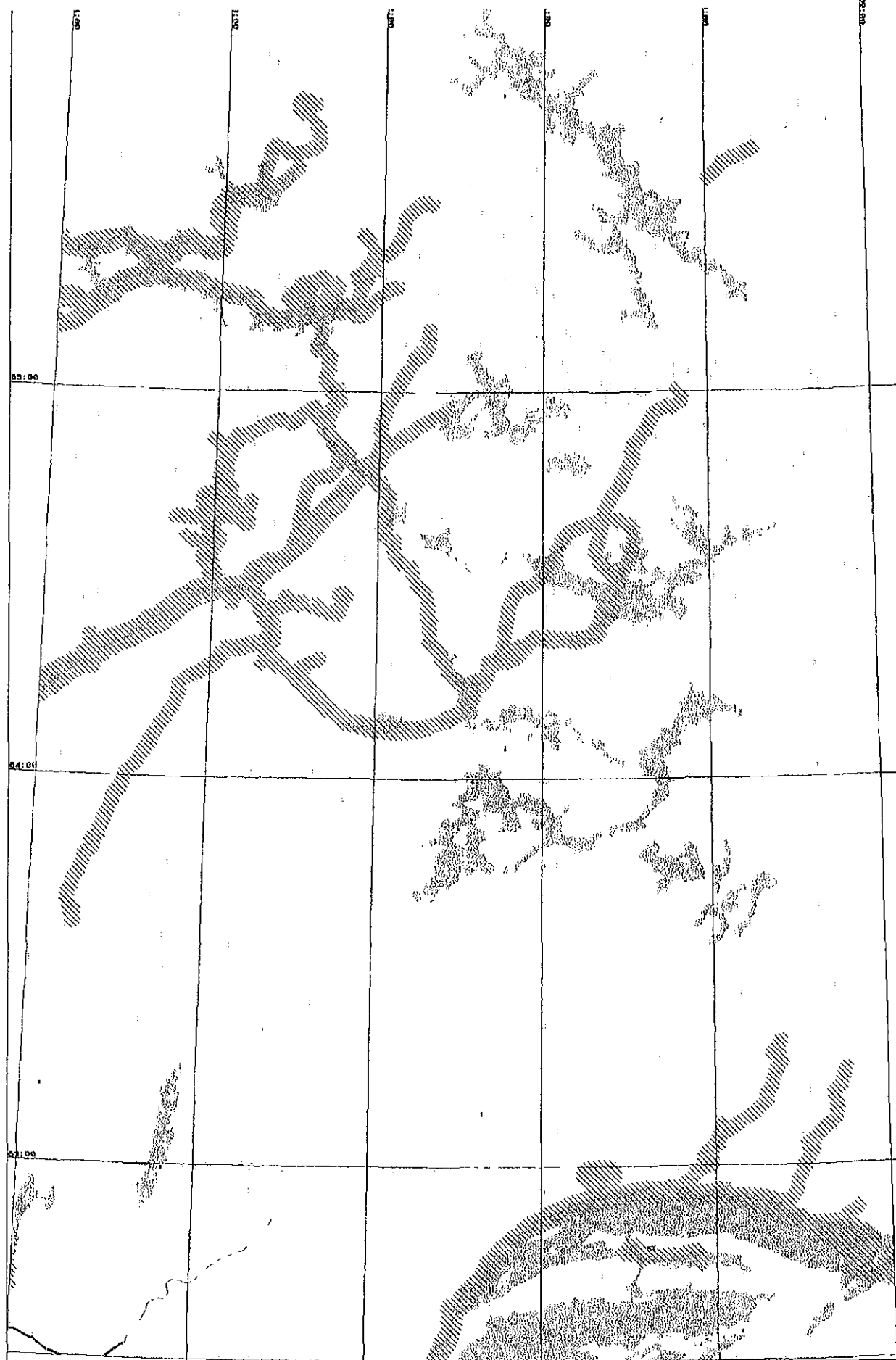
 Caribou  
E22



Dene Community  
Trail Data

Scale in Meters  
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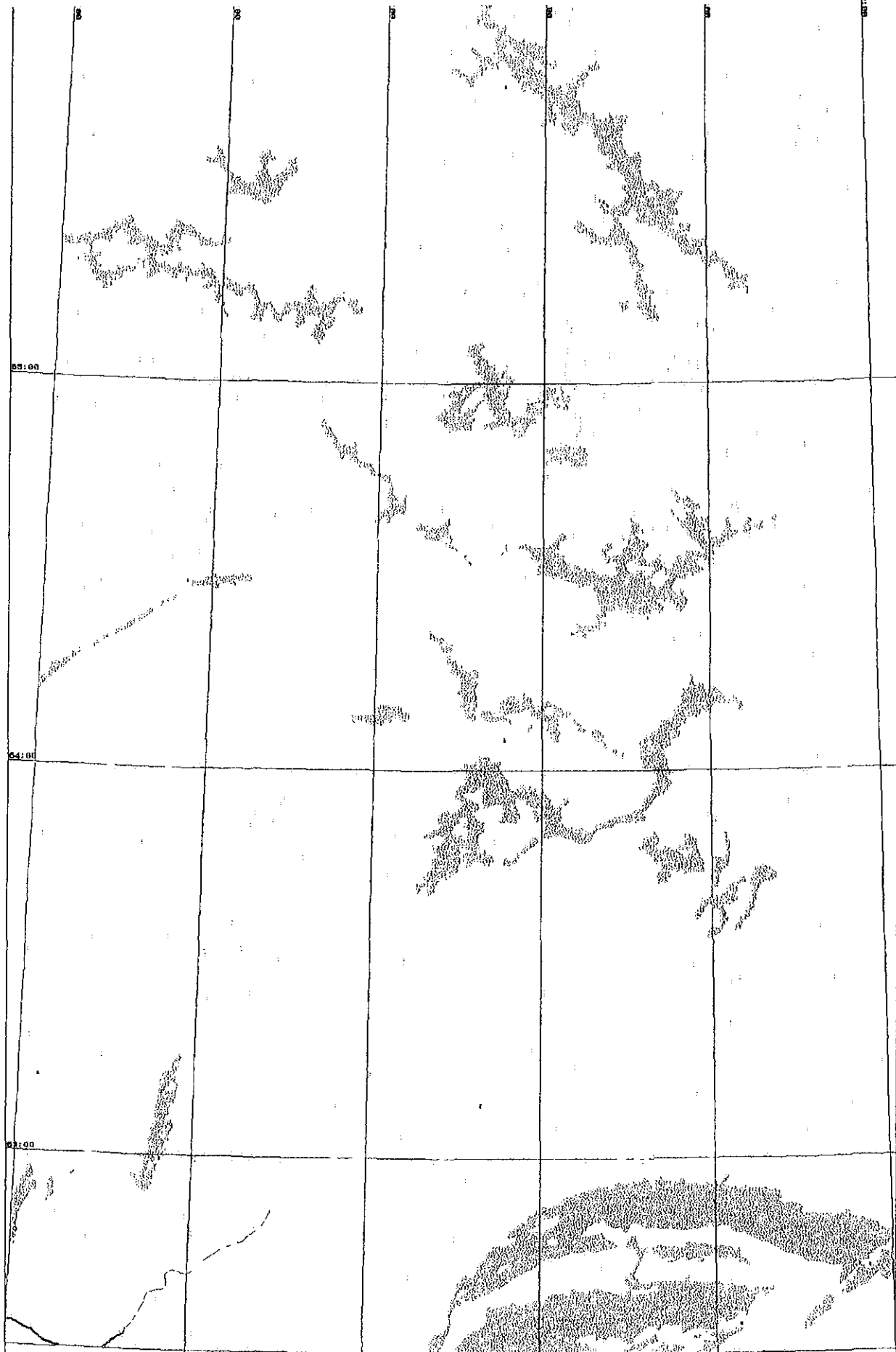
 Caribou  
E11



Dene Community  
Trail Data

Scale in Meters  
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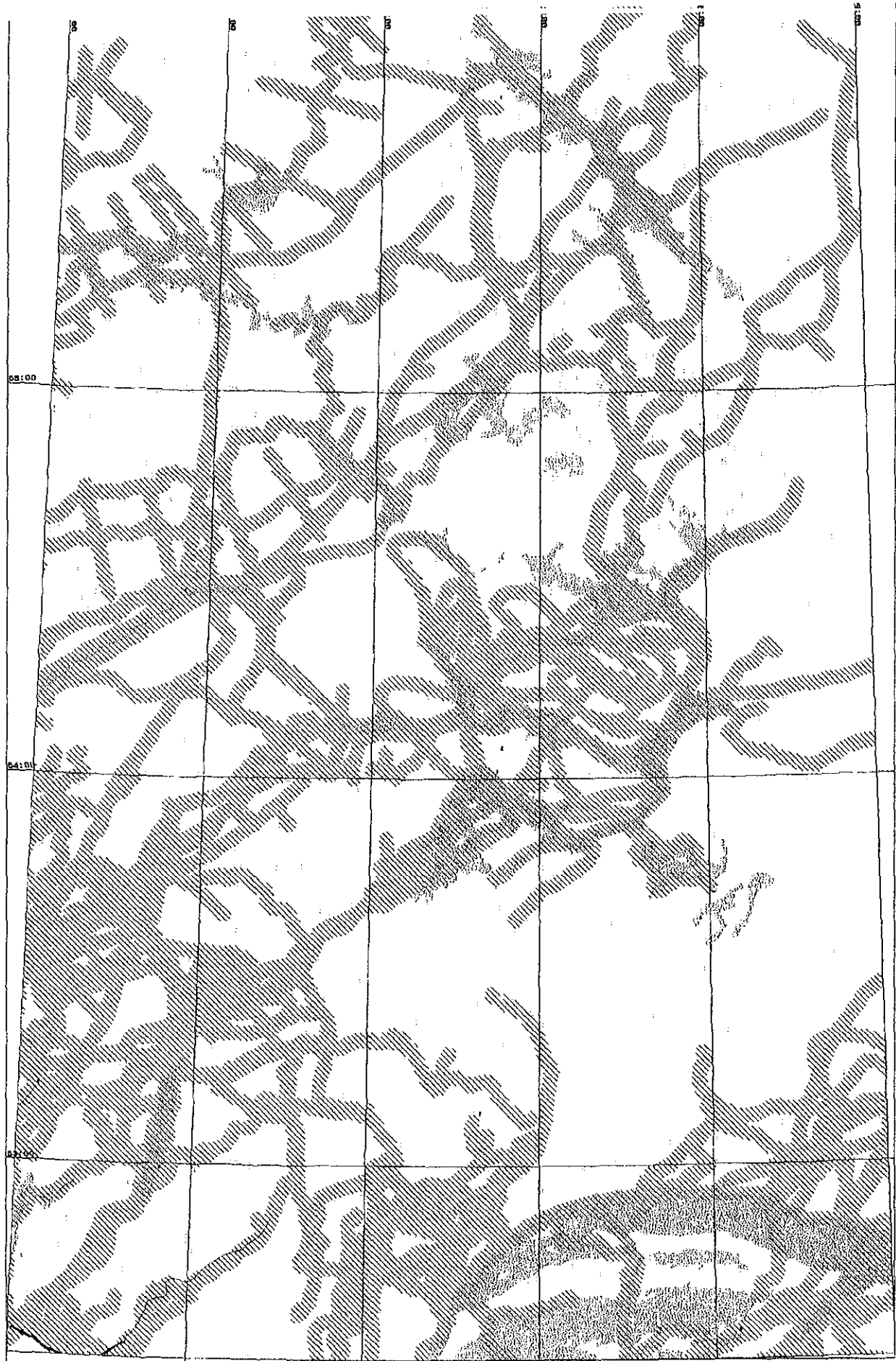
 Caribou  
S44



Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 Caribou  
S33



Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 Caribou  
S22

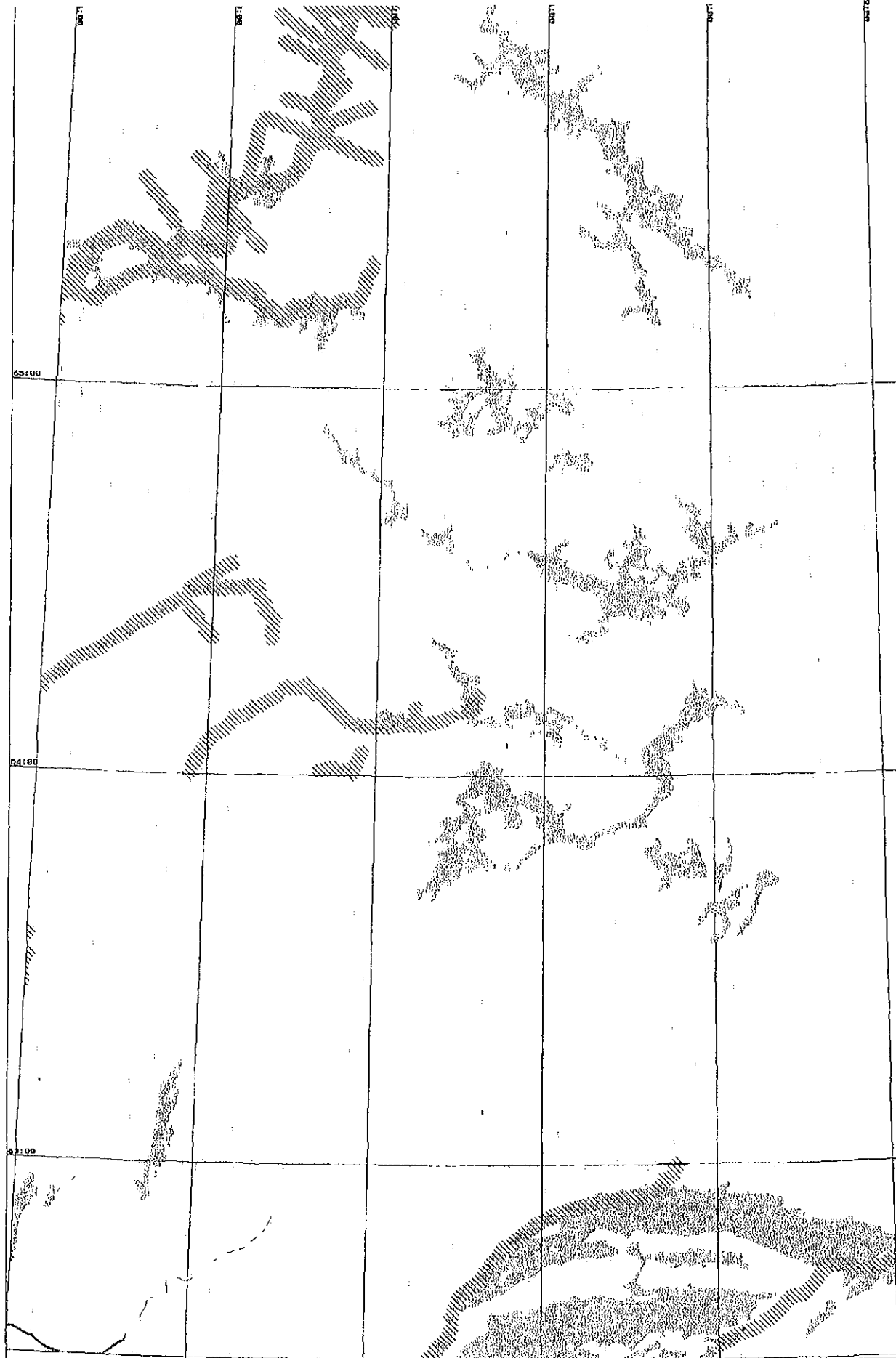


Dene Community  
Trail Data

Scale in Meters  
0 6000 24000 40000

 Caribou



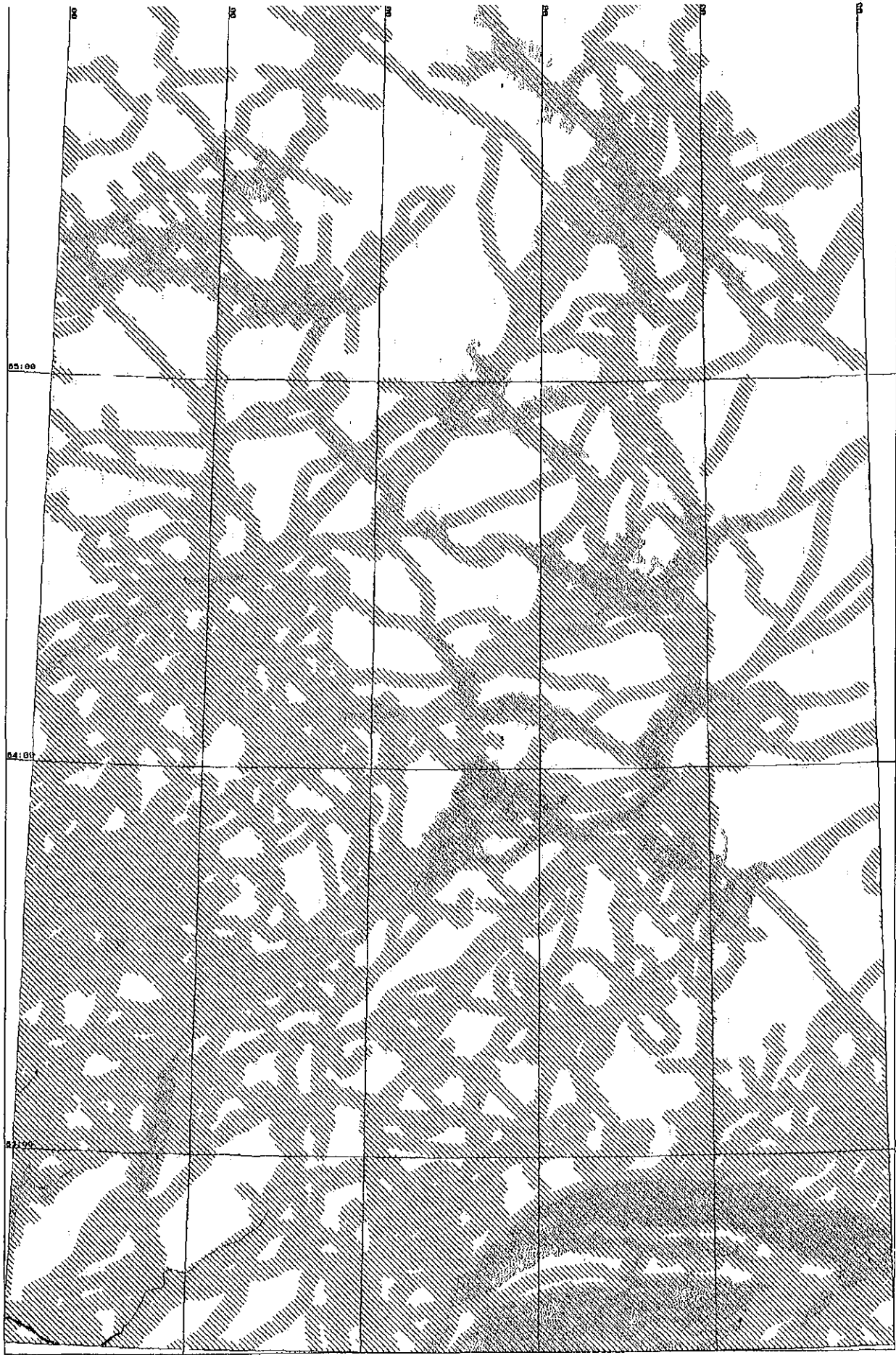


Speller Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

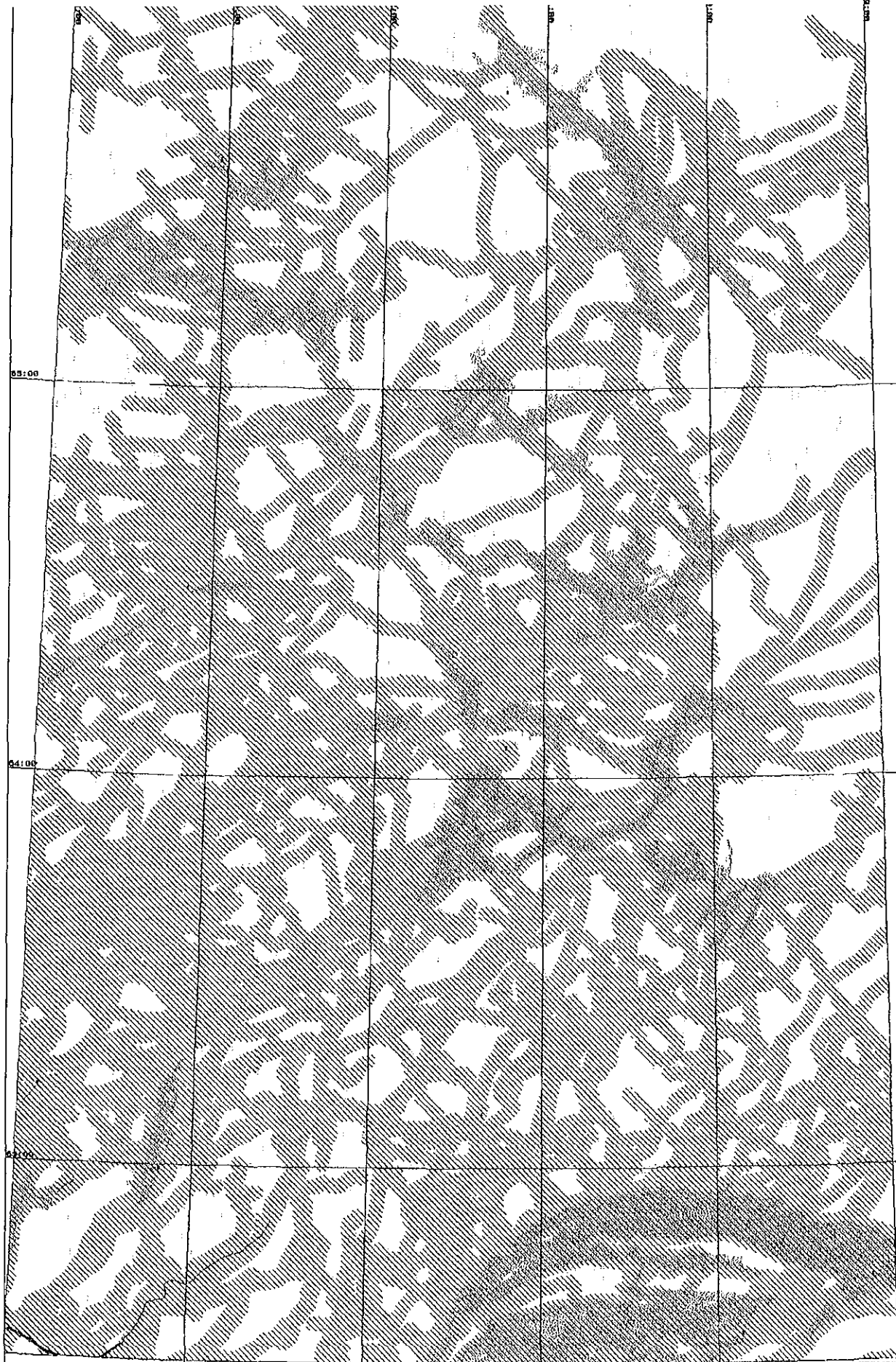
 Caribou  
S11



Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

 **Activity  
Zones**  
DT >= 1960



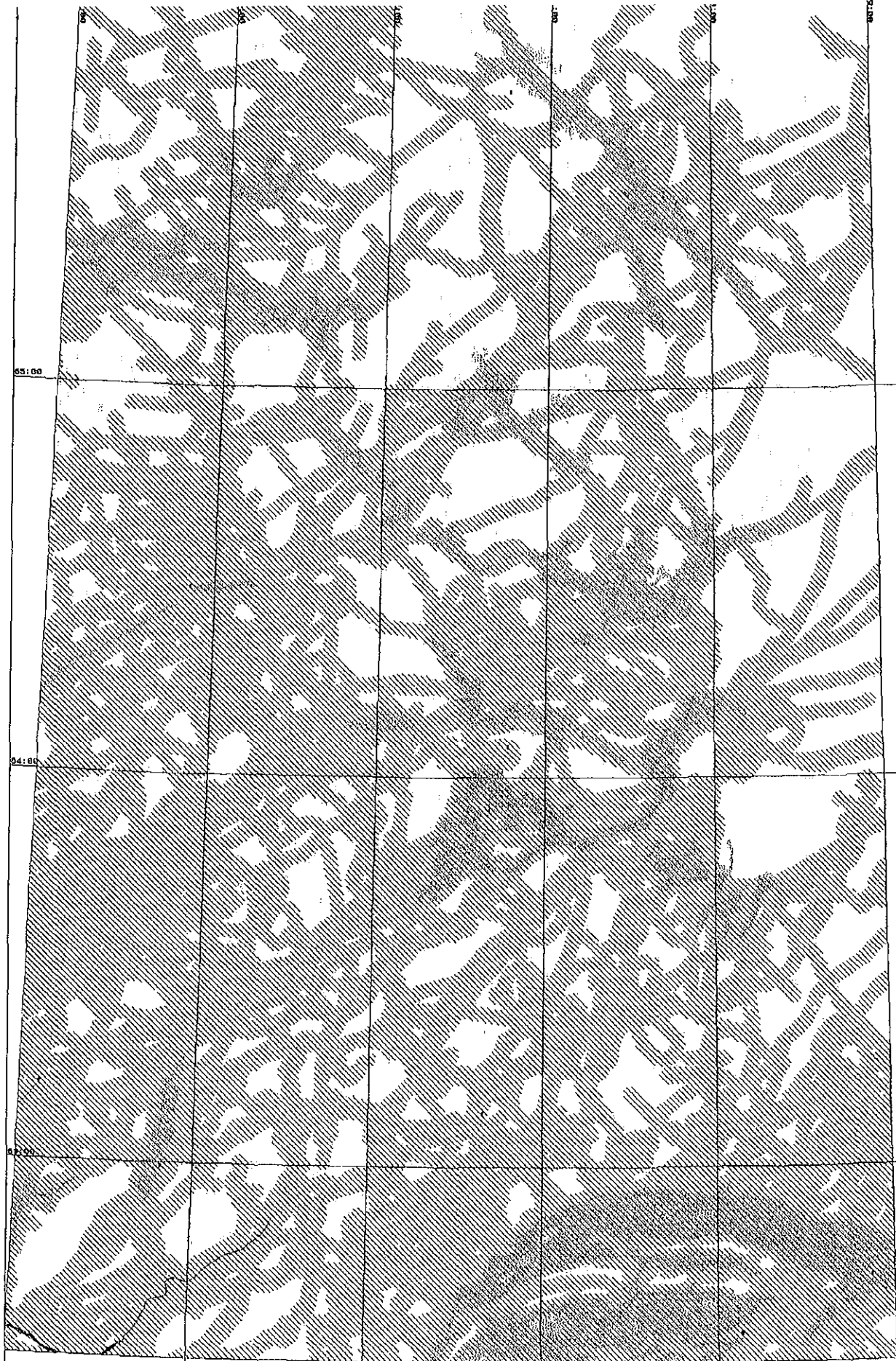
Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000



**Activity  
Zones**

DT < 1980

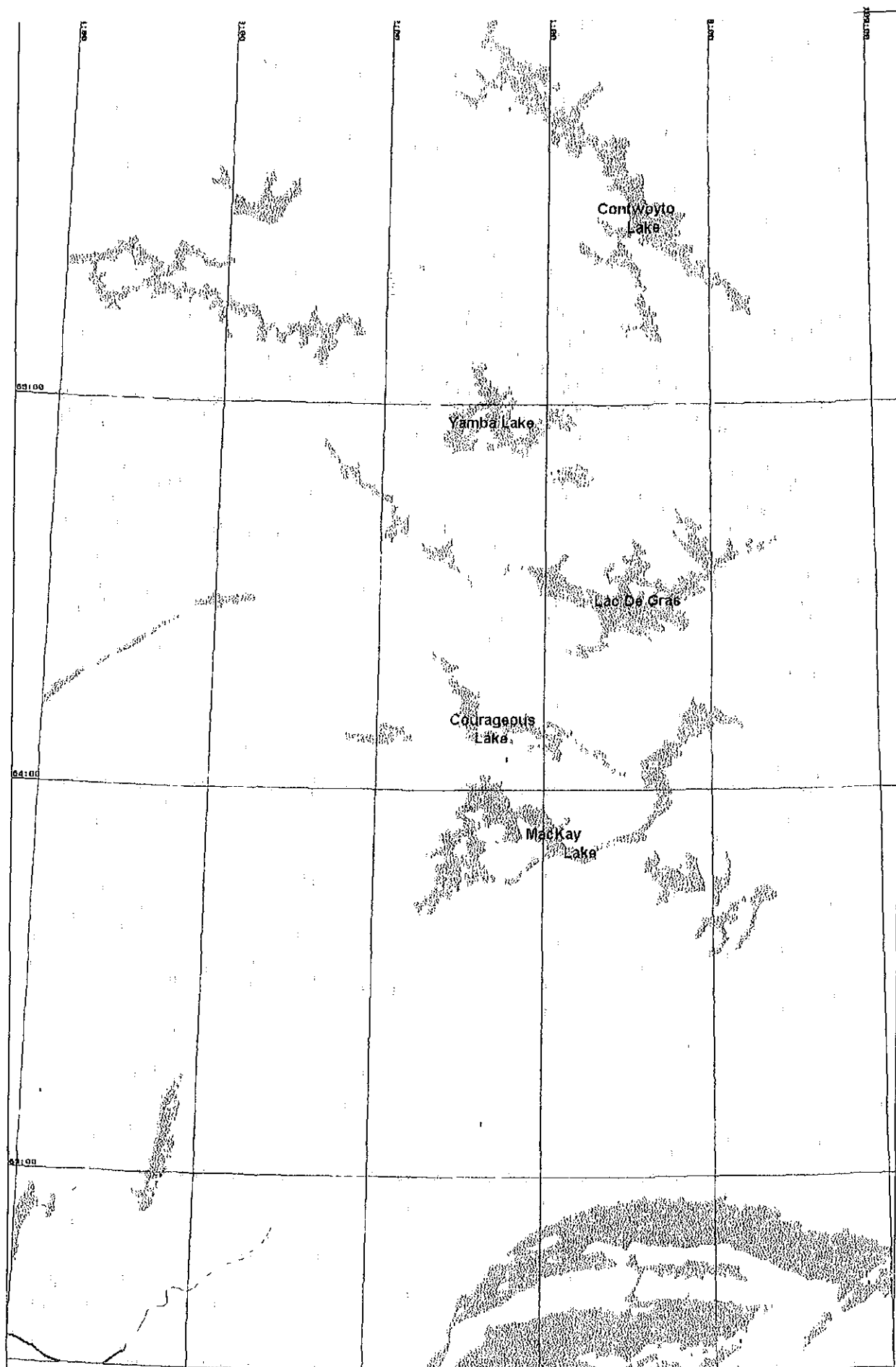


Spatial Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
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Activity  
Zones



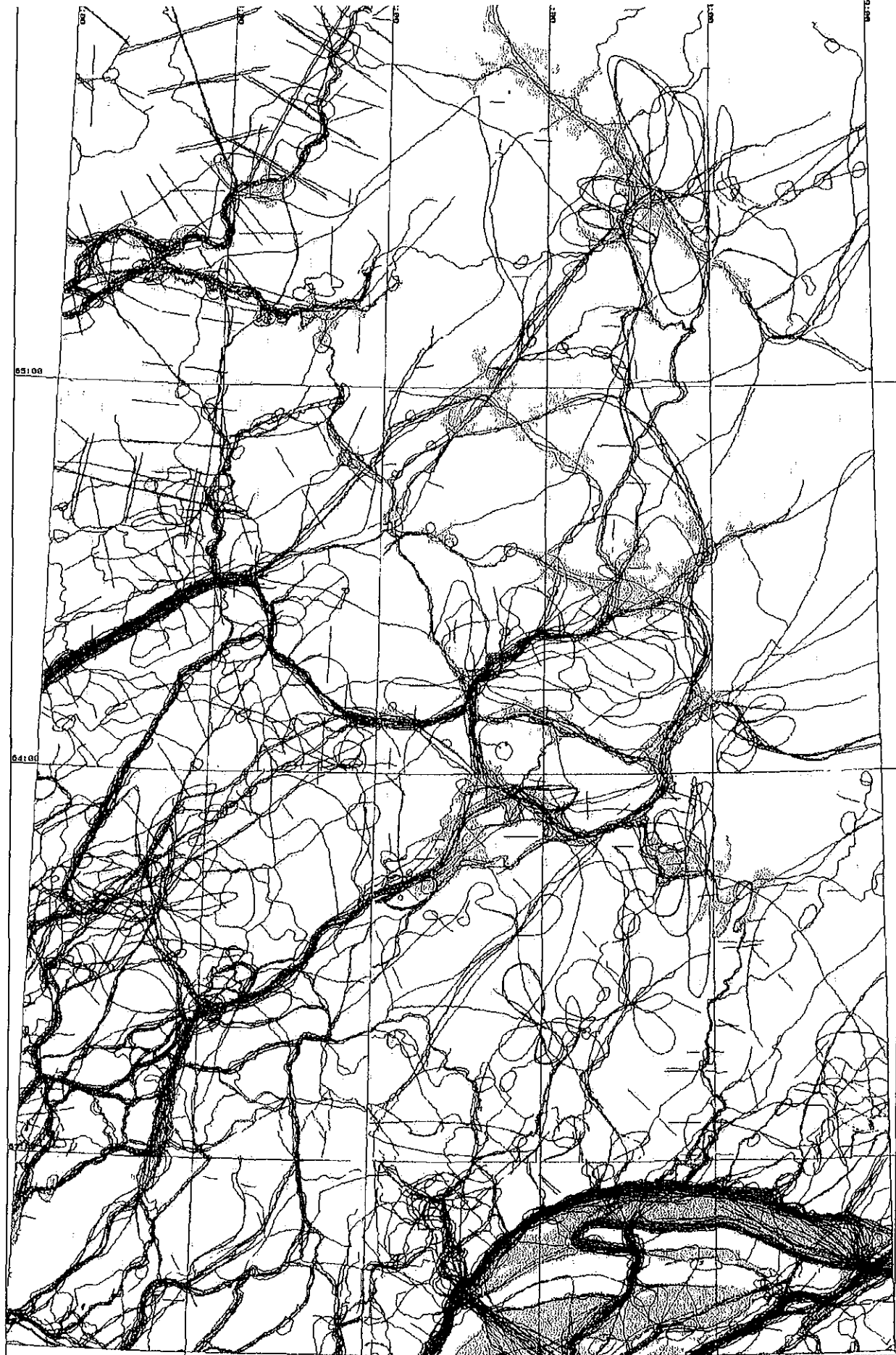
Spent Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

**Study Area**  
109 - 114 Longitude  
62.5 - 66 Latitude





Special Data Systems Consulting

Dene Community  
Trail Data

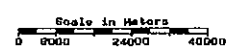
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**Community Trails**  
 Detah Rae-Edzo  
 Lutsel K'e Rae Lakes  
 Lac La Martre Yellowknife

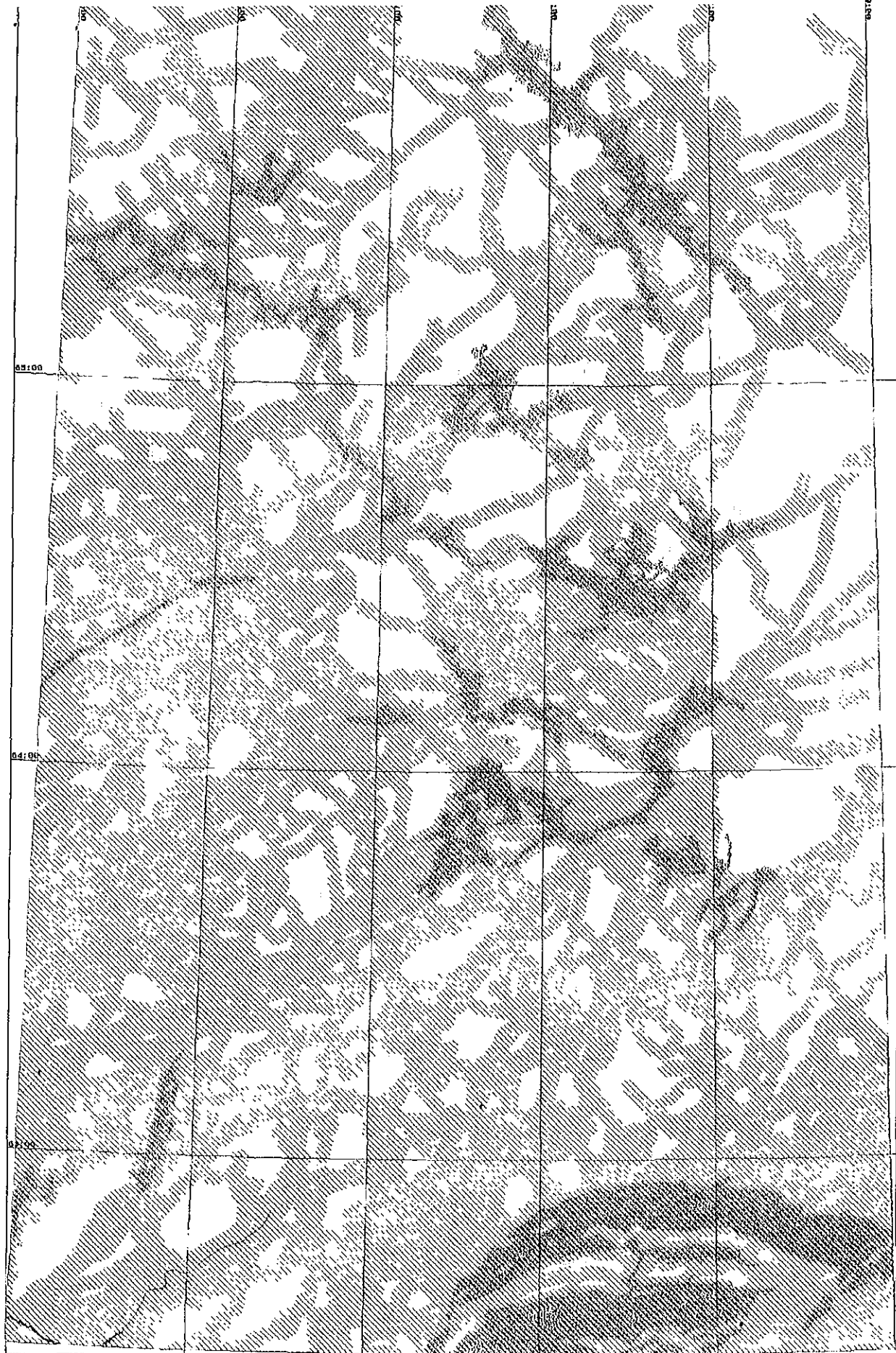


Spatial Data Systems Consulting

Dene Community  
Trail Data



 Wood  
Caribou



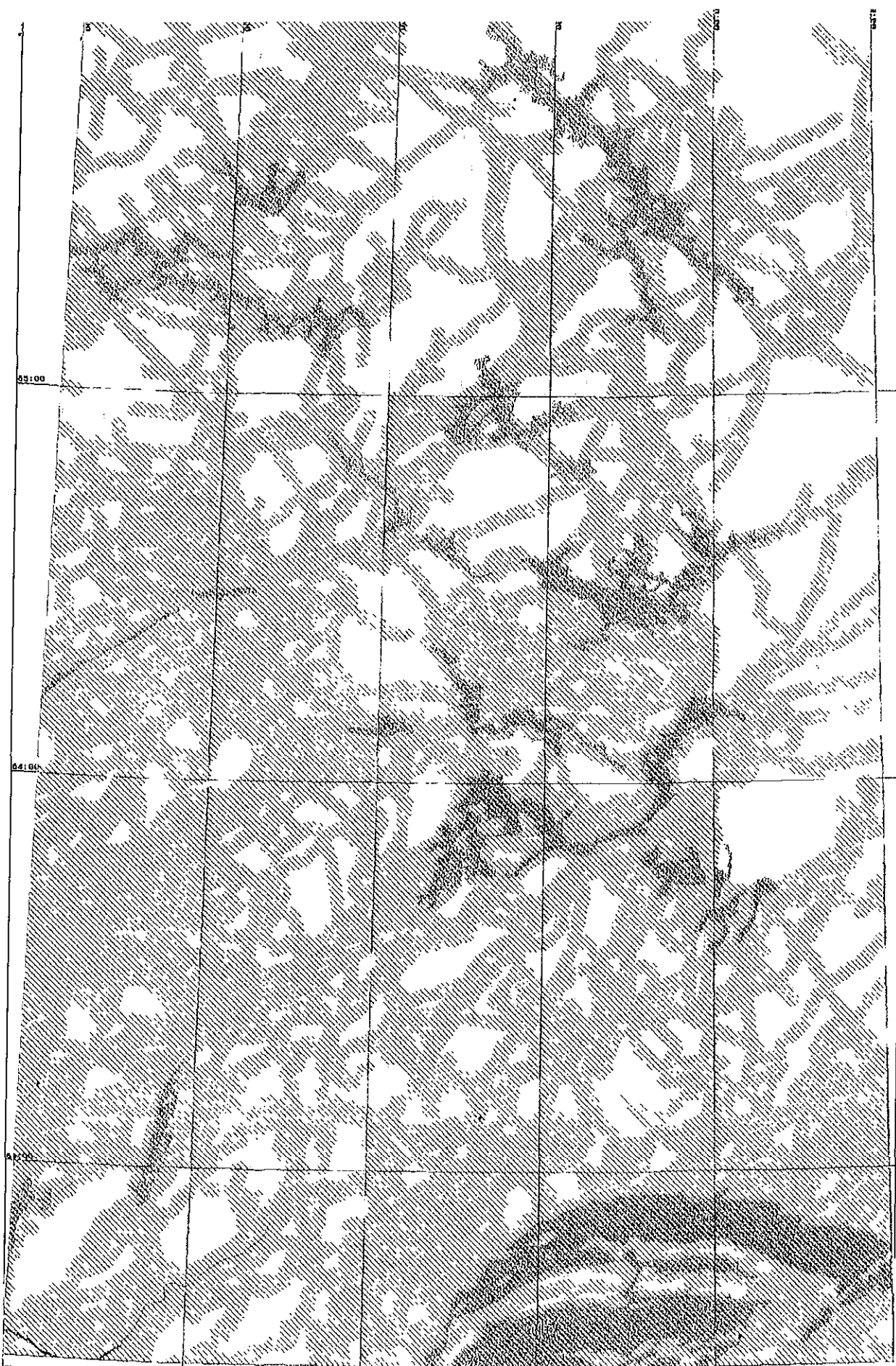
Special Data Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
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 Activity  
Zones

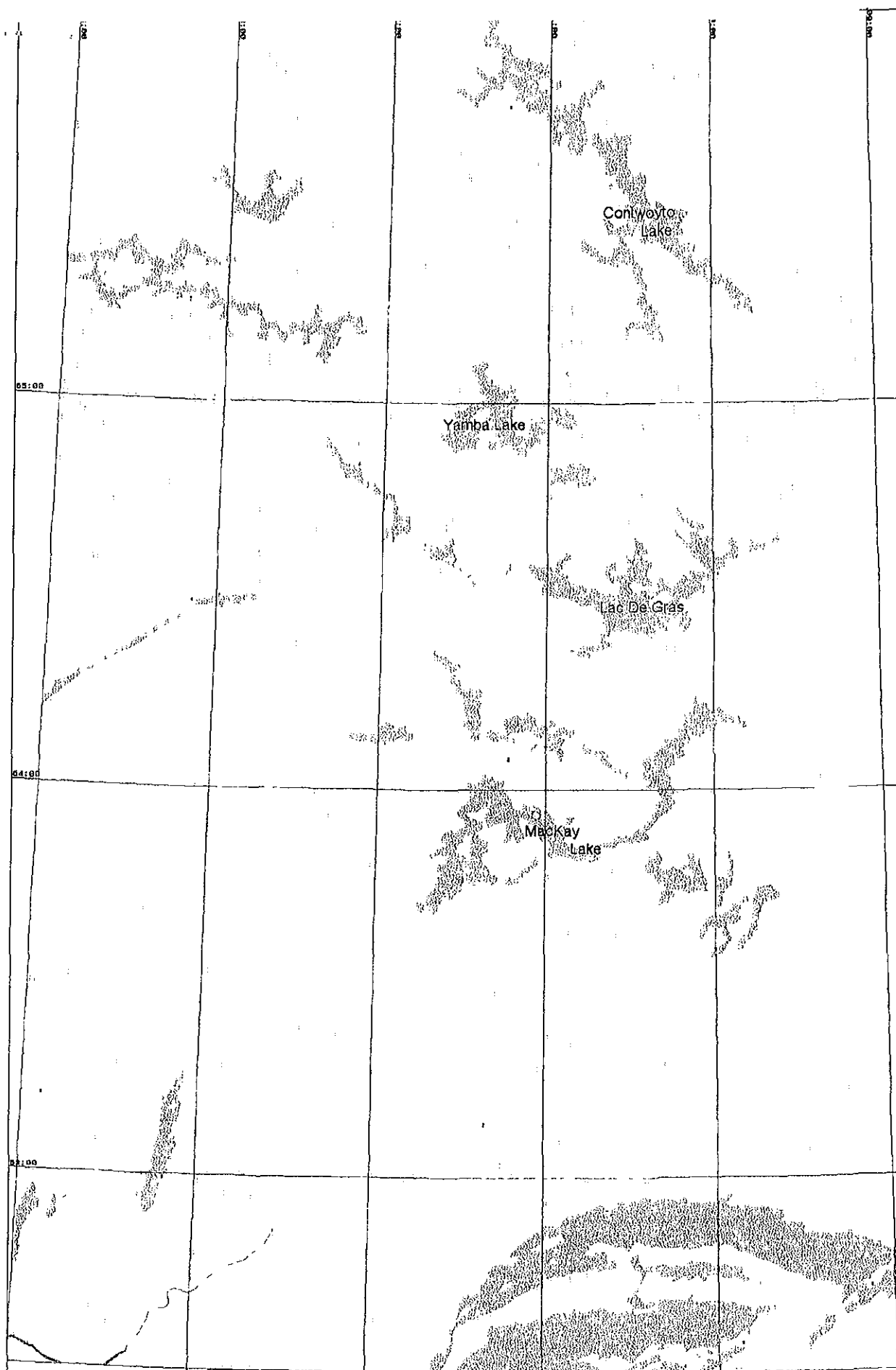




Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

Activity  
Zones



Spent/ Lake Systems Consulting

Dene Community  
Trail Data

Scale in Meters  
0 8000 24000 40000

**Study Area**  
109 - 114 Longitude  
62 5 - 66 Latitude



## Appendix I-A4

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### **An Anthropological View on Indigenous People and Knowledge in Environmental Impact Assessment**

**by Marc G. Stevenson, Ph.D**

*"People who are dependent on local resources for their livelihood are often able to assess the true costs and benefits of development. Their time-tested, in-depth knowledge of the local area is . . . an essential part of any impact assessment"* (Berkes 1993:6).

#### **Introduction**

For many centuries, the economies, cultures and societies of Canada's Aboriginal peoples have been based on an intimate understanding of and relationship with the natural environment<sup>1</sup>. However, only recently has their knowledge been considered a necessary component of environmental assessment (e.g., Johannes 1993). Part of this acknowledgement stems from the pursuit of political and property rights by indigenous groups and the recognition of these rights by government and industry. The rights of indigenous people to fully participate in decisions concerning developments which affect their lands, cultures and lifestyles have been recognized in many international agreements (e.g., United Nations and UNCED 1992). At the same time, growing recognition of the limits of conventional science in solving ecological problems of increasing complexity and magnitude has also resulted in calls for the incorporation of indigenous knowledge and practices in resource management and development (Wolfe et al. 1992). The industrialized world may, in fact, have much to learn from indigenous peoples about the sustainable development of the utilization of the earth's resources:

*"Tribal and indigenous peoples' .. lifestyles can offer modern societies many lessons in the management of resources in complex . ecosystem(s) Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems"* (WCED 1987:12, 114-115)

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<sup>1</sup> The terms Indigenous, Aboriginal and Native are used interchangeably throughout this paper, except where context warrants the choice of the more appropriate term.

The fact that northern aboriginal people have developed over many generations holistic knowledge of their lands, natural resources and environment which can contribute significantly to environmentally sound and sustainable development practices has been recognized in a number of international Arctic agreements including the "Arctic Environmental Protection Strategy" (ICC 1993).

Increasingly, in an effort to assess the environmental and socioeconomic effects of large-scale developments impacting northern lands, resources and communities, federal environmental guidelines have begun to incorporate the traditional knowledge of Aboriginal people in environmental impact assessment (EIA). Such guidelines are an important step towards ensuring that the concerns of Canada's northern Aboriginal people will be fully and meaningfully considered in assessing the impacts of northern development. This can only lead to improved decision-making in the assessment and management of environmental impacts.

Yet, the role of traditional knowledge in EIA is often not adequately understood or appreciated by government and industry. Part of this confusion, stems from the fact the incorporation of traditional knowledge in EIA is relatively new, and examples which could serve as models are rare. However, it also stems from the fact that many non-native people do not appreciate how their knowledge system differs from that of Native people. Thus, there appears to be a general misunderstanding of what traditional knowledge is, how it is constructed and its role in EIA.

Dene, Inuit and Metis people often raise concerns about the possible impacts of development on their lands, cultures and economies in environmental hearings. The basis for most Native peoples' concerns derive principally from three sources:

- traditional ecological knowledge, and especially knowledge of ecosystem relationships
- past experience with northern industrial developments (e.g., hydro, oil/gas, mining, etc.), and/or
- a lack of understanding or knowledge of how specific developments will affect valued ecosystem components and relations.

The documentation of these concerns must be viewed as an initial step in an ongoing process to incorporate Native people and their knowledge into environmental assessment and management. An exclusive focus on the documentation of traditional knowledge *per se* for use in EIA may create a potentially exploitive situation whereby this knowledge may be taken out of context or misinterpreted (see below). This is especially so in many northern regions where land claims and treaty entitlements are still being negotiated, and Native groups remain concerned about the use of their traditional knowledge.

Yet, there are considerable benefits for Native people in documenting their traditional knowledge. Aside from the obvious contributions of indigenous knowledge to EIA, many aboriginal groups in Canada's North recognize that by recording their traditional knowledge and then passing it on to younger generations, the erosion of their values, traditions and cultures can be slowed down, and even reversed. In addition, the documentation of indigenous knowledge also creates opportunities for Aboriginal participation in development and environmental policies, while strengthening cultural identity. Nonetheless, the use of indigenous knowledge in environmental assessment and management may also promote goals incompatible with Aboriginal needs and traditional ways of life. This realization has prompted many aboriginal groups and organizations to establish explicit guidelines for the use of their knowledge

This paper attempts to identify a process for incorporating Native people and their knowledge into EIA. This begins with a discussion of the structural components of indigenous knowledge and their interrelationships. A multi-stage process which focuses on giving full and equal consideration to Native knowledge in EIA is then advanced. Finally, indigenous and scientific knowledge systems are compared and contrasted, concentrating on the strengths of each in environmental assessment and management.

### **Indigenous or Traditional? The Structure of Contemporary Aboriginal Knowledge**

Dene, Inuit and Metis people in Canada's North possess knowledge that is not just traditional, but contemporary. In fact, it can be argued that all knowledge is contemporary for it is given meaning and value from a frame of reference that is continually being updated and revised, i.e., contemporary. Viewing the knowledge that indigenous people possess as essentially "traditional" invites denial of the relevance and efficacy of the application of their knowledge to contemporary issues and problems. "By using the term 'traditional' Native people sometimes feel that it imposes a way of life on them that is shackled to the past and does not allow them to change.. " (Gombay 1995). Such a view can only perpetuate the muted status of indigenous knowledge and of Native people in restructuring their present social, economic and political conditions, and shaping their own future.

#### *Indigenous Knowledge*

A more inclusive term for the knowledge, experiences and philosophies that indigenous people can bring to bear on environmental assessment and management is "indigenous knowledge." Indigenous knowledge can be viewed as being composed of and constructed from two different sources of knowledge: "traditional knowledge" and "non-traditional knowledge." This perspective acknowledges the facts that:

- Native people also possess knowledge and experiences not grounded in traditional aboriginal lifestyles, spirituality, philosophy, social relations, cultural values, etc ,
- indigenous knowledge is the articulation, or more accurately the dialectical resolution, of traditional and non-traditional knowledge (Figure 1).

While different, these sources of knowledge share some features in common. For example, rules and knowledge for living in a social context (i.e., living in co-existence with others) are similar. Yet, there are crucial differences that reflect different philosophical traditions, orientations and realities. For example, traditional indigenous philosophies emphasize extensive knowledge of and codes for living in harmony with nature, whereas western philosophical traditions don't. Indeed, indigenous knowledge and philosophies may contribute significantly to the sustainable utilization of the earth's resources, and thus human survival on this planet.

#### *Non-traditional Knowledge*

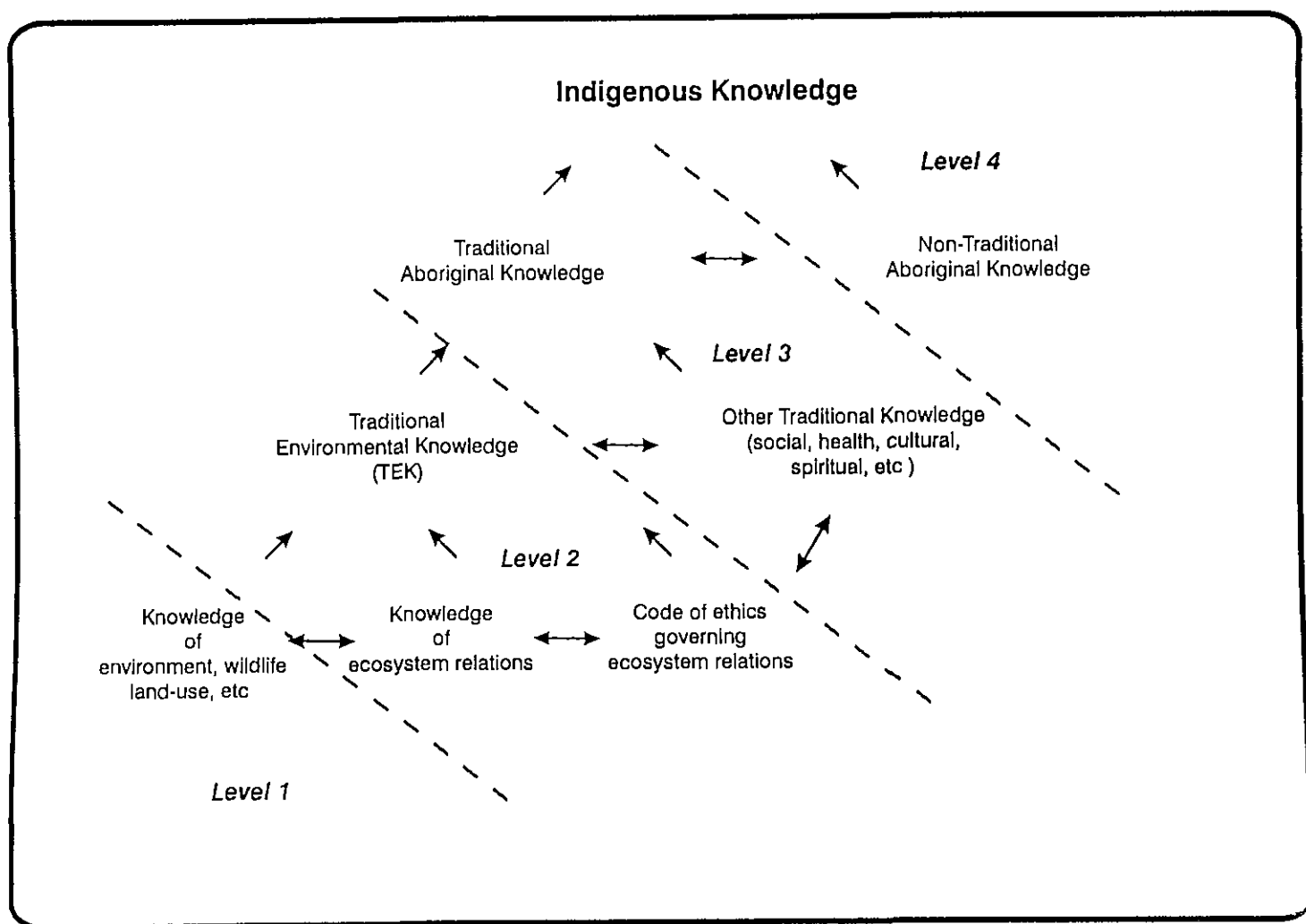
Native people possess non-traditional knowledge derived from their interaction with non-native people and institutions, television and other modern media, formal schooling in numeracy and literacy, the adoption of western scientific thinking, exposure to non-native values, attitudes, philosophies, etc. Alternatively, traditional knowledge systems are based on the shared experiences, customs, values, traditions, subsistence lifestyles, social interactions, ideological orientations, etc. unique to Aboriginal and First Nation communities. Together, these two foundations of knowledge articulate to form a world view -- a frame of reference, understanding and validation -- that give meaning and value to the lives of contemporary Native peoples (Figure 1).

Often, Native people whose understandings are constructed from both systems of knowledge can offer invaluable insights into assessing the full impacts of northern development. Not only have they lived in both traditional and non-traditional ways, and experienced directly the impacts of industrial development, but they have already worked out many of the conflicts between the two systems of knowledge. Thus, the resolution of the two knowledge systems for any given issue can provide insights into EIA that neither system alone could offer. This can only lead to more refined explanations and better understandings of environmental impacts.

#### *Traditional Knowledge*

For the purposes of environmental impact assessment and management, traditional knowledge can be viewed as being composed of traditional ecological knowledge and other kinds of traditional knowledge.

Figure 1. The structural components of indigenous knowledge, with levels of incorporation into environmental assessment and management





Environment and society are intimately related, if not inseparable, in the minds of many aboriginal and First Nations people whose lifestyles or identities still derive from their connection to the "land." In the words of the Yellowknives Dene (1995)

*"Traditional knowledge holds our identity as a people the history, spirituality, values, principles, and practices we can live by as Yellowknives Dene. With traditional knowledge, our Elders can teach our young people our languages -- the words as well as the ideas behind the words as they evolved on the land. With traditional knowledge, our Elders can teach younger people how to participate in our land-based economy."*

While acknowledging the interconnectedness of the many components of traditional knowledge, they are distinguished here for purposes of illustration.

#### *Traditional Ecological Knowledge (TEK)*

Traditional ecological knowledge (TEK) may be viewed as being composed of three interrelated components (Figure 1):

- environmental knowledge,
- knowledge of ecosystem relationships, and
- a code of ethics governing appropriate human-environmental relationships

This is the base of knowledge that many non-native people interpret as traditional knowledge. However, as is evident the Dene Cultural Institute's (1995) definition, traditional environmental knowledge contains and is constructed of so much more than just knowledge pertaining to the environment:

*"Traditional environmental knowledge (TEK) is a body of knowledge and beliefs transmitted through oral tradition and first hand observation. It includes a system of classification, a set of empirical observations about the local environment and a system of self-management that governs resource use. Ecological aspects are closely tied to social and spiritual aspects of the knowledge system. The quantity and quality of TEK varies among community members, depending upon gender, age, social status, intellectual capability and profession (hunter, spiritual leader, healer, etc.) With its roots firmly in the past, TEK is both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socioeconomic changes of the present."*

Knowledge specific to various species of wildlife, plants, land-use patterns, seasons, climate, hydrology, geomorphology, etc. would be included under traditional environmental knowledge. This is the knowledge that is most attractive

to, and sought after by, non-aboriginal people as it is the most accessible and comprehensible in terms of their own systems of knowledge

Knowledge of the interactions and relationships between and among environmental components would constitute traditional ecological knowledge. The relationship between environmental knowledge and ecological knowledge, is akin to the differences between the "species-approach" and "ecosystems approach" of biologists. The focus of the latter is on the relationships among components and the operation of the ecosystem, rather than the components themselves.

A code of ethics governing appropriate use of the environment and the maintenance of appropriate ecosystem relationships would constitute a third category of knowledge subsumed under TEK. The latter would not only include rules and conventions promoting desirable human-animal relationships, but, as traditional social relations and cultural identity are established, reaffirmed and validated primarily through productive activity on the "land", appropriate human-human relationships as well. It is this component of TEK which is easily blurred with knowledge subsumed under the category, 'other traditional knowledge'.

#### *Other Traditional Knowledge*

Many indigenous people have inherited or acquired a rich and extensive base of traditional knowledge that, although not independent of, does not require continual validation or refinement by traditional ecological knowledge. Such knowledge includes that which traditionally informed emotional and physical well-being, customary social values, cultural practices, spiritual beliefs, etc (Figure 1)

It is perhaps for these reasons why attempts to dissect traditional knowledge systems fail to capture the true richness, complexity, interconnectedness and contextuality of such systems. Efforts to "pigeon-hole" the various components of traditional aboriginal knowledge may be doomed from the start simply because Native people traditionally employed a holistic or cosmocentric view of nature. In this world view, humans perceive themselves as being one link--albeit an integral one -- in maintaining the balance of nature. While a comparative analysis of traditional aboriginal and western scientific philosophies and knowledge systems will be undertaken below, a process for incorporating Native knowledge into environmental impact assessment and management must be considered.

#### **Native Knowledge in Environmental Impact Assessment**

Having described the constituent components of indigenous knowledge and their interrelationships, we now turn to discussions of how they might be incorporated into environmental assessment and management.

Most government agencies and non-government organizations (NGOs) view references to "traditional knowledge" in EIS guidelines as an opportunity to construct comprehensive regional data bases of TEK. These knowledge bases would then be used, not only to assess the environmental impacts of proposed projects, but to fill in knowledge gaps identified by government scientists and to evaluate the effects of subsequent developments. However, the proprietary rights of such knowledge rests in the hands of the indigenous inhabitants of an area. How TEK is collected, used and interpreted, and by whom, remains under the exclusive control of Aboriginal and First Nations groups. They are, thus, in the best position to construct and validate their TEK and to share this knowledge with outside interest groups, if they so choose.

TEK will undoubtedly contribute significantly to an overall understanding of environmental phenomena and ecological relationships in areas of proposed development. However, full and equal consideration of traditional knowledge in EIA is very difficult to achieve under current structural and political arrangements -- a fact well known to various co-management boards composed of Native resource users and non-Native managers.

With few exceptions, the knowledge of aboriginal people has been taken out of context by researchers with little understanding of indigenous cultures, values and knowledge systems. Such information is then reinterpreted or given a meaning different from that which gave value and significance to such knowledge in the first place. Many indigenous people view this extraction of their knowledge from its original sociocultural context as a form of theft and, understandably, have been reluctant to share the depth and breadth of their knowledge with outsiders. Thus, attempts to document TEK have tended to result either in simple inventories of elements (folk taxonomies) or simple descriptions of natural processes couched in terms of scientific knowledge.

The incorporation of Native knowledge into environmental assessment and management, unfortunately, has yet to progress to a level which adequately realizes its potential value and contributions to such activities. Often, only the elements or facts of TEK are incorporated into management decisions. At this level (Level 1 in Figure 1), little consideration is sometimes given to the broader meaning or value of these "facts" in the context of a coherent system of indigenous knowledge. As the interpretation of these "facts" are usually based on the dominant scientific mode, a potential power imbalance exists.

Level 2 incorporates and uses for decision-making, the entire system of TEK, including both knowledge of ecosystemic relationships and the code of ethics and beliefs governing these relations (Figure 1). One of the few co-management plans to have progressed to this level was recently accepted by the Department of Fisheries and Oceans and the Nunavut Wildlife Management Board to resolve

fundamental disagreements between Inuit hunters and government biologists about the status of beluga whales in the southeast Baffin area (DFO 1994).

Level 3 incorporates not just the system of TEK, but others aspects of traditional knowledge (e g., social rules, spirituality, health, etc.) , and thus the entire system of holistic traditional knowledge, including Native philosophy. Insofar as the latter constitutes a distinctive, complexly articulated understanding of life and the world, piece-meal extraction from this context may alienate indigenous knowledge from its cultural context, thus contributing to the erosion of cultural values and identities.

Finally, level 4 incorporates and uses as a basis for decision-making not just traditional knowledge, but non-traditional knowledge, or more appropriately, their articulation; in other words, all sources of indigenous knowledge. At this level, definitions and the validation of indigenous knowledge by non-Native managers and researchers become irrelevant, for it is at this level that the knowledge of Native people is given full and equal consideration, along side scientific and engineering knowledge, in environmental assessment and management. As all other levels may contribute to the de-contextualization of Native people and knowledge from their cultural contexts, it is at this level which the successful incorporation of the knowledge of Native people into EIA could be realized.

#### **A Process for Realizing the Contributions of Indigenous and Traditional Knowledge to Environmental Impact Assessment.**

Although TEK may contribute to an overall understanding of the environmental impacts of a proposed project, its documentation in a careless and insensitive manner may also contribute to the alienation of Native people from the very systems of knowledge, social practices and cultural frameworks they seek to preserve. Alternatively, a fuller contribution of traditional and indigenous knowledge to EIA can be realized by.

- 1) Documenting the concerns, including the bases for such concerns, that Aboriginal and First Nations peoples may have about the environmental and socioeconomic impacts of a particular project.
- 2) Addressing and mitigating these concerns to the satisfaction of Native people of the region and the Environmental Review Panel, and
- 3) Designing specific programs to incorporate both traditional and indigenous knowledge and expertise into subsequent environmental assessment, monitoring of VECs and managing environmental and socioeconomic impacts over the long-term.

Thus, the incorporation of indigenous knowledge into EIA begins with identifying what is important and why to Native people. In other words, it starts with the

identification of valued ecosystem components (VECs) from an Aboriginal perspective. It then proceeds to the consideration of measures designed to mitigate potential impacts on these VEC's. Finally, it concentrates on documenting traditional and other indigenous knowledge relevant to:

- completing the environmental assessment process
- monitoring VECs, and
- managing impacts

Dene, Inuit, and Metis people have had, and will undoubtedly continue to have, much to say about the potential environmental and socioeconomic effects of proposed industrial developments in Canada's North. The process of documenting these concerns begins with public meetings with the Environmental Review Panel and continues through to interviews with key informants, selected and interviewed by community members themselves. This methodology not only allows the range of concerns expressed by Native people to be documented, it affords the proponent an opportunity to grasp and understand the bases for these concerns so that they might be adequately addressed.

The next phase represents a concerted effort by a Proponent to address the environmental and socioeconomic concerns of Native people identified in the first phase. It does so by designing measures to mitigate impacts on valued ecosystem components. Although, most concerns may be addressed in conjunction with their documentation, some will undoubtedly require more time to address satisfactorily, especially where there exists a debate with scientific knowledge, or where the experiences of Native people differ. In order to obtain enough knowledge (either indigenous or scientific, or both) to adequately address such concerns, a Proponent will require the understanding and cooperation of the Native people of the region. This can be achieved by establishing ongoing communications and partnerships with Native communities.

Incorporating indigenous and traditional knowledge into the process of environmental assessment and management does not end with their documentation, nor the resolution of the concerns of Native people. Rather, completion of the latter should be viewed as the start of an on-going program whereby Native people, knowledge and expertise will be meaningfully incorporated into environmental management and monitoring. Specifically, this phase should endeavour to incorporate indigenous knowledge and expertise into a program which will complete the environmental assessment process, monitor VECs and manage both the short-term and long-term environmental and socioeconomic impacts of a project. Aboriginal representatives will play a major role in determining the extent of their participation and the inclusion of their knowledge and expertise in this phase.

As proposed, these tasks constitute a multi-phased, process-oriented approach designed to realize the full contributions of traditional and indigenous knowledge to EIA

At this point, the role of scientific knowledge in addressing the concerns of Native people should be clarified. Western scientific knowledge is not inimical to traditional knowledge, but there are areas where the potential for divergence is great (see below). Nonetheless, traditional knowledge can inform scientific knowledge and vice versa. In regard to the possible articulation of TEK and environmental science, when aboriginal hunters say that animals will continually be replenished if hunted, they speak to facts which are well-established in the biological sciences. For example, Inuit believe that beluga belonging to hunted populations will grow faster, have more blubber, and have less disease than those associated with non-hunted populations (DFO 1994). Indigenous people may feel comfortable with scientific explanation if it does not conflict with or undermine their knowledge.

The potential for the acceptance or rejection of scientific thinking and explanation by northern aboriginal people is just as great in addressing their social concerns, and depends upon the paradigm being proposed. Human and family service professionals from the south have tended to focus on the individual as the source of his/her self-defeating behaviours. Under this paradigm, personal problems are analyzed according to scientific principles whereby the discovery of cause and effect relationships is considered to be the first step in correcting human behaviour (Morgaine 1992). With the assistance of social workers, individuals are expected to analyze their situations, look for solutions, and make the appropriate changes so they can proceed along the pathway of life (ibid.). The social and political contexts in which many northern aboriginal people find themselves are often not considered.

In the latter regard, a critical approach to family life education, whereby all individuals are seen as being strongly influenced by their surrounding environments, appears to offer greater potential for community healing. While individuals exhibiting self-defeating behaviours are seen as needing change, Native people are also seen as capable of self-selecting and controlling any changes to be made, and of becoming architects in reconstructing these conditions (ibid.). Self-defeating behaviours, such as those anticipated by Native northerners in the context of culturally inappropriate northern development, will naturally perpetuate themselves when Native people are not allowed the opportunities to reflect on and participate in restructuring these conditions.

### **Traditional Knowledge and Scientific Knowledge Systems**

Traditional aboriginal knowledge is the product of countless generations of direct observation and experience handed down through oral tradition. Indigenous

knowledge, in turn, is the articulation of the traditional and non-traditional knowledge that Native people possess. Contemporary observations of northern Aboriginal people are given meaning and value from a system of thought and understanding that is the resolution of both

The best known, but often least understood, component of indigenous knowledge is TEK, which Berkes (1993.3) defines as:

*"a cumulative body of knowledge and beliefs . about the relationships of living beings (including humans) with one another and with their environment "*

This definition encompasses the one adopted in this paper, as well as the broader category of traditional knowledge. However, for northern Aboriginal people whose identities and realities are still constructed from their spiritual and/or physical connection to the land, definitions are less important than the right and ability to choose to practice what they know and hold to be true. Sometimes, these are being undermined by many factors, including the application of western science to indigenous societies (Cashman 1991, Gamble 1986). Yet, both traditional knowledge and scientific knowledge are products of the same general intellectual process of creating order out of disorder (Berkes 1993). Nonetheless, there are substantive differences between the two systems of knowledge. Understanding these differences is fundamental to realizing the strengths of each, and thus the potential contributions of both to environmental assessment and management.

Just as it is difficult to separate traditional knowledge from its cultural context, western scientific knowledge cannot be divorced from the broader context in which this system of knowledge operates. Thus, clarification of the differences between traditional and scientific knowledge must be preceded by a discussion of the broader contexts of each. The philosophical, cultural, social and other orientations that distinguish these contexts and give meaning and value to each system of knowledge are presented in Table 1.

These are generalizations to be sure, and not all people from each contextual orientation or worldview possess the same combinations or frames of reference. Yet, many of these features are inseparable and only derive value from within their respective contexts. Thus, these worldviews are internally coherent and their features are systemically related. One can appreciate how, for example, materialism and wealth accumulation go hand-in-hand with saving and concern for the future, but not sharing, wealth distribution and an emphasis on the present. While these differences are also relevant to understanding "rural" versus "urban" distinctions, it is obvious that traditional knowledge is based on and requires validation from a different contextual orientation than western scientific knowledge.

**Table 1**  
**A sample of features distinguishing the worldviews in which traditional knowledge and scientific knowledge are embedded.**

<b>Traditional Aboriginal Values and Orientation</b>	<b>Euroamerican Values and Orientations</b>
individual, extended family, and group concern	individual and immediate family concern
small group size	large group size
cooperation	competition
holistic view of nature	homocentric view of nature
partnership with nature	exploitation of nature
renewable resource economy	non-renewable resource economy
land and resources shared by all	private ownership of land and resources
sharing and wealth distribution	saving and wealth accumulation
present-focused	future-focused
non-materialistic	materialistic
time measured in natural cycles, e.g., seasons	time measured in small, arbitrary units
practical, intuitive thinking	theoretical thinking, prone to abstraction
face-to-face government	representative democracy
egalitarian organization	hierarchical organization
age and wisdom valued	youth and beauty valued
high group esteem, lower self-esteem	high self-esteem, lower group esteem
modest and silent	confident, noisy
patience, problems will be resolved in time	impatient, quick to resolve issues

The importance of context for understanding and communicating knowledge in northern Aboriginal society cannot be understated. As meaning for many Native people is derived as much from the context of communication itself as what is being communicated, it is important to understand the differences between what is being communicated and the situation in which the communication takes place. For many Native people, experience is knowledge and knowledge is experience. Thus, knowledge has to be constructed for each individual, and is not easily shared among individuals unless there is a mutual understanding and appreciation of that experience. This is why, for example, it is difficult for northern Aboriginal people to communicate to outsiders what traditional knowledge is, and why it is hard for non-natives to understand and appreciate how traditional knowledge can be used in environmental assessment and management. This is also the reason why Native people have been reluctant generally to share their experiential observations with outsiders, for they are frequently misinterpreted, if not misused, in ways that do not serve Aboriginal interests.



Northern Aboriginal societies can be categorized as possessing high-context communication systems whereby they rely more on context for meaning (Hall 1977). Conversely, Euroamerican society has been described as being low-context because it is more reliant on information to provide meaning and understanding. Anthropologists sometimes experience this dilemma when interviewing a Native elder whereby a lengthy response to a question is often translated by an interpreter in a few words. What is frequently translated in such situations is the information content within the communication, and not the context which gives meaning and value to such information. This is why the potential to misinterpret or misuse traditional knowledge by those who do not understand or appreciate the context in which it is embedded is great.

Traditional aboriginal knowledge, and especially TEK, differs from scientific knowledge in a number of substantive ways. Many authors (Berkes 1993, Lalonde 1993, Wolfe *et al* 1992) have concluded that TEK, in comparison with scientific knowledge, is:

- intuitive and holistic as opposed to analytical, reductionistic and law-seeking
- qualitative as opposed to quantitative
- moral as opposed to supposedly value-free
- subjective and experiential as opposed to objective and positivist
- inclusive as opposed to decisive
- inconclusive and internally differentiating as opposed to conclusive and externally differentiating
- slow to create as opposed to fast and selective
- diachronic and historically generated as opposed to synchronic, and
- open to spiritual explanation as opposed to mechanistic explanation

There are exceptions to these generalizations. For example, Inuit hunters have been known to monitor the annual growth of Arctic char at the mouths of fish streams with the aid of sticks -- crude, but effective, measuring devices nonetheless (personal communication to the author, 1993). And, of course, scientific ecology can and often does use holistic approaches, and occasionally produces diachronic data (Berkes 1993).

Most aboriginal hunters, however, do not commit "hard" numbers to memory as knowing the precise quantity of animals present has not been considered necessary for the success of the hunter or his/her group (Usher and Wenzel 1987).

Very precise observations about the condition, health, and individual and group behaviours of animals, on the other hand, are more important knowledge for hunters to obtain. It is concern for those qualitative factors that affect success or failure of hunting outcome, rather than quantitative measurements of animals themselves that have traditionally been considered important (ibid.). Thus, hunters often acquire an extensive base of knowledge about specific species and all the variables that influence their availability, behaviours, movements, and interrelationships within the surrounding environment. It is no longer true, if it ever was in environmental assessment, that the only things that count are those things that can be counted. Numerical and other "hard" data represent only a small portion of the total body of knowledge that Native resource-users can observe, commit to memory, and can contribute to sound environmental management strategies

That said, many aboriginal peoples are reluctant to generalize readily about the natural world of which they are part. Their experience with the complexity of animals and knowledge of the dynamics of ecosystems tells them that such exercises are futile indeed. While TEK is markedly slower than science in terms of the speed at which knowledge is constructed, any environmental facts which aboriginal people hold to be true, or "truths", are generally regarded to be just that. "Rules of thumb" and general principles for living developed from these truths, and enforced by social and cultural means, are in many ways just as good as scientific prescriptions (Gadgil and Berkes 1991)

Based on their accumulated knowledge and experiences, Aboriginal people have developed an extensive body of informal or intuitive knowledge that can be brought to bear on environmental assessment and management. The strengths of indigenous and traditional knowledge systems in EIA lie in the facts that they are designed to incorporate:

- complexity,
- expand detail, and
- include, rather than eliminate, phenomena that cannot be explained (Wolf et al. 1992).

Rather than reducing information into condensing or summarizing categories, traditional and indigenous knowledge sees inclusive groupings with internal differentiation (ibid.). The perceptive investigation of TEK systems can, thus, provide new insights into key ecosystem relationships and valued ecosystem relationships, streamlining research efforts, and saving money in the long run. Finally, as highlighted at the beginning of this paper, Aboriginal people dependent upon the natural environment are often able to assess the true costs and benefits of

development better than outsiders because of their extensive, time-tested, in-depth knowledge (Berkes 1993).

However, indigenous and traditional knowledge are complementary to western science, not replacements for it (*ibid.*). The analytical capabilities of western science are invaluable for assessing and managing environmental impacts. The ability of scientists to

- reduce the number of variables involved, even though such reduction may conflict with Native perceptions
- to quickly identify impacts and isolate their causes, and
- to measure and manage change

are some of the greatest strengths science can bring to EIA. Nonetheless, the practical difficulties of applying science in a rigorous manner are numerous. Some of the more obvious are:

- the integrated nature of environmental issues versus the artificial fragmentation of areas of responsibility, knowledge, and action,
- the tendency to substitute observation and data for understanding and wisdom; and
- the reluctance to deal with the difficult problem of relating natural processes over a range of time and space scales (Roots *et al.* 1994).

At the same time, since indigenous knowledge generation does not use the same methods of data collection, storage, analysis and interpretation as the scientific knowledge, scientists often have great difficulty in acknowledging the validity of knowledge generated in other ways and rethinking groupings so as to uncover basic organizing principles which are unfamiliar (Wolfe *et al.* 1992).

Increasingly, however, the roles of indigenous and traditional knowledge in EIA are being recognized. Nevertheless, whether TEK can or should be integrated with scientific knowledge is uncertain. Rooted in different worldviews where TEK is likely to be context-specific, and unequal in influence and power base, these two systems of knowledge are certainly not easy to combine (Berkes 1993). Serious attempts at incorporating and integrating traditional and indigenous knowledge into assessing and managing environmental impacts inevitably come up against this question. This is why this paper has adopted the view that environmental assessment and management is as much a process of "social learning" requiring wisdom and understanding, as a science (Roots *et al.* 1994).

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April 28, 1995

BHP Diamonds  
New Business Development  
**BHP Minerals**

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Dr. Marc Stevenson  
University of Alberta  
Old St. Stephens  
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Gentlemen:

**Re: Traditional Knowledge and Environmental Impact Assessment**

To the extent possible, the Proponent intends to give full and equal consideration to traditional knowledge in its Environmental Impact Statement (EIS) for the NWT Diamonds Project. We have already initiated studies to ensure that existing documented information relevant to this matter is incorporated in the EIS.

The success of gathering new information will depend to a large extent on the cooperation of the Dene and Inuit organizations in the study area. To facilitate your participation and cooperation, the Proponent has agreed to fund a two-phase study designed to identify indigenous concerns, address those concerns, and prepare a traditional knowledge baseline for use in future monitoring of environmental and socioeconomic impacts.

To this end, we are requesting that the parties captioned above agree to proceed on the following basis.

- BHP has secured the services of **Dr. Marc Stevenson** to serve as a coordinator/facilitator for the Traditional Knowledge portion of the EIS.
- The program will be divided into two phases
- **Phase One** is ongoing and will consist of defining the roles of participating parties, and initiating consultations/workshops in the communities to document the environmental and socioeconomic concerns that First Nations and Aboriginal people might have with respect

to the project. While some new traditional ecological/environmental knowledge may be collected in the process, the Proponent's main objective is to document indigenous concerns, as well as the bases of these concerns, so it can attempt to address them. The workshops will provide baseline information requested by various sections of the EIS guidelines from an indigenous perspective. Under current contractual arrangements with Dr. Marc Stevenson, and in cooperation with the appropriate First Nations and Aboriginal parties, indigenous people will be hired locally to assist in conducting the workshops. **Completion date: June 15, 1995**

- **Phase Two**, although not required to satisfy the current EIS guidelines, is offered to the parties to assist them in preparation of a baseline of indigenous knowledge to facilitate future environmental and socioeconomic monitoring of impacts
- **Phase Two** will be designed on the basis of information collected during **Phase One** and in consultation with the parties. The Dogrib Treaty 11, the Yellowknives Dene Treaty 8, and the Inuit will be contracted to work with Dr. Marc Stevenson to carry out this phase. The roles of native institutions such as the Dene Cultural Institute and Inuit Cultural Institute during this phase will be determined by the parties involved. **Completion date: December 31, 1996.**
- BHP's funding commitment for the **Phase Two** program shall not exceed \$325,000.00 (Dogrib Treaty 11: \$100,000, Yellowknives Dene Treaty 8. \$100,000; Inuit \$40,000; Project Coordination and Administration: \$85,000.)
- Successful completion of **Phase One** according to the proposed schedule is a requisite for the initiation of **Phase Two**
- Provided that the two phases outlined above were satisfactorily completed and agreed to by the participants, First Nations and Aboriginal firms would be considered to participate in future environmental monitoring work
- The parties agree that all the information obtained during this program will be kept confidential and shall not be disclosed to each other nor to third parties during or after the program except for 1) that information which is gathered for **Phase One** or 2) by agreement of BHP and the native group who supplied their confidential information. Subject to the foregoing, each group will maintain their ownership and control of the information that they supply to the program.

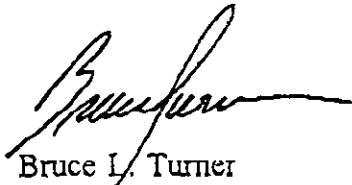


*Traditional Knowledge and  
Environmental Impact Assessment*

*Page 3*

After discussions with all the parties, BHP considers the above program fair, feasible and attainable. Please sign in the space provided below indicating your agreement and acceptance of this proposal, so that we may get the project formally underway.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce L. Turner", with a long horizontal flourish extending to the right.

Bruce L. Turner  
Project Manager  
BHP Diamonds Inc

Encl.

BLT/3-95088 LTR:bb

AGREED TO AND ACCEPTED THIS \_\_\_\_\_ DAY OR \_\_\_\_\_, 1995.

By: \_\_\_\_\_  
Grand Chief Joe Rabesca  
Dogrib Treaty 11 Council

By: \_\_\_\_\_  
Chief Darrell Beaulieu  
Yellowknives Dene

By: \_\_\_\_\_  
Dr. Marc Stevenson  
Anthropologist  
University of Alberta

By: \_\_\_\_\_  
Chief Jonas Sangris  
Yellowknives Dene

By: \_\_\_\_\_  
Joe Allen Evyagotailak  
President  
Kitikmeot Inuit Association



Kitikmeot Inuit Association  
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June 12, 1995

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Coppermine  
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Holman  
Ulukhaktuk  
ᑕᑭᑭᑭᑭᑭᑭ

Pelly Bay  
Akvilikyoak  
ᑕᑭᑭᑭᑭᑭᑭ

Taloyoak  
ᑕᑭᑭᑭᑭᑭᑭ

Bathurst Inlet  
Kingaok  
ᑕᑭᑭᑭᑭᑭᑭ

Bay Chimo  
Omingmaktok  
ᑕᑭᑭᑭᑭᑭᑭ

Bruce Turner  
Project Manager  
BHP Diamonds Ltd  
1050 West Pender St.  
Suite 1600, Vancouver, BC  
V6E 3S7

**Re: Traditional Knowledge and Environmental Impact Assessment**

Subsequent to your letter of April 28th regarding the above noted caption

On behalf of the Executive Committee it is my pleasant task to announce that a consensus was reached to support your proposal to document the environmental and social economic concerns with respect to the Traditional Knowledge portion of the Environmental Impact Statement for the N.W.T. Diamonds Project.

Accordingly, attached is the document duly signed as you requested. In the interim, if you have any further questions I would be happy to try and answer them.

Yours truly,

Joe A. Evyagotailak  
President

cc Fred R. Elias

RECEIVED  
JUN 19 1995  
BHP MINERALS CANADA LTD  
VANCOUVER, B.C.



BHP DIAMONDS INC.  
NEW BUSINESS DEVELOPMENT

*Facsimile Communication*

DATE: May 8, 1995

TO: John B. Zos  
Dogrib Treaty 11 Council

CC: Bruce Turner  
Dan Johnson  
Terry Janes  
Karen Azinger  
Jim Carlson  
Clem Pelletier, Rescan  
Marc Stevenson, Consultant

FACSIMILE NUMBER: Auto

FROM: David Boyd

TOTAL NO. OF PAGES INCLUDING HEADER 2

If there is a problem with this transmission please telephone (403) 669 0292

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OUR FAX NO. IN YELLOWKNIFE, NWT IS (403) 669-9293

---

**AGREEMENT BETWEEN DOGRIB TREATY 11 COUNCIL AND  
BHP ON PHASE I OF DOGRIB TRADITIONAL KNOWLEDGE REPORT  
FOR BHP DIAMONDS ENVIRONMENTAL IMPACT STATEMENT**

**Purpose of Report**

The Dogrib Treaty 11 Council will provide BHP, the Proponent for the NWT Diamonds Project, a report on traditional knowledge to be used in the Proponents Environmental Impact Statement for the Project. This report will complement the report already being prepared by Marc Stevenson, using existing documented information relevant to traditional knowledge. These two reports will form the EIS traditional knowledge submission.

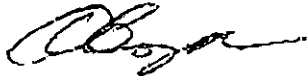
**Terms of Agreement for Phase I**

- The Dogrib Treaty 11 Council will receive \$30,000.00 (thirty thousand dollars) from BHP for undertake research and providing a Dogrib Traditional Knowledge Report
- The Dogrib Treaty 11 Council will receive payment of this sum from BHP as follows:
  - \$15,000 (fifteen thousand dollars) payable on Monday, May 8, 1995

..12

- \$7,500 (seven thousand five hundred dollars) payable on Monday, May 29, 1995
- \$7,500 (seven thousand five hundred dollars) payable on the receipt of and acceptance by BHP of the final report (no later than June 15, 1995).
- ▶ The Dogrib Treaty 11 Council will retain ownership and control over the data generated by the Dogrib Traditional Knowledge Report.
- ▶ The Dogrib Treaty 11 Council will provide a final report on Dogrib Traditional Knowledge to BHP by June 15, 1995.
- ▶ The Dogrib Treaty 11 Council will provide a verbal report on the progress of this Dogrib Traditional Knowledge project to Dr Marc Stevenson on a weekly basis.
- The Dogrib Treaty 11 Council will liase with Dr. Marc Stevenson on or before Friday, June 2, 1995 regarding the final report format to ensure that this report and Dr Marc Stevenson's report complement one another.

Regards.



David E. Boyd  
Human Resource Manager

**MEMORANDUM OF AGREEMENT BETWEEN  
STEVENSON AND ASSOCIATES**

**AND**

**THE DENE NATION  
TO PRODUCE TRADITIONAL ECOLOGICAL KNOWLEDGE**

*Introduction*

Under the Environmental Impact Statement (EIS) Guidelines for BHP Diamonds Inc proposed diamond mine at Lac de Gras, NWT, BHP is required to "give full and equal consideration to traditional knowledge in assessing the effects of the project " As part of this requirement, data contained within the Dene Mapping Project data base will have much to contribute

*Contract Terms*

Stevenson and Associates (hereafter known as the client) will retain the services of the Dene Nation to produce traditional ecological/environmental knowledge (TEK) that will assist the client in documenting and addressing the concerns that Dene First Nations people will have about the environmental impacts of the proposed BHP diamond mine in the Lac de Gras area. The Dene Nation will produce generic data on wildlife and land-use in the development area (e g , locations of caribou crossings, fish lakes, etc.) and other TEK that will inform the environmental concerns of the First Nation peoples impacted by the project The Dene Nation will provide to the client land-use information specific to the following First Nation communities Yellowknife, Dettah, Lutsel K'e, Rae-Edzo, Snare Lakes, Lac La Martre, and Rae Lakes. It is understood that the client will not request the documentation of any specific or cultural information on land occupancy which could hinder or jeopardize present treaty and claims negotiations by the Dogrib Treaty 11, and Yellowknives/Treaty 8 Dene

*Product Delivery*

The consultant will provide information on TEK to inform the client's objective of documenting and addressing First Nations people's concerns about the environmental impacts of the project It is anticipated that most, if not all, of this information will be provided in installments before June 15, 1995.

*Payment Schedule*

On the signing of this contract, the client will forward to the Dene Nation \$10,000 00

On receipt of TEK data requested and produced by June 15, 1995, the consultant will forward to the Dene Nation \$10,000.00.

On receipt of TEK information requested prior to August 30, 1995 the client will forward to the Dene Nation \$10,000 00 for final payment

*Cancellation of Agreement*

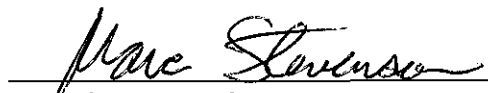
This contract will become invalid should either party not, for whatever reasons, uphold the terms and conditions of this agreement. Cancellation of agreement will require 30 days notice in writing.

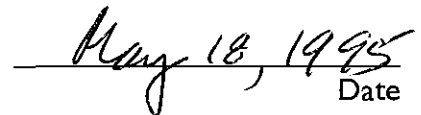
*Amendments to Contract*

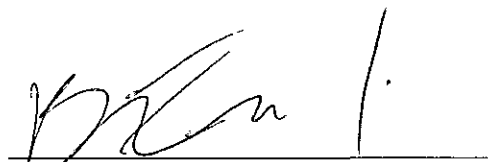
Only upon the mutual consent and agreement of both parties in writing, may this contract be amended.

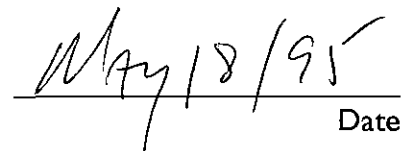
*Liability*

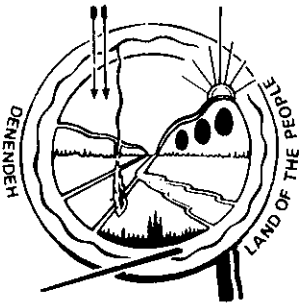
The Dene Nation will provide the client only with traditional ecological knowledge and information that it considers appropriate. The Dene Nation retains exclusive control and ownership of the data provided to the client. These data cannot be used by the client or BHP for any purpose, other than that outlined above, without the written permission of the Dene Nation. Use of data requested requires explicit acknowledgement to the Dene Nation.

  
\_\_\_\_\_  
Marc Stevenson for  
Stevenson and Associates

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
William Erasmus for  
Dene Nation

  
\_\_\_\_\_  
Date



**DENE NATION**  
**DENENDEH NATIONAL OFFICE**

P O Box 2338  
Yellowknife, N W T  
XIA 2P7

Phone: 873 4081  
Fax: 920-2254

June 28, 1995

Marc Stevenson  
Stevenson and Associates  
11207 - 48th Avenue  
Edmonton, AB T6H 0C8

Dear Mr. Stevenson,

Please find enclosed maps that are relevant to B.H.P. in their Environmental Impact Statement. Those maps marked with an (x) were previously released to you.

As per our agreement of May 18, 1995 it is understood that Dene Nation has ownerships of the maps and gives permission to only use them for the above purposes. I trust you are satisfied with the quality of the information and will proceed with the next payment as agreed to .

Sincerely,

Bill Erasmus  
Dene National Chief

95/96 - 746





Yellowknife Dene Band  
Box 2514, Yellowknife, N.W.T. X1A 2P8

Detah: Ph. (403) 873-4307 Ndilq: Ph. (403) 873-8951  
(403) 920-4089 (403) 873-8952  
Fax: (403) 873-5909 Fax: (403) 873-8545

95 MAY 31  
OUR FILE #L&E303.BHP

Jim Excell, Project Manager  
BHP Diamonds Inc, BHP Minerals Canada Ltd,  
1050 West Pender Street  
Suite 1600  
Vancouver, BC  
V6E 3S7

By Facsimile (604) 682-2667

Dear Sir

**Re.: Socio-Economic Data and Traditional Knowledge in Draft MOA  
for Environmental Assessment Review**

Please find enclosed a copy of our letter to the EARP Panel reviewing potential impacts from your company's proposed project. As you can see, we are requesting further clarification of the panel's expectations with regard to the inclusion of traditional knowledge in the EIS that your company is to prepare.

We have received from Marc Stevenson, a draft Memorandum of Agreement, which is closely based on the letter sent to us by Bruce Turner on May 1, 1995. We have addressed some of the issues relating to this draft MOA in our letter to the panel. We have prepared a draft Memorandum of Understanding (MOU) that represents our recommended approach, and enclose it for your examination.

In general, we are gravely concerned about the unrealistic times suggested if our traditional knowledge is to be documented in a respectful manner. A more realistic schedule is included in the methodology with our draft MOU. We feel we should also point out that the documentation of indigenous ecological knowledge would not yield any socio-economic data; as you will see, those matters do not appear in our draft.

Please advise us of your response to our draft MOU at your convenience.

With respect

  
Chief Jonas Sangris

  
Chief Darrell Beaulieu

cc: Marc Stevenson

Chief Felix Lockhart, LKDFN



Yellowknives Dene Band  
Box 2514, Yellowknife, N.W.T. X1A 2P8

Detail: Ph. (413) 873-4307    Ndilo: Ph. (413) 873-8951  
(413) 921-4183    (413) 873-8952  
Fax: (413) 873-5909    Fax: (413) 873-8545

## **MEMORANDUM OF UNDERSTANDING**

**BETWEEN**

**BHP DIAMONDS INC /  
BHP MINERALS CANADA LTD**

**&**

**YELLOWKNIVES DENE FIRST NATION**

**regarding**

**the documentation of  
Tattsanotine (Yellowknives Dene) knowledge  
about their traditional and current use lands  
around Egati (also known as Lac de Gras)  
for inclusion in BHP's  
Environmental Impact Statement  
to the EARP Panel Assessing BHP's Proposed  
Diamond Mine Project**

## **PRINCIPLES OF UNDERSTANDING**

**WHEREAS** members of the Yellowknives Dene First Nation are descendants of the Tattsanotine, who used lands including those around Egati (Lac de Gras) for generations — and

**WHEREAS** Yellowknives Dene Elders and experienced land users know and understand the knowledge passed orally of lands used by the Tattsanotine, including those lands still used by the Yellowknives Dene around Egati (Lac de Gras) — and

**WHEREAS** Yellowknives Dene First Nation has developed policy guidelines for the collection, recording, and use of our community's traditional knowledge and for the protection of our intellectual property rights — and

**WHEREAS** the Yellowknives Dene Traditional Knowledge Policy allows for the preparation of secondary information based on our Elders' and experienced land users' primary knowledge, and for the public presentation only of secondary information based on our primary traditional knowledge — and

**WHEREAS** the Yellowknives Dene are directly involved in the government of Canada's Environmental Assessment Review Process set up to assess potential environmental and socio-economic impacts of BHP's proposed diamond mines near Egati (Lac de Gras) — and

**WHEREAS** BHP Diamonds Inc/BHP Minerals Canada Ltd, in writing on April 28, 1995, requested Yellowknives Dene co-operation to enable the company to include their traditional knowledge in BHP's Environmental Impact Statement in order to fulfil the EARP panel's EIS guidelines to "give full and equal consideration to traditional knowledge" — and

**WHEREAS** BHP wrote to the EARP panel on March 10, 1995, expressing its willingness to integrate traditional knowledge throughout its Environmental Impact Statement, and the Yellowknives Dene First Nation genuinely wishes to provide appropriate and relevant secondary information based on their traditional knowledge so that BHP can do so — and

**WHEREAS** BHP has offered funding to acquire the information it needs from the Yellowknives Dene, funding which is not at present available from any other source, including EARP intervenor funding —

**THEREFORE**, BHP Diamonds Inc/BHP Minerals Canada Ltd and the Yellowknives Dene First Nation agree to the articles in this Memorandum of Understanding in agreement with these principles.

## ARTICLES OF AGREEMENT

- 01 The methodology, in Appendix A, describes how Yellowknives Dene will provide appropriate and relevant information for BHP's Environmental Impact Statement.
- 02 BHP Diamonds Inc/BHP Minerals Canada Ltd can disburse funds to Yellowknives Dene First Nation according to its specified arrangements, and will provide written criteria which Yellowknives Dene First Nation must meet to continue receiving funds.
- 03 All traditional knowledge purporting to be from or about the Tatsnonotine or Redknives or Weledah or Wuledah or Yellowknife River Indians or Yellowknives Dene for presentation to the EARP panel must be authenticated by Yellowknives Dene First Nation Elders.
- 04 Yellowknives Dene First Nation reserves the right to reject the authenticity of any information it provides to BHP that is altered, misinterpreted, or changed in context in such public documents as the EARP panel Environmental Impact Statement.
- 05 Either party can stop these arrangements at any time by alerting the other party in writing with reasons thirty (30) days before the agreement is to stop, and with the possibility that the Yellowknives Dene can rectify unsatisfactory arrangements.
- 06 The methodology for collection of information for BHP will follow the traditional knowledge guidelines of the Yellowknives Dene First Nation.

*Signed*

FOR BHP

FOR YELLOWKNIVES DENE

\_\_\_\_\_  
Project Manager  
NWT Diamonds Project

  
Chief Jonas Sangris

\_\_\_\_\_  
WITNESS

  
Chief Darrell Beaulieu

DATE: \_\_\_\_\_

\_\_\_\_\_  
WITNESS

DATE: \_\_\_\_\_

## **Appendix A**

### **Methodology for Yellowknives Dene First Nation To Collect Primary Traditional Knowledge about Egati & Transform it into Secondary Data for Public Presentation**

**1995**

**June**

- Yellowknives Dene select project workers, who collaborate with Elders and experienced land users to prepare for site visits and community activities

**July**

- Dene project workers & Elders visit sites around Egati, tape and film interviews and prepare rough maps

**August**

- No activity while the fall hunt occurs in our traditional and current hunting grounds around MacKay Lake.

**September  
to  
November**

Dene project workers:

- continue interviewing Elders
- transcribe taped interviews and verify transcriptions with Elders
- prepare proper maps from rough site maps and interviews of primary data, and
- begin community discussions about what to put on secondary maps for public presentation to BHP and the EARP panel

**December**

- Conduct and record community discussions about what information can be presented to BHP and to the EARP panel, and what form it should take

**1996**

**January**

- Preparation of Yellowknives Dene report with maps, of secondary information according to approved community direction
- Consultation with Lutsel K'e Dene Elders to compare findings

**February**

- Submission of final report to Yellowknives Dene leadership for approval

**March**

- Presentation of final report simultaneously to BHP and EARP panel



*Metis Heritage Association*

P.O. Box 1375

Yellowknife, NT, X1A 2P1

Phone 873-3505

Fax 873-3395

**Metis Prospectors of the Slave Geological Province:  
A Preliminary Proposal**

Submitted by  
the Metis Heritage Association (MHA)  
of the Northwest Territories  
5125 52nd Ave.  
Yellowknife, NWT

To  
BHP Diamonds Inc.  
Suite 1102 - 4920 52nd Street  
Yellowknife, NWT, X1A 3T1

May 29, 1995

## Proposal Background

Metis voyageurs arrived in the Mackenzie Basin with the first wave of European fur traders in the late 18th century. The Native mixed blood descendants of the Scottish, French, and English traders formed the backbone of the fur trade work force. They accompanied the early scientific parties and some as in the example of Charles Cammell, eventually became major players in the geologic exploration of Canada. With a knowledge of prospecting, gained through apprenticeship to government and private geologists, the Metis were significant players in the rush to Great Bear Lake, which led to production of radium and uranium. Following Great Bear, Metis prospectors, often living a traditional Native lifestyle off the land, helped explore the Slave Geologic Province over the next 60 years. They are responsible of a number of the barren land gold strikes. Today the knowledge of these pioneers stands to make a unique contribution to the environmentally safe production of diamonds in the Northwest Territories. Combining the skill of the prospector and traditional Native ecological knowledge learned on the knees of their Dene mothers, these individuals have the potential to provide a unique and balanced perspective of the impact of diamond mining.

## Project Objectives

The goal of this proposal is to demonstrate the potential contribution of the Metis prospector to BHP's Traditional Knowledge studies by proposing a pilot project, designed to make a contribution to BHP's upcoming EIS. From a Metis perspective, this initiative will give voice to people who would otherwise not be heard through the traditional knowledge initiatives being conducted with Treaty 8 and 11. It is our intent that this pilot be modest in scope so that it can be completed within a very tight time frame that would allow our people to have a voice in the upcoming EIS.

With this in mind, we propose to do interviews with 5 Metis prospectors, who have a sound understanding of traditional Native knowledge. This pilot is designed to produce a series of transcribed interviews, the last of which will be completed and provided to Marc Stevenson at Rascan, by June 10, 1995. Obviously, this very small project will hardly scratch the surface of our peoples traditional knowledge. We hope it will demonstrate both to BHP and the members of the BHP Diamond Mine Environmental

Assessment Panel the importance of continuing to involve our people in the traditional knowledge studies which we believe must accompany the establishment, operation, and eventual abandonment of the Lac de Gras properties in particular, but should also accompany all activities of this nature.

The original transcripts, maps and tapes from the project will remain the property of the Métis Heritage Association. They will contribute to the production of a scholarly narrative study of our history. Research for "The History of the Metis of the Mackenzie Basin, 1790-1990" has been an ongoing research objective of our organization for the past several years. This project will make an important contribution to that effort.

A handwritten signature in dark ink, appearing to read "G. Bohnet", followed by a long, horizontal, slightly wavy line that extends to the right.

Gary Bohnet,  
Chairman,  
Métis Heritage Association N.W.T.



## Budget

This project will make use of permanent Métis Heritage Association staff who will do the actual interviews in consultation with BHP's traditional knowledge consultants, and the addition of temporary clerical staff to type the transcripts into our computer system. We are requesting BHP to cover ten days of Métis Heritage Association staff time and provide 10 days for temporary clerical services. In addition there will be a budget for elders fees, travel, administration fees, telephone fees and supplies.

### Métis Heritage Association Proposed budget 1995

1.	Fee Schedule		
	Interviewer fee	( \$300.00 per day x 5 days )	1500.00
	Elders fee	( \$300.00 per day x 6 days )	1800.00
	Transcriber fee	( \$15.00 x 8 x 10 )	1200.00
	Total Salaries		4500.00
2.	Travel costs		
	Car and boat travel( Rental )		250.00
3.	Telephone cost	( 20 hrs. @ 1.60 per minute )	1200.00
	( Interview cost )		
4.	Supplies		
	Maps	300.00	
	tapes	230.00	
	Batteries	60.00	
	sub-total	.	590.00
5.	Administration Fee @ 15%		1089.00
	Total		\$8349.00



## Appendix I - A6

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### Interview Guide for Phase I Traditional Knowledge Study

Prepared by Marc Stevenson

Interviewers were requested to use this guide to provide a context for interviews focused on the environmental and socioeconomic concerns of Dene, Inuit and Metis. This guide contains a brief description of proposed activities related to the NWT Diamonds Project and their effects, followed by interview questions. A full explanation of the methods used to formulate this guide appears in Appendix I - A4. This interview guide served as a basis for interviews, however, interviewers modified and changed the questions where they felt it was appropriate. Responses to these questions are synthesized in Appendix I - A1.

#### Environmental Impacts

##### A) Roads

There will be increased traffic on the Lupin mine winter road, but only for three months of the year when the winter road is operable. Ten miles of permanent access roads in the vicinity of the mine site have been built and another 20 miles of access road is planned. The latter road is planned to go on top of an esker or on lower permafrost areas, where quarried waste rock will be necessary.

##### *Questions*

- 1) what effects will increased traffic on the Lupin winter road have on wildlife?
- 2) what impacts will permanent access roads in project area have on wildlife? water?
- 3) what affects will the proposed 20 mile access road have on the esker? on denning habitat for carnivores? on permafrost?
- 4) how will these impacts affect you? your lifestyle? your people?

##### B) Airstrip

BHP has already built a 1 2 mile gravel airstrip for 727, 737 and Hercules aircraft

### *Questions*

- 1) what impacts will this airstrip have on wildlife around the mine site?
- 2) how will these impacts affect you? your lifestyle? your people?

### **C) Camp Construction**

Construction will concentrate human activities within a 25 sq. mile area, creating noise, dust, smoke, exhaust gas, and other forms of pollution which will affect wildlife. Grading and paving will compact and remove vegetation. Erection of buildings and facilities will degrade permafrost.

### *Questions*

- 1) how will human activities during construction disturb, displace, and harm wildlife?
- 2) how will these impacts affect you? your lifestyle? your people?
- 3) will damage to permafrost and vegetation ever be repaired? if so, how?

### **D) Camp Operations**

Wildlife will either become habituated to the mine site, or driven off through noise, dust, smoke, and other forms of pollution.

### *Questions*

- 1) which animals will be driven away?
- 2) which animals will be attracted to site?
- 3) how will these impacts affect you? your lifestyle? your people?
- 4) how do we lessen these impacts?

### **E) Draining Lakes and Stream Diversion**

All five lakes overlying the kimberlite (diamond-bearing) deposits will be drained sequentially as the preceding pit is abandoned. This will destroy fish food organisms and fish habitat. Fish will be removed from each lake and restocked in other lakes or given to local communities. Diversion channels will be built to permit fish to travel from one lake to another before they are drained.

### *Question.*

- 1) how do you feel about draining lakes?

- 2) how do you feel about the catch and release of fish?
- 3) how will fish in lakes yet to be drained adapt to these channels?
- 4) how will these impacts to fish and the local water system affect you? your lifestyle? your people?

**F) Removal of Lake Bottom Sediments and Waste Rock**

After draining, lake sediments and unconsolidate overburden will be removed for use in construction of roads and/or as soils for reclamation purposes. This will destroy vegetation and terrain around lakes. Waste rock (granite) will be used in road construction or deposited in dumps beside the open pits and contoured to blend with the landscape. Granite rock has negligible potential for acid generation.

*Questions*

- 1) what will/could happen to the animals if waste rock releases acids and heavy metals into environment?
- 2) how will these impacts affect you? your lifestyle? your people?

**G) Open Pit Operations**

Most of the rock excavated (99,000 to 18,000 tonnes per day) will be blasted from surrounding rock and removed from open pit operations. Waste rock not hauled to the crusher will be used in the building of roads and building pads or deposited in waste dumps beside the pits and contoured to blend in with the topography. Vegetation and terrain around lakes will be destroyed.

*Questions*

- 1) how will the dust generated by these activities affect the wildlife? vegetation?
- 2) how will blasting affect wildlife?
- 3) how will these impacts affect you? your lifestyle? your people?

**H) Processing Operations and Disposal of Tailings**

135 million tonnes of kimberlite ore will be processed over the life of the project. After crushing, the larger sediment (1/25 of an inch or more in size) will be hauled to the waste dumps. The smaller fraction (80%) will be thickened and discharged into Long Lake and abandoned pits. Long Lake will be progressively drained and filled with tailings by a series of dikes. This will raise the lake level by about 30

feet, which will require the construction of an impoundment barrier. A permanent dam and spillway will be built at the south end of Long Lake to control water discharge. After Long Lake is filled, tailings will be deposited in exhausted pits. Tailings will be deposited under ice in winter. Fish will be progressively removed as dikes are built and restocked or delivered to communities.

*Questions*

- 1) how will fine sediments and tailing suspended effect water quality and fish habitat downstream?
- 2) what will happen downstream to fish if dikes or impoundment barrier fail?
- 3) how will these impacts affect you? your lifestyle? your culture?

**I) Power for Mine Operations**

Six 44 megawatt diesel generator will supply power to the mine site requiring 15 million gallons of storage capacity.

*Questions*

- 1) what effects will the generators have on the environment and wildlife?
- 2) what effects will the storage of fuel have on the environment and wildlife?
- 3) how will these impacts affect you? your lifestyle? your people?

**J) Waste Management**

Domestic sewage and waste water will be treated in a sewage treatment plant and eventually pumped into the tailings impoundment area. Antifreeze will be recycled as much as possible with unuseable antifreeze being stored on site until shipping to Alberta. domestic garbage will be incinerated on site with ash and other non-combustible waste being buried in rock dumps. Waste oil and grease will be burned as fuel on-site or stored and sent out to be recycled.

*Questions*

- 1) how will the disposal of sewage effect the environment?
- 2) how will antifreeze leaks and spills effect the environment?
- 3) how will non-combustible solids such as metal effect the environment?
- 4) how will antifreeze leaks and spills effect the environment?
- 5) how will these impacts affect you? your lifestyle? your people?

### **K) Direct Terrestrial Impacts (General)**

Vegetation and terrain will be destroyed and permafrost altered directly through campsite activities, removal and disposal of waste rocks, disposal of tailings, construction of buildings, etc. Land disturbance in permafrost areas will cause erosion of soil and alter drainage patterns. Fish and small animal habitat in project area will be lost through road construction and earth removal.

#### *Question*

- 1) how will these impacts affect you? your lifestyle? your people?

### **L) Indirect Terrestrial Impacts (General)**

Wildlife and aquatic habitats will be indirectly impacted through alteration of diversity and abundance of species, changes in moisture regime, excessive dustfall on vegetation, and spillage of hazardous materials. Migration patterns will be disturbed. Increased noise levels and garbage disposal problems will alter animal behaviour. Animal/human encounters, animal/vehicle encounters, hunting pressure and fishing pressure will increase. Denning sites for wolves, fox, and grizzly will be destroyed by road construction.

#### *Question*

- 1) how will these impacts affect you? your lifestyle? your people?
- 2) can permafrost ever be repaired?
- 3) will migration patterns and animal behaviour ever return to normal?

### **M) Aquatic Impacts (General)**

Draining lakes will eliminate fish habitat by removing lakes from production. Disposal of tailings in Long Lake will gradually eliminate fish habitat from this lake. Angling pressure by mine employees will increase.

#### *Question*

- 1) how will increased suspended solids deposited in lakes affect fish?
- 2) how will these impacts affect you? your lifestyle? your culture?

### **N) Reclamation**

After excavation of the kimberlite deposits, the five pits will be refilled naturally through rain, snow, and run-off. All buildings, machines, storage tanks, etc. will

be removed. Access roads and culverts will be removed. Land rehabilitation (planting and seeding) efforts will be conducted.

*Questions*

- 1) will all this mining activity will the land ever recover?

**O) Environmental Monitoring**

BHP will conduct baseline studies to evaluate and monitor long-term environmental impacts.

*Questions.*

- 1) how do you feel about aboriginal people being used in environmental monitoring of impacts?
- 2) how do you feel about the use of traditional knowledge in the long-term environmental monitoring of impacts?
- 3) how do you feel about scientists and their knowledge about wildlife?

**P) Previous Experience with the Impacts of Other Mines**

Many aboriginal people have previous experiences with other mines and industrial developments. This experience can shed light on the environmental impacts of the BHP diamond mine and their resultant management.

*Question*

- 1) what previous experience do you have with the impacts of other mines on wildlife and the environment?
- 2) how did they affect wildlife? the land? which species were affected? how?
- 3) how will these impacts affect you? your lifestyle? your people? your community?
- 4) will the BHP Diamond mine at Lac de Gras produce similar effects? if so, how?
- 5) can TEK play a role in helping to restore the land after the mine is finished?

**Q) Other Environmental Concerns**

There may be other concerns that people will have about the environmental impacts of the BHP Diamond mine



- 1) do you have any other concerns or fears about the environmental impacts that this mine will have on you? your lifestyle? your people?
- 2) from your experience with other developments, do you have any suggestions?

**R) Rating of Environmental Impacts**

People may be more concerned about some impacts than others. It would be good to know how people rate their environmental concerns.

*Questions*

- 1) what is your most serious environmental concern?
- 2) list other concerns you have from the most serious to the least serious

**Socioeconomic Impacts**

**A) Foreign Names of Lakes and Kimberlite Pipes**

BHP has given names to the five lakes that it will drain and excavate names. They are Misery, Panda, Koala, Fox and Leslie. Many aboriginal people feel that these names are offensive and do not recognize their connection, use, and ownership of the project area.

*Question*

- 1) how do you feel about this?

**B) Employment in Mine**

Many aboriginal people were concerned that they would only get low-paying, unskilled, short-term labour jobs in the mine. Many wanted the opportunity to be trained and to receive experience in management and decision-making positions.

*Question*

- 1) in what ways could aboriginal people become more involved in management and decision-making jobs in the mine?

**C) Shift Work and Family Disruption**

BHP has proposed a 2 week-on/ 2 week-off shift rotation for mine employees. Many native people felt that this arrangement will contribute to family and social problems.

*Questions*

- 1) what kind of problems would the 2-week shift rotation create?
- 2) would a different rotation (e g , 1 week-on/ 1 week-off) be any better?
- 3) what suggestions do you have for reducing the potential problem of family separation caused by shift rotation?

*suggestions to date.*

- counselling for women and families in communities
- counselling for men in mine

#### **D) Ethnic Conflict and Tensions in Mine**

Some people were concerned that interaction between native northerners and non-native southerners at the mine will have a negative social impact on aboriginal mine employees.

*Questions*

- 1) in what ways could southerners have a social impact on northern native people employed in the mine?

#### **E) Loss of Youth and Women**

Many elders, especially in the smaller settlements, were concerned that the loss of young people to the mine would contribute to the breakdown in traditional values and obligations to family members

Elders also felt that, by not participating in the native economy, young people would be left without skills and knowledge to survive off the land

This disruption may not only harm the transmission of aboriginal knowledge and skills to younger generations, but it may contribute to a loss of identity and place for young people who might feel that they belong to neither the aboriginal community or urban society

*Questions*

- 1) in what ways would the loss of young people to the mine have a negative impact on aboriginal communities?
- 2) do you have any suggestions that would help younger people working in the mine develop a sense of community spirit and responsibility to their kinsmen, while maintaining their connection to the land?

#### **F) Loss of Hunters/Trappers**

Many of the more productive hunters and trappers in the local economy may be attracted to jobs in the mine as a means of increasing their financial independence and spending power. The loss of some of the most productive people in the community may have negative impacts on the community.

##### *Questions*

- 1) what would be the most serious impacts?
- 2) what would be the best ways to lessen these impacts?

#### **G) Disruption to Traditional Economies: Strengthening Local Economies: Erosion of Traditional Lifestyle**

Many aboriginal people, just didn't want jobs in the mine, they wanted their own economies, lifestyles, and economies strengthened by mining activity, especially if they were related to activities on the land (e.g., hunting, fishing, trapping, sport guiding, etc.) Some leaders recognized that there was a need to maintain culture values and traditions while developing political and economic stability.

##### *Questions*

- 1) how can BHP contribute to strengthening traditional activities on the land? local businesses? political stability?

##### *Suggestions to date*

- country food from hunters/local businesses to feed mine employees
- by furs from local trappers to make winter clothing for mine employees

#### **H) Introduction of Wage Labour: Negative Effects of Increase Income in Community: Inappropriate Use of Money**

Some aboriginal leaders and elders felt that a dramatic increase in wage labour positions would result in an increase in social problems such as drinking, family, violence, and sexual abuse.

Many aboriginal people, especially elders, feel that the increase in money coming into the community will contribute to the breakdown of traditional values whereby money will become more important than traditional values of sharing and obligations to extended family members. Country food is easy to share, paycheques aren't.

Also, some people felt that conflicts and social inequalities will be created when some people in the community will have jobs, while others will not.

Many elders were concerned that the young people employed in the mine will spend their money foolishly on alcohol/drugs or other inappropriate uses, especially if they are flown from the mine directly to Yellowknife. Elders want young people to spend their money on things that could benefit their families, parents, and communities (e.g., ski-doo's, boats, hunting equipment, etc.).

### *Questions*

- 1) in what ways could the social problems in the communities that might result from increased employment in the mine be prevented?
- 2) how do you think young people can be encouraged to spend their money productively?
- 3) in what ways could younger people uphold their obligations to other family members when employed by the mine?
- 4) what is the best way to distribute jobs in the community so as to avoid social inequalities and conflicts?

### **I) Influx of Non-natives**

1,000 men, mostly non-native, will be hired during the construction phase of the mine. Many non-natives will also work for the mine, especially if aboriginal people find difficulty in adjusting to jobs in the mine. Some aboriginal people fear that this influx of non-natives will result in a loss of identity, culture, and lifestyle.

### *Questions*

- 1) will the influx of outsiders have a negative impact on the aboriginal peoples and communities of the area? If so, in what ways?

### **J) Mine Has Contributed to Tensions Between Dene Groups**

Both the Dogrib Treaty 11 and the Treaty 8 Dene claim ownership to the land on which the proposed mine is located. Each group is also pursuing a different process with the federal government to have their rights to this and other lands recognized. Elders do not like the inter-tribal tensions this mine has created.

### *Questions*

- 1) in what ways do you think these tensions could be reduced?

**K) Loss of Archaeological Specimens, Burial Sites, and Cultural Heritage**

Potential disturbances to archaeological specimens and burial sites, as well as the collection of artifacts by outsiders is considered a threat to the cultural heritage of many aboriginal connected to the area

*Questions*

- 1) how can the threat to this cultural heritage be prevented?

**L) Separation of Socioeconomic and Environmental Impacts**

Many aboriginal spokesmen rejected the notion of separating socioeconomic from biophysical impacts as this division does not recognize how the two related in the minds of many aboriginal people.

*Questions.*

- 1) in what ways can BHP be educated as to the importance of the connection between environment and society in aboriginal minds?

**M) Length of Operation**

Project will run from 1996 to 2021, for about 25 years, before all five kimberlite pipes are exhausted.

*Questions*

- 1) how do you feel about the length of time this mine will be around?

**N) Previous Experience with Social and Economic Impacts of Other Mines**

Many aboriginal people have previous experiences with other mines and industrial developments. This experience can shed light on the environmental impacts of the BHP Diamonds mine and their resultant management

*Questions*

- 1) what previous experience do you have with the social and economic impacts of other mines?
- 2) how did these impacts affect you? your lifestyle? your people? your community?
- 3) will the BHP Diamonds mine at Lac de Gras produce similar effects? if so, how?

**O) Other Concerns**

Some people may have other concerns about the socioeconomic impacts of the mine that have not been talked about.

*Questions*

- 1) do you have any other concerns or fears about the impacts that this mine will have on you? your lifestyle? your community?

**P) Rating of Socioeconomic Impacts**

People may be more concerned about some impacts than others. It would be good to know how people rate their socioeconomic concerns.

*Questions*

- 1) what is your most serious social or economic concern?
- 2) list other concerns you have from the most serious to the least serious



## **METIS ELDER PERCEPTIONS OF THE PROJECT**

### **INDIVIDUAL RESPONSES**

Many Metis were raised on the “knees of their Native mothers and grandmothers” (Rod Hardy 1995 pers comm to C Hanks). Unlike their Dene cousins, however, they have generally had to make their living in the Euro-Canadian world. While an integral part of the Aboriginal community of the North Slave region, their disparate adaptation has given the NWT Metis a different perspective from many Dene.

Metis hunters, traders, and prospectors have been at the heart of mineral exploration since Alexander Mackenzie spotted the coal deposits along the Mackenzie River in 1789. More recently, they were part of the uranium rush on Great Bear Lake in the 1930s and close to many of the gold plays in the Slave Geologic Province since that time. When the Metis Heritage Association was asked if they wished to participate in a pilot traditional knowledge project, they chose to interview their elder prospectors.

A total of five elders with prospecting and mining experience were interviewed by Gordon Lennie, researcher of the Metis Heritage Association on behalf of BHP in June 1995. This project was designed around an interview guide prepared by anthropologist, Dr. Marc Stevenson. The same instrument was used with the Inuit at Coppermine and in the Aboriginal employee interviews. The guide was modified by the Metis to provide a less structured interview process which made the elders more comfortable. The project was provided technical support by anthropologist Chris Hanks, who has prepared the following summary



The statements below are the responses of four of the interviewees to M1 Lennie's questions. They are, with the exception of minor grammatical changes and explanatory comments in [ ], the words of the interviewees. The editing was done to protect the identity of the interviewees and to turn verbal clauses into written sentences. These comments were compiled from the context of reasonably informal dialogues between M1 Lennie and the elders.

A summary of the raw data provided by the statements below is presented in Volume 4 of the EIS.

## **ENVIRONMENTAL ISSUES**

### *Roads*

- Well, I don't think [the Lupin winter road] bothers wildlife. In the past it hasn't. If an animal is going to have one way, it's going to go and there is nothing that will stop them. I don't see where it's going to be a problem.

It's going to have a little bit of an impact, but not that much really. As long as the people that do travel there [by road] understand what damage could be done [by an accident].

I do not know how it is going to affect the animals.

- Yes, the original plan was, I think, that they use an esker. After they looked there, they thought they were going to interfere with the bears, wolves and people along the eskers. BHP said that they would by-pass the esker. That was their original idea. Now, whether they still go with that, I have no idea. I don't know.

Oh, they [animals] will get used to it, the people, the machines, just like any other place.

Well, I'm all for it. It wouldn't affect me at all. Generally, I don't think it will affect any of the other people either – the Dogrib tribe and the Inuit that come here. It's a plus for them because most of them are going to have jobs. A few of them will be camping nearby, I suppose, but not many of them. I think that it will be a plus.

- There isn't really a migration route there at Lupin, it's more to the east. There is some migration through there, but not that much.

I do not know about that country out there. I have not been out there too much [Lac de Gras]. It is in good gravel and sand hills. Bears always make their dens in those places.

when they make a road, sometimes it does help the trappers. They can make sidelines from it.

No, I don't think [the all-weather roads on site] will affect wildlife.

Well, [trappers] will just have to move, that's all. You know, they will have to detour that part of the country. There's not that many trappers in that area.

Well, it used to be [good trapping]. There used to be a lot of white fox there. Magnum's, they have a cabin southeast of MacKay Lake. They used to get 12,000 a year or more. That was back in, oh hell, that was back in the early 50s and 40s.

- them guys, they don't bother the animals [Lupin]. The migration goes through there every year, the [caribou] start about July/August and they are heading for the timber. It's nothing for them – it's not like the local animals that hang around the mining area where they have all that pollution. It's not like that, they are migrating animals. They're just going, they're going, they don't stop around the mines.

No, they just keep moving. They go into the timber. Some go to Yellowknife after freeze up. They come there on the ice. It's a big migration of caribou that goes through. They start from near Bathurst Inlet around the last week in July. About the 25th of July to the first of August,, they will hit Pellet Lake and go along Contwayto Lake. Then they go around and had northwest of Fort Rae, maybe a hundred miles. They're on the tundra [now].

[Are] the Native people going to get the revenue from building those roads?

It won't affect wildlife in that area. But you see, the wildlife [caribou] migration is not always on line there, sometimes there are no animals at all, period. They are over on the coast by Coppermine and from there they go to Great Bear Lake and the Dempster Highway.

Wolves, there's lots of them. They stay right with the herd. They kill the weaklings and after freeze up, they are just like a bunch of hunters, when they start going from one lake to another, the wolves are waiting for them [caribou] in the bush where the path goes.

Not too many people are hunting now-a-days. They only go where there are caribou – not as far as Lac de Gras. They go to MacKay Lake, Jolly Lake, Lockhart River, but they can't go

any further. If you go to Pellet, or Contwayto Lake it's \$1,250.00 for the airplane fare. Native people can't afford that. The old people save their money and they pool it up and then they charter a plane. The government sometimes puts out \$10,000.00 to get the meat for them. Sometimes they got too much meat. Now-a-days the aircraft costs so much money, it's \$7.00 a mile and that's both ways. If they're taking you out there, you have to pay both ways. .. there's no Native people or hunters that can ever afford that. Maybe sport hunters might do that, but it costs thousands of dollars for a trip.

### *Airstrip*

- I, it does scare away animals. Oh yeah, they come back.

[People have told us, in other interviews, that the tundra does not really carry sound.] No, it doesn't.

In time, they [animals] will get used to it.

- I don't really think that it's going to be much of an impact. I've been at Lupin Mine quite a few times with the Water Board. The planes are landing and taking off, and there is caribou running up and down the side of the strip. It doesn't seem to bother them. As soon as the plane stops all, they just carry on feeding. I have seen them in amongst the buildings and laying up against the fuel tanks in the sun. Now, that was surprising to me, after all the stuff that I read on how was it going to interfere with the caribou. You can go there and see muskox and caribou.
- Lac de Gras is a kind of bad place because sometimes you get caribou and sometimes you don't. There were trappers that lived there years ago, maybe 50 or 60 years ago. White trappers went out there and just about starved because the caribou didn't come. They changed their migration. The mine is not going to affect them.

### *Camp Construction*

- That [camp construction is] going to be a long term thing. It will probably bother them [animals] for awhile. You can't help it.
- . back to Lupin again, I've been around there quite a few times. I've driven around the property by truck. There are ducks in the pond right next to the plant [refinery]. They are in there all the time. It doesn't interfere with them any more than it does in Yellowknife.

- The main thing we must determine is if they are going to keep everything clean. To keep the wildlife [scavengers] away, everything must be clean. This way, if everything is clean, they [bears, wolverines, wolves and foxes] do not come around too often. They pretty much stay away. The main thing is to keep camp clean.
- It won't affect them. Buildings won't affect them. The [caribou] migration will walk right over your heels if you lay down on your belly.

Just leave it [permafrost] the way it is and build on top of it. If you are going to make a road, the best way is just to leave it the way it is because once they touch it, the permafrost will come out and then it will never work right. If they get the go-ahead, just build right on top. That is what we did when we build roads.

Years ago, we build right on top [of permafrost]. If you have rock, then you build a good bottom [base]. When you have a good bottom, the buildings stay. [Prevents settling]

- Once they have finished construction of the airport and the roads, the permafrost will go back into place again in time. I think that the movement of equipment for a year or two, will disturb some of the permafrost, but it will all come back once they are finished. They must use the roads once they are built.

### *Camp Operation*

- Those big rabbits hang around all year. They are around the bunk houses. Well, Lupin is just loaded with them. You can probably take pictures of them there.

Well, you can't drive foxes and wolverines off. There's all kinds of animals there that will probably get used to it, eh.

- Bears and wolves will come around camp looking for food. It does not matter if it [camp] is clean or not, they still wander around. That is the way they are.

If it [the mine] is on their migration route, they [caribou] would probably just pass through camp.

I really don't think that it's going to interfere with any animals.

I don't think it's going to interfere with them [Native land use]. It's going to be a plus for the people. You need a place in the middle of nowhere opening up, where you can go. As far as I know, all these mines in the Arctic cater to the people that travel by. They treat them well. It's not going to interfere with anybody. I've seen practically all of the mines in the North.

- [The noise from camp operation] doesn't make any difference. In the tundra, sound doesn't carry like in the timber. You see, the timber is what causes the sound to carry. But if there's no timber, it's just like out in the lake or the ocean. You don't hear anything.

### *Dewatering Lakes*

- Those lakes are loaded with fish in the spring and fall. That's their spawning ground.

Yeah, one time we built a road from the main cap to the [mine site]. We put in culverts as the grayling were coming up the little creeks. Those were only small creeks. The fish were dead [in the] fall.

- The lakes that I've seen [at the mine], I didn't think would support enough food to feed the fish. If they're going to have those ditches that the fish can use to move around, I don't feel that there is going to be a problem.
- Just save the fish and put them in another lake.

... if all the fish are going to a different lake, you have to handle them right and that is a lot of work.

- I don't think that [transporting the fish to another lake] is going to be a problem. There was a lake west of Eskimo Point that they started to drain. I don't think, in that case, it was necessary because they didn't completely drain the lake. There were a few jackfish in there. They survived until the water came back.

I don't think that [using the channels] causes the fish any problems. They adapt themselves to changes.. [Will] the ditches be deep enough so they won't freeze [to the bottom]?

I really don't think it [draining the lakes] will interfere at all. The fish, like everything else, .. adapt themselves to the conditions they are going to be living in. So long as they don't run out of water, the fish are going to carry on. It is the same with caribou.

They go into a lake without an outlet. What will happen to all those fish that go into that lake. I think they go up there and spawn and I think it is something like the salmon, they all die.

Up there? Well, maybe a half dozen now. There aren't that many people left. Most of them died off, eh. But there are people from Rae, Snare Lakes and Rae Lakes that go to that area.

There's lots of fish all over The whole country is just loaded with fish . it's too far off in the tundra

### ***Removal of Bottom Sediments***

- I don't know I think it will affect them [wildlife] to a certain extent But they should know all this by [now], the mines have been going for the last 20 years You know, they know, it's not doing them any good
- There's no danger of any pollution. That goes into the sump. All that will be worked into the sump with the solution and all that pollution will be in the sump There won't be anything draining into the lake Wildlife don't hang around that They are migrating animals in that country [The comments about a sump refer to part of the gold separation process, which is what these individuals are familiar with ]
- It all depends on the fish

I got to say that it's not going to affect enough to worry about. In that country, it is almost solid rock. It's not all granite, there are different kinds of hard rocks There is more granite than there is any other rock

- Maybe a little pothole, but that won't affect them because the rock is there. It belongs to that place The tailings will be something that hasn't got anything in it. Lose rock, they just blast the rock There is no mineral or anything you are going to extract from the rock. They don't need to put it through a solution

### ***Open Pit Operations***

- . You take the land right now, it's clean and there's nothing there to change it. If you start messing it up, you're going to run into problems.

I can't see where it's going to do any harm There isn't enough vegetation there to worry about, a little bit of moss that you can pick up with your hands

- I do not have much experience in dust and animals I do not [know] whether the animals like it too much

There isn't that much blasting The caribou migration goes through there. Other than that, it's just the odd fox or bear

I do not think it [blasting] will matter much to the animals. I am pretty sure that they will hang around. When there is good feeding grounds for animals, they will not move.

- Well, they have to fence that in. They do in all places anyway. It's got to be fenced in. Open pits are never left open.
- . blasting, it doesn't affect the animals. That country is thousands of miles of big lakes and hills. The animals can be three or four miles away from that mine and they won't even go near there. No because of noise.

### *Processing Operations*

- You take Salameta [Mine], you can't eat the fish in Matthews Lake, it must be about two and a half miles long. The [fish] heads are big and no body. What does that mine use to separate the gold – mercury? That used to be a good lake for trout and people used to go there, right from town [Yellowknife].

So you take all these other mines that are opening up. I think that it is going to end up the same way.

- The fine sediments might interfere with the fish. It will certainly have some impact on the fish, but not that much. I don't think it will kill them all. There aren't that many fish in that general area, until you get into the bigger lakes.

Well, I don't know what effect it [a failed dike] could have in there. If they build a dike, it's not going to break with the kind of materials they have there. From what I've seen, it is nothing but solid rock. [The inference is that shot rock makes very stable dikes.]

[The mines need to pay attention to].. their dams and whatever.

- Yeah, they have got to watch the tailings – if the dams start leaking, they're going to have to come up with something better.

Well, you got to be well protected. Now-a-days, they don't have to have pollution run out. They have ways of absorbing [spills]. They don't have to drain it. They generally make big pits. That is where they put solution to absorb the pollution.

- It's not like Giant Mine draining into Yellowknife Bay and Con Mine draining into Kam Lake. Out there where they're mining, they will get a pit and they will put that solution in there. It's got to be away from the lake [Lac de Gras].

[What happens if a dike fails?] Well, that's when they drain it, but they can't drain it, they have to have an open pit. They have to have a [permanent] sump. They dig a big hole and they put it in there and then fix it up with a solution so it wouldn't affect anything.

### *Power Plant*

- Well, it doesn't do that much harm because the animals stay at a good distance. I don't think that it will be too bad.
- If you want to use some of the other mines as an example, there is no effect on wildlife. It doesn't bother caribou, muskox and bear. They come around anyway.
- Well, as far as I am concerned, we have a lot of camps and there are not problems that I know of. I have not seen many animals that are affected by dust, they always seem to come around.
- That won't affect nothing. In the tundra, it's not like in the bush, you know. It's just like being out in the middle of a big prairie or a big lake or something. You know, the mine could be sitting out there in the middle and it won't affect anything.

### *Waste Management*

- Well, any place that I've been, I've cleaned up the best I could, you know. I don't think you will see animals hanging around them kind of spots, you know, too much. You will get some that might, but most of the time, I think they will stay away.

it would have to be just like they have it in town.

I don't think it's going to have an effect. If they're careful and keep a good watch, there will be no problems.

- [At other mines they] dug a big hole and keep pushing it [trash] in there. Keep it covered good.
- I don't have the permafrost will move back in on [spilled] antifreeze.
- It's just like a needle in a haystack out there with people. It won't affect you. The country is so big and there isn't that much in the country to hurt..



*Direct and Indirect Terrestrial and Aquatic Impacts*

- Well, dams is the only thing that will help I guess they got to build dikes and whatever [that] will hold the sediments back and most of that settles to the bottom anyway. But that is what they are going to have to do, is build dams.

. fence the whole camp.

That whole [Coppermine River] valley is [filled] with geese and swans and they have their young in there

- Yes, there are a lot of geese and swans in there They stay there because they have their young there

Caribou, they change their route just about every year They look for good feed

- I don't see where it's going to interfere with the trappers at all In fact, it will be a plus for them

[Tailings impact on water clarity] It would have an effect on fish Something would have to be done there Fish are a hard thing to understand

No, I would say that it wouldn't interfere with it [caribou] at all. I've seen them on the road there in the tailings area at Lupin Mine You can walk up to them and touch them because they wouldn't go down the side of the hill It's too steep for them They just stand and look at you

- It doesn't make any difference When you take into consideration the experience they had on the Alaskan pipeline, it didn't make a damn bit of difference where they had wild animals like caribou

Well, they're going to have to have a tailings pond they're not going to let it go over the tundra They don't do it any place else So, I don't see how that is going to affect the fish.

[If a containment dam broke] the wildlife will not come back for some time .

it's not good for fish. I don't know if you can eat them Giant [Mine], in the early days, ran all their tailings right into the [Yellowknife] bay. That goddamn arsenic is not helping the fish You're not supposed to eat fish from the bay Still, some [people] are doing it

***Reclamation***

- Oh, yeah Take Pine Point All those pits, they planted grass and now it's a good geese hunting ground They planted grass and made a hell of a good hunting ground in there for geese and ducks That proved a point you know When they cleaned that up, they really cleaned it up

. that country is going to take a long time [to come back].

- Oh, yeah Naturally, that's what they have to do now-a-days Before, they didn't do that and it was dangerous Animals can fall down there. In the barren lands, you don't know whether you're going off a big cliff or going level when there's a white out ..there's no trees to go by Well, you just go by compass, you go by compass and when you get in a white out, you don't travel, you don't move I drove a bombardier on the tundra. Sometimes you can just see the hood, that's all. You don't see anything more, just the hood of your bombardier. [When that happens,] you stay right put for maybe two or three days until it clears up.
- [When] they close down, they will do a proper clean up and everything will be monitored It would be pretty hard to put it back that way but if they do the clean up the right way. then in a couple of years, the animals will be back there again

***Environmental Monitoring***

- It would be a good thing, you know [to have Native people involved in the environmental monitoring] They would have to [train them], there's not too many people that have been to all the mines and know what's happening. You can't put somebody in there and expect them to know what's happening. So, they will have to go and study this stuff Take them out and show them what's happening.

Yes, people know what to do People from the communities. Oh yes, that is the proper thing to do

- [Do you think Native people should be involved in the environmental monitoring?] I don't think so.
- It might be a good idea. They understand the conditions and the environment better than somebody from down south They have a better idea of the environmental conditions and the weather in general

To me, they [scientists] tend to be overly cautious. The procedures that they come out with They say “no, you can’t do this and you can’t do that, and you’re going to hurt the environment.” How the hell are you going to hurt something that’s frozen forever.

No – we used to go to Tundra Mines but it was not to check the mine out I was a game officer; we were on patrol Around Snare Lake, they staked that on speculation, they staked eighty square miles in one place The company does that just to build up their stock market They have gold stocks they promote Now that the gold is dying down, they sweeten it with diamonds That’s all it is It’s just promotion. It’s not a poor man’s proposition ..

It’s a big company up there It’s not like a gold mine You cannot work it yourself You have to do some blasting Maybe some of those people around Yellowknife, they staked diamonds claims and figured they’re going to make lost of money right now When the claims come open, you got to work on them. You know, assessment work, they call it Maybe those guys are trying to promote you guys to advance them some money and they go and work on our claims or something

### *Previous Experience with Mines*

- Yeah, well there’s some of them [mines] that did a good job and there are others that didn’t. The ones that didn’t do a good job, like Teria, and maybe a few more of the mines around here [Their tailings were] leaking and they made them go back and patch the dikes You can never stop that leaking once it starts. It will affect the water and then anything that drinks the water.

For all the mines that I’ve been around in the north, I’ve never seen any impact whatsoever on any of the animals. They come around, and after a while, you can feed the white foxes by hand they’re running around in between the buildings and the equipment and the caribou are doing the same thing You have to stop and let them pass to get in the cookhouse

- There’s a few of them [bears], but they’re discouraged by methods that don’t kill them. The odd one gets a little aggressive

Yeah, you take that shaft on the left hand side of Giant there those rats in there have no hair, they were just like that, no hair at all I don’t know what burnt the hair off them or whatever did it to them. It’s acid, I guess.

- The people of the country are not interested in mining. They don’t do that No Indians going to start mining No way That’s an excuse so they can get the money .

It's not going to affect them. They're not going out there to get their animals. They don't do that any more. They used to go by canoe from Fort Rae. It took about two or three weeks. [Now] they go out, kill a caribou and come back and that's it.

- Maybe sixty or seventy years ago people used to go to the barrenlands and trap white foxes and so on and stay for the winter. They don't do that any more. Nobody traps, nobody hunts. You don't need to. The government gives them lots of money now. Welfare and old age pensions. You see the young guys growing up. They go to school but they don't learn. What good is the school. They go and they live off the old man's pension. They might have learnt something in school but they have to learn – they got away from trapping and hunting and they can't work because they can't get a job. [When] they get a pay cheque and they get drunk and they don't go back. The people of our country never had liquor before. The Treaty Indians were not allowed to buy any liquor.

So they bitch. All these [young] guys they went to school and [now] those young Native people can't work. They can't trap and they can't hunt. They don't know [how].

### ***Other Environmental Concerns***

- Well, there's two or three [people] who have [sport] lodges. I guess you got to watch them.
- . you got to look after where the fish spawn. You fly over that country. Every creek is just loaded with fish.
- Pollution.

As far as I know, the tailings pond is the most serious concern.

- Well, it's [the mine] got to go. People have got to live, you know, people have got to have jobs. I would like to see it go myself but on the other hand you got to look after the environment, too.

## **SOCIOECONOMIC ISSUES**

### ***Foreign Names of Lakes***

[None of the Metis respondents addressed this question.]

***Employment in the Mine***

- Education is the only thing that is going to take care of that, you know. You don't want to be a labourer all your life but a lot of those Natives have not got an education. They are just starting now, in the next 10 to 15 years they might be part way there. If they can go to work and learn something at the mines [it will help]
- Well, they train them but they can't stop when they get that money. They get drunk. You see, if you want to work, you can't get bored and get drunk all the time. But people in the country never had it before, so now, when they got it, they can't break away from it.
- I think it's very important that you get good schooling and then go to the mines and get training.
- Well, they have to work up to it themselves. Put everything they got into a good job. Do everything right and they will work themselves up to a higher paying job.

There are people that work that don't drink. There's a few that will work and hang on to a job for a year, get holidays and go back and to work. Those kind of people will remain there, but how many are you going to get, you can count them on your hand. Now, they got the mine going out of Indian Lake, that Royal Oak, they got lots of Native people working there. If they just settle down and work, they can bring their families and stay there. They've got a big air strip and maybe 350 men working. You see, people want to make money and build [themselves] up, but Native people never had it to start with.

If a man doesn't bring his family, he doesn't stay. He goes back to the village or wherever he comes from. Some of them will make their own camps away from the mine. They go to work from there. They will have tent camps in the winter time – that's the way they live, anyway. That's the way their life is. They can't leave their wife in town and then go to work for two weeks, two weeks out and two weeks back, like the white people. The Indian people, they're not like that.

The whole trouble is whisky and women for Native people. White people, they go work there until they have holidays and they go out and probably do whatever they want with their families. Like in the bush now, it's pretty hard for a man to take his wife and kid out to Lac de Gras. He has to pay his own way for that. The mine hires you, not your wife and kids.

***Shift Work***

- Well, I think it's good for certain people, I guess, you know. Some like two weeks in and two weeks out and some like three. It all depends on where they fit in. It's better for the families if you can come out in two weeks or three weeks. It makes it better for the family and better for the kids.

I think that the two weeks on and off is about the simplest thing for a family because they're not away that long and they get home for two weeks and then work for two weeks. I think that's a wonderful thing.

- [How do you feel about a one-week rotation?] I would rather see them go for two weeks because they make more money. They make money and they have money when they go home, to put in the bank, and to go on holiday. If you're going to go for just one week, you spend everything you have. You never have very much at one time.

Two weeks off and two weeks on, a lot of people figure that it's alright and some people do not. They go off for two weeks on holidays and when they come back, they have saved nothing. They do not save any money at all. They come into town and they spend it. In two weeks, they are broke and they go back for another two weeks. They just go back and forth. Some people that I know tell me the same thing and what they wanted to do, is go out on the job for a couple of months and then come in. They have that much more money and then they can buy something or rebuild their houses ..

- [When I was working in the bush] I was sending pay cheques back home. Send one pay cheque home and then keep the next one in the bank, next one to the family and next one to the bank. I know I was always out and it never caused any [family] problems.

It all depends on your credit. If you have good credit at the store like I do, you just use credit there at the store and then you go. The family just buys from the store and when you come back in then you pay your bills.

- [How do you feel about families camping out near the mine?] There's nothing wrong with that. It can be done. It works best if you are near the timber line. A place like BHP is awkward because there's nothing there but rock for hundreds of miles. In the winter, it is all snow. That is going to be hard on families.

Well, I think that [two week] rotation is the best.

***Ethnic Conflict***

- Not really, no I haven't seen too much of it. Some all right, but that's up to the individual.
- Most mines up here have Natives at them I've been to the mines in the Arctic Islands and seen people from Yellowknife, Dettah and Rae. I don't see them having any problems.
- BHP is going to be involved with two different cultures They will have people from Yellowknife, Fort Rae, Aklavik and Cambridge Bay. They are absolutely different people. They have got to contend with two different cultures [Dene and Inuit] There are going to be problems

***Loss of Youth in the Communities***

- It's hard to satisfy some of them [Natives] You know, you don't know what they want But at the same time, they're trying .
- The younger generation, they went to school and they live off the old people, now You can't get them to go they don't know how to hunt and trap and they can't go to work because they can't stand the prosperity ..They get drunk
- It would be a good thing for the young people They should all be put to work when they are young. That is the proper thing to do, get these young people out to work so they learn The main thing is to get those young fellows moving.
- . they get too damn lonely or homesick and then quit.

I really don't think that it is a loss Eventually, the way of life they are concerned about, trapping and killing animals, will be gotten rid of I don't know how long it's going to take, but eventually fur will come from fur farms.

***Loss of Hunters/Trappers***

- Well, that's an area where they [BHP] will have an impact I like to find [country] foods and go on a trip and eat well after finding the food I always want to go back to where I used to be, living on Aboriginal foods. That's where the impact is going to hit the people of the north More than anything else, it is going to hit the family life

***Disruption of Traditional Economies***

- Well, the way I look at it right now is that there are not that many trappers any more . not many of the young fellows want to trap I think it would be a great thing for them to know that these mines are going to create a lot of work. I think it would be the best for them young fellows to go off and work in the mines
- Well, it seems that everybody likes the wild meat and Native crafts That will go big in a mining camp. Well, it always did, anyway.
- for the last two or three years the fur [prices are low price] Costs are higher and higher, a fellow would be better off working, you know, a good steady job That would be the proper thing to do
- Most Aboriginal people, whether Inuit or Dogrib, still want their country food That's like me, when I get away from it [wild meat and fish] for a long time, I still want it

***Introduction of Wage Labour***

- Well, as far as money goes, take the Dogrib people, now They have just about everything They have canoes, they've got new skidoos since they have been working at the mines at Colomac and BHP a lot of them from Fort Rae got all brand new stuff and you don't see any waste or any corruption not like it used to be. I don't think that there's that much booze drank there any more, not like it used to be They are looking after themselves a little bit more They are more educated now than they were

I remember in '39 when me and my dad used to go through Rae and up through Bear Lake by canoe in the summer, there were only 600 Indians there and that was in '39 they have really picked up in the last twenty or thirty years

- There's no doubt that that's going to be a problem to the families, especially in the smaller communities. When you have all kinds of money, like they will at times, liquor is going to play a big part They have got to learn that by themselves. You can't be taught how to use liquor This is where school is going to play a part There is still a big percentage of people that never went to school They are still around. The younger people are going to school They have a different outlook on life altogether Many want to get out and do things, [they want to] go places but some of them sit in the bar There are those kind of people around I don't know if you will be able to solve that one
- You cannot tell a person how to spend his money or how to live his life I know myself, I did all the wrong things, but I just can't tell another person what to do



*Influx of Non-Aboriginal*

- Well, I suppose [the southerners coming in for construction] will affect [Natives] to a point.

Polaris is a good example [From your perspective, was Polaris disruptive to the community?] Yeah

- Well, you can't very well blame the company. When you have men from all over the place, it is up to the men that are working to try and get along with everybody. That is the main thing in camp, try and get along with everybody.
- in my experience, I know a lot of people that want to work and a lot of people who don't want to work. People coming from outside are coming to work ..if a person wants to work, they need to go to work.
- Everybody done well before the liquor came in, then – they never had it before, so they got drunk. When Con Mine first started, all those people in town got a job, they hired all the Native people around here. The first pay cheque, they got drunk. They were gone for four days. You can't stop the wheel from turning, they got to keep those wheels going. So, then they [the mine] got some Italians and Hungarians people from outside and then they [the Natives] started bitching, they started kicking. Oh shit, they bring all those guys in and we got no jobs. I said, "Well, you had a chance." I told them, you had the chance and you got drunk and you were not back for four days. I said that mine has got to keep [going] twenty four hours, that big wheel has got to turn.

*Has the Mine Created Tensions Between Dene Groups*

[None of the Metis respondents chose to address this question.]

*Loss of Archaeological Specimens and Graves*

- Yeah, [identifying the sites and keeping people away from them] is probably the best way.
- I think that they should make some effort to protect them. Those sites have been there for God knows how long and they keep going back every year and rebuilding them and taking care of them. They go on long trips to do this. You go by bush road between here and Great Bear Lake, on those rivers, you will run into graves. Somebody fixes them up and repaints them. This goes on year to year. They should be taken care of.

- Well, first of all a person should put up a sign and let people know. Let them know what is around. If there are no signs, they will not know. You need to know where not to go.

### *Length of Operation*

- Well, I think that [a 25-year life of mine is] a good thing. It will be good for the people.
- Job-wise, you know. Maybe things will change. It probably will change.
- That will be good for the generation that comes up, the young generation. Oh yes, that will be a good thing. When they grow up there will be encouragement for them to work.

I think it's a good thing. Within twenty-five years, that big lead/zinc deposit not too far from there is going to open up. There are quite a few mineable properties up there. If a road is put in there, you would find a lot of mines would open up. There are lots of different ore deposits – lead, zinc and copper, to name a few.

- Yeah, but I think you will see that they will correct a lot of [the environmental problems]. I mean they just won't let it go without somebody saying something. You've got to give it a chance.

### *Other Concerns*

- Yeah, you got to get some training. It helps, it helps to get some training. Like, that is the big answer. A lot of people haven't worked in the mines. There's a few all right but not that many.
- You should talk to them [young people]. Tell them a few things about how to spend their money. Talk to them, it is the only way. They must make up their own minds, they have the will power.
- Yeah, they should have training programmes. That's one thing that is really going to help them get ahead. Even pretty good.
- As far as I'm concerned, development in the North is a big plus.

## Inuit Perceptions of the Project Individual Responses

The Inuit of Coppermine, NWT are the downstream neighbors of BHP's proposed development at Lac de Gras. They are naturally concerned about the health of the Coppermine River, the safety of the Bathurst caribou herd and the potential of employment for their people at the mine.

The people of Coppermine bring with them 15 years of experience with Lupin Mine on Contwoyto Lake. Located north of Lac de Gras, that mine site has had to address many of the same problems that will face the BHP operation.

A total of 17 interviews were conducted in Coppermine in late May and early June of 1995 by Angel Kuliktana. The work was coordinated by anthropologist Dr. Marc Stevenson, on behalf of BHP Diamonds. It was done in cooperation with the Kitikmeot Inuit Association. This transcription of 9 interviews was organized by anthropologist Chris Hanks.

### Environmental Issues

#### A. Roads

- Nobody knows until the proper studies are done what the effects will be.

Again, nobody knows [what the impact on] water [will be] because the water [still] runs in [its] natural courses... It depends on how much they alter the drainage routes.

...it depends on how many dens are in the esker. They must do a survey and see how many dens [will be] disrupted. On permafrost if you build a road properly it doesn't have any effect on the permafrost. ... I don't see that BHP is going to have any impact on this community or [it's] people... That mine is in Denedeh country...if there was a mine here we would make sure all our people were taken care of before we went to the Inuvialuit (western) ... and they're gonna do the same thing. I see very little impact on people from here. I see very few jobs coming out of here, there may be 3 to 5. The cost of transportation out of here is going to be cost prohibitive when they can hire people on the road system in the south or the in Inuvialuit and Denedeh claim area, they're not going to hire out of here.

- [the road] Might affect the caribou, they might start staying in one spot if they're not used to it.

I don't think it'll effect them [migratory birds] as long as their nesting grounds are far from the road.

Lots of animals have their dens anywhere ... foxes, squirrels, bears [will be] scared of the trucks when they are making the road... if they don't come out of their dens nobody will see them.

It's for ... our children [and] our grandchildren that might want to go hunting, they might say ... my mom and granny should never have said yes to these things.

- I'm sure it will probably make them [caribou] change direction. They may change their migration pattern. It might have physiological effects, they won't be able to mate and have as many ... young caribou, it might effect their numbers in time.

I don't know, ... over a long period of time it could lead to contamination of the water ... from oil spills or ... hazardous waste.

...the landscape wouldn't be the same. It might cause confusion for the wildlife.

- ...sometimes caribou ... [follow] a road instead of crossing it ... and that's when migration routes ... change.

...permanent road without proper drainage systems ... [will have] contaminants... entering streams.

...grizzlies, wolves, foxes, they tend to den in eskers. ...denning areas should be protected and [roads] re-routed if possible.

Well, game [will] not be there for hunting and trapping ... other than that I don't have any other concerns...

- Well, they've been going through [there] since '82 or before... Winter road - if nobody bothers the animals as they're driving it don't effect them. If people [drivers] start to bother animals on the road, ... they [will] get spooked and run away from you. ... the winter road's been [there] for quite a while, they have to cross the whole country over the lakes.

...I worked at Lupin at the very start... I've seen caribou right by the airstrip and the buildings - even musk-ox ...

when nobody bothers them, they don't mind hanging around. ... if somebody starts bothering them ... it won't be easy for them to get close again. Caribou and musk-ox don't really hurt anybody. ... mineral-wise, there might be something that happens to them though. If there's seep[age] in some area, you could tell some animals are too lean ... if they have some kind of gate or wall [to keep them far] away from the drainage of the mine, it might help. I know they [caribou] will go pretty close ... after the mill shuts [down]...

These animals have their life time ... territory. If the company ... built a road for 20 miles, why do it ... on animal territory [eskers].

If the grizzly bears or brown bears live in the esker and if the road is being built right over it, I don't see how these animals will ... hibernate, ... if they can hear traffic...

- ... they are going to build a road and [the] caribou pass through there. ... it's not good for the caribou and other wildlife, 'cause they're gonna build a road. But if the road is taken care of ... but it's hard to tell how the people are going to work and I [am] worried... I don't want to be the boss and [say] yes to this.

- In the old times people used to hunt caribou over there. When I worked in the mines, the caribou [were] not shy around Lupin. The caribou come right up to the buildings.

I don't think that road should be there. The wildlife are going to get mixed up around there. They might stop there. Sometimes the animals look for a trail and use the road ...

- I don't know about those wolf and fox dens. I don't know how they're gonna be. I don't know, but the caribou are not shy... when we work at Lupin, they came right to the site. ...the hammering, planes and trucks didn't even bother them.

- ...in other places with increased traffic, wildlife start to go further from where they normally calve or feed. ... in the south, with development the animals go further into the woods. So probably [BHP is] going to have a similar effect on caribou... They'll probably start to move further away. How that's going to effect Coppermine? I know that people generally [are] going further for caribou hunting. Wolves and other animals, would move a little further away. I think that increased traffic will have an effect.

I think that they will move, ... if there's a lot of traffic, they'll probably go back there [around the mine] but not as often. That's the same anywhere. When we

caribou hunt, you get them to run away, but generally in the summer, they come back down because there's less traffic. ...permanent roads, I think they're something that I would go for. ...having permanent roads close to Coppermine would make things an awful lot easier for people. We wouldn't [have to] pay [as much] freight... on groceries and other goods. ...on the other hand, animals tend to move ... further away when you [have] more activity in an area.

Anybody that's working around the area they're developing [will] have to be extremely careful with water. [That is] the concern that I had [when I] went to visit the mine at Lupin. ...they had tailing ponds, I was concerned the caribou were going to drinking that... and be contaminated.

They assured me that this wasn't going to happen - that eventually the water was going to... be cleansed, but I have my doubts about that. ... all the chemicals ...leached into the ground. ...I think the lichen that caribou eat is contaminated. And the air - you hear about acid rain that goes all the way [to] Europe. ...[if] we start getting more development close to home of course that's going to get carried over.

If you need a permanent road, I think you would have to ... put it where it's going to have the least impact on the wildlife... Do long term planning rather than [taking] the shortest route; ...is the best route - the most economical? That might be good for businesses, but you have to look to see if [it] is going to [be] good all [the way] around. In the long run, ...it might cost a little bit more. I don't know what it would do [to] the permafrost... I'm not an expert so it's hard to say how it would effect [it]. I think ... that [the] people building the road should ...look to see what the best way to build the is road so [that] it has the least impact on the environment in the long run.

I'd love to see a road to Coppermine eventually. ...the costs here are so high, that I know the majority of the people ... find it very hard to get by [let alone] get ahead, with the prices that we have to pay. There's no competition here. The Northern store can set their prices. Th[e] 20-mile access road, I really don't know how it's going to impact me. I don't know what the road is going to look like.

#### B. Airstrip

- I don't think it's gonna have that much effect on the wildlife. ...look at Echo Bay there's caribou [and] musk-ox walking right around the buildings they're not worried, nobody's chasing them..., it's just like a National Park,

the animals are protected and nobody's harassing them... There might be increase in aircraft accidents, that comes with increase usage...

Will the noise scare the wildlife away, I don't know it's got to be documented...

- It might affect ... animals, all that noise ... those big planes ... they might [not] survive if they're too scared to ...look for their food.

... it might even affect our children and our grandchildren in the future.

- ... the noise of the aircraft ... it would probably cause them ... [to] change their migration patterns, [moving] further away from here [Coppermine] ...there might be some health effects [for] wildlife...

It would decrease our food supply, I [am] concerned that our food supply would decrease.

- ...the increased traffic and the noise of the aircraft going to [the] BHP mine site, [would cause the] wildlife to move away..
- It might not effect the animals if it's looked after...

If these people are willing to put a mine in our country, are they going to give us any benefit...? ...we don't normally get anything from compan[ies that] build ...mines. Some people thought of these things before. ...if you work, you get paid. ... [if] ... you get fired or laid-off, they don't think of you after you leave.

- The wildlife probably doesn't mind... the food they eat off the ground - there might be something [that] they eat ...that might not be good for them - oil. ...people depend on some wildlife for food. ...they might [have to]go further from here if the land is disturbed.
- Animals probably don't go there - maybe they do.
- It'd be the same thing as Lupin. We get caribou right on the airstrip. Sometimes we have to chase them off before the plane comes.
- I think it's going to disturb them [caribou] a lot. I'm a part-time hunter. I [found] that ... in the last couple of years [there has been so much activity] ... [when] we went towards Hope Lake and Kuugakyuangnahik. ...I 'm sure the animals ... are disturbed by them [helicopters]. They

probably get scared. I don't know how that's going to affect their reproduction... they get chased ... I'm not sure [if]it [will] be adverse to their reproduction in the long run.

My concern is that eventually we're going to run out of caribou. When you look [at] the southern communities, there was a time they had more fish. When I used to speak to my father-in-law, who's passed away now, he said when he was our age, there were plenty of fish ... and there was lots of game. Now, [when] I go to Alberta ... people are all excited to get a 2-pound fish. Catching a fish that size is my worry. Eventually with more ... camps being established, [the] animals are going to start moving away. If they're not harvested properly, ... we're going to run out of them.

### C. Camp Construction

- ...you have to weigh the economic benefits [against] the environmental impacts... it [is] the impact on that 25 sq. miles compared to the 100's of thousands of square miles that are out there that are still pristine... you know these questions are really 2-sided, [I] could look at both sides ... and ... argue with myself all day. Once the construction is completed they're [the caribou] are going to come back again. It won't effect us...

That's a hard question to answer ... I don't know, [that] ...other mine sites [have] really cleaned up and checked the permafrost. ...Will it ever be repaired, it may, who knows? Might grow back, might not.

- If ... they start to build a road or [an] airstrip ... [and] if these animals move elsewhere, [where] they never hunt or look for their food, it might do [them] harm ...

Like I said, I'm ... concerned about the animals [with] all the construction ... going on.

Once they damage the vegetation and permafrost, I don't think it will come back if even a little bit of oil is spilled on the ground.

- with all the noise, and the activity in [the caribou's] usual migratory patterns it [will] cause a change ... it [will] probably ... lead to less mating and less young.

... as I stated it would seem to lead to a decrease in our food supply.

...I'm not a person that knows much about the land or construction on it, but it seems that once permafrost is



eroded or vegetation [removed] it's not easily replaced ...

- ... there always tends to be a good side and [a] downside of mining activity, ... that goes with progress.

With ... regards to wildlife there [will] be a great deal of impact, because [of] their project site ... north of Lac De Gras, the migration routes [of the] caribou in the fall ...

have changed to the west of Lac De Gras and ... the east side of MacKay Lake... they are now showing signs of rerouting their migration instead of going through ... the project site.

... the people of Coppermine that were employed [on] 'Lac De Gras sports hunts through the Coppermine Hunters and Trappers Webb Limited, they weren't able to work ... that area last year.

- During construction, nobody [will] do any harm to [the] wildlife, ... nobody's allowed to have a weapon unless you permanently [live] in the area.
- ...I worry 'cause the trucks make a lot of noise ... if there was a spill on the ground [where] the wildlife walk ... It'll probably destroy the meat ... [the] people do eat.
- Maybe they [won't] harm them [caribou].
- We don't mind ... as long as they clean up the work site ... 'cause the animals travel around there and we want to keep it clean. ... the blasting stuff ... should be picked up [and not left] just laying around.
- I think the extra noise and traffic activity is a concern ... that should be kept in mind. I know it's hard to make a go ... they have to make it economical ... to stay in business. ... I think it should be kept concentrated as much as possible. The best idea would be a 25 mile limit. It seems large to me. ... I don't know if there's any way you could make it so it's not so spread [out] and ... keep the hunting for the people ... in the area.

What I worry about is ... exploration camps ... they don't come back and clean up. In the past, people have said yes, we're going to clean it up ... It's not happening ... they [don't] take everything back out with them. Caribou ... don't want to go around it.

My understanding is that the vegetation in our area grows

extremely slowly. ... once you start digging it up, [it] takes hundreds of years for that little bit of ground to grow. You disturbed it and the best you can do is try to put it back [in a] way ... that it can try to repair itself. I don't know what the long term effects are [of] disturbing permafrost. ... I know when buildings are erected ... people are very careful [not] to reach the permafrost.

#### D. Camp Operation

- I think most ... naturally shy animals like wolves [and] wolverines ... won't hang around. ... the grass eating type [will] hang around the site ... because they're safe from the carnivores there.

Won't effect me. ... the people in that area will be effected because ... presumably they won't be [able to hunt and so] they will have ... [more] animals [to look at].

I don't know, ... government [has] regulations on dealing with pollution and noise...

- Like I said if [the animals are] too scared to look for food ... they might be driven away.

I don't really know. Maybe the bears [will bother the camp] -- the scary ones [will bother the camp].

- [I think that] ... the caribou, ... the smaller animals that are trapped like foxes and ... wolves and the migration in the spring of ducks and geese [will all be effected].

I think you [will] find ... predatory species like ... wolves, ... seagulls and ravens ... [looking for garbage].

... I think everybody who's [involved] with this project [will] have to be very conscious of the migration patterns of the caribou.

- ... the caribou are showing signs of re-routing their migration ... they will not have too much effect on animals [like] grizzlies, foxes, wolves, [and] wolverines...
- There's hundreds of rabbits [arctic hare] mating [at] Lupin. ... most of them are living in dumps. Rabbits are supposed to be white, but [now] they're black most of the time.

- There would probably be no more caribou. The foxes don't mind staying around the site. ... they might eat something that is not good for them. If they ... take [care] of the work site and [do] not throw garbage all over the place, it'll probably be good.  
  
... foxes ... eat from [the] garbage. ... if they don't eat anything [harmful] they [will] probably be okay.
- ... garbage, ... they should dispose of ... it before they attract any bears, ...foxes and ...wolves.
- The only ones that I can think would be ... ravens and sea gulls. They'd love ... food. ... most animals tend to move away because they're not domestic. ... because people have started moving into their area, ... I think most of the animals will move.  
  
... ravens, sea gulls, ... the odd wolverine [will bother the camp] because they [will] figure there is garbage and [they are] not being bothered ...I think it [will] have an adverse effect on caribou, which [are] our main source of food ... they're shy animals, ... they move away when there is anything around them.  
  
My concern is we're going to end up with less caribou. Their reproduction will probably decrease due to stress ... I'm not an expert on this [and] so I'm ... guessing [based] on what I've seen in the past ... if it were me being moved ... I think that it would have an effect on [my] reproduction.  
  
... keep your camp as concentrated as possible and make sure there are strict guidelines that employees have to follow so there is as little impact as possible.

#### E. Dewatering Lakes

- Well, there [are] a lot of lakes out there ... you got to weigh the pros and cons, I say, five little lakes go ahead and drain them.  
  
Go for it.  
  
Just go and throw them [fish] ... like they throw anything else.
- How will the fish ... get to another lake if they drain the lake too fast.

We've seen lots of fishermen ... catch ... [and] wound [a] fish ... people don't like it [when they let it go].

We're concerned about water, if they work close ... the river it might effect our water ... it's fresh ... not salty. I know our river's getting weak it ... gets salty ... when the south wind comes.

- I can see why they would want to drain them. Our fish supply is already depleted in some lakes, personally I wouldn't like to see them drain the lakes or remove the fish.

We don't fish that way [catch and release], we were not taught to fish that way, we don't fish unless we're going to eat it.

The local water system is our water. ... we only have one source of water, it's very important ... if they eventually end up draining [tailings] into the Coppermine River it's going to have a direct effect on us ... draining the lakes and depleting the fish is going to have an effect on us.

- I don't see any problem with it provid[ed] that [they are] restored back to [their] natural state after [they have] completed mining...

I don't have any problem with that.

... spawning areas ... it would have a great deal [of] effect on them because they would no longer be able to spawn in that lake...

Contaminants that ... run from these lakes while they are being drained and restored back to [their] natural state ... would ... enter .... the Coppermine River basin.

- I feel if BHP's going to be doing that - draining the lakes - they should have about 50% Indian or Inuit working there, because we've got lots of operators here. Not only that, they hire too many people from the South. As long as they've got the instructors and bosses, people could pick it up really fast from there.
- the mine drainage should be ... [prevented] from leaking ... between lakes. ... water seeps through anything. I don't know if they have anything ... [to] stop [that].

For mining areas, you don't need any catch-and-release. ... people have gone [to] work ... not [to] catch and release fish.

If the company can drain a lake ... they can ... stop mine water from seeping [into] another lake.

I know it's going to be hard to move them [the fish] without disturbing them ... they're [not] going to find all the fish until the lake [is pretty well drained] out.

- [I don't think] the lakes ... should be drained. ... but [if] they take care ... and not rush the job, the lakes will probably be okay. I know the fish travel by the little rivers [and] streams they made [a] channel for the fish to travel. ... if the fish are put in other lakes, it'll be okay, but it's [going to] be hard.

[Fish] look sore [when] they catch [them] and then let [them] go ... back in the water. They don't look good to eat. I [have seen] people catch and release [fish]. I [don't] think [fish] should be bothered. Sometimes when they are put back in the water they seem to travel slower. ... they [were] probably caught near the mouth and when that happens I [don't think] the fish feed themselves properly.

... If the lakes are being drained, it'll probably be easy to dip [net the fish and] put them into other lakes.

[The fish were] used to what [they were] eating in that lake, ... it might be different for the fish [in another lake]. I know they travel through rivers and streams, ... [they] might want to go back to the lake where [they were] located in the first place. ... when people travel, they always want to go back [to] where they originally were, animals are the same. If they are okay, it probably won't matter.

- I don't mind as long as they drain them into one place.
- I don't like that - you know, catch and let the fish go. I don't like that. It hurts the fish. If they're going to sport fish, they should give it to the people instead of letting them go. I don't know how it's going to effect the fish.
- I know we should be jumping up and down, saying no don't do that, but I guess it's [a] matter of taking the good with the bad. I'm in a position where I have a good idea of [the] work [that] is available [and] how much money is

coming into the community. I would prefer a little bit of giving ... so that it balances [and] we're going to gain from this. We have so many people out of work and on social assistance. [They] would rather be working, but there's not the opportunity. ...to get [jobs], we have to give up a little bit. Five lakes seems like a lot, but I don't think it is, if you can get ... more people that are going to be able to take care of themselves and provide for their families.

I hunt off and on. We see [catch and release] on TV shows. I really disagree with catch and release. If you're going to go out there to fish, you get what you need and leave the rest. ... what harm are you bringing on the fish being released. You feel good about releasing them. You know you've released 50 that day, that means you've damaged 50 fish that day. ... how many more [fish] are being damaged by other people. I strongly disagree with people [who] ... sport fish. Unless you're catching the fish to eat ... I don't think you should be ... sport fishing.

...I don't know if it's going to be a desert around BHP... I don't know how [the fish will] adapt, because eventually ... you're going to ... eliminate those lakes ...

I'm sure in the long chain of events ... there [are] going to be ... less fish coming down, ... the Coppermine River. [It] is a large river and a lot of little lakes ... flow into it. [If this mine]... means ... less fish [that] is a problem. ... people are starting to be concerned [about] the amount of fish ... being taken by local hunters.

#### F. Removal of Bottom Sediments

- They become polluted.

Well it won't affect me, but I'm sure it'll affect anybody who eats a polluted caribou or ... fish. ... everybody knows that [a] polluted area is not good for animals. ... we ... worry because [that] project drains into the Coppermine River. ... they say [they are] blasting granite which has no acid generating potential so what's to worry about acid generation.

- Like I heard long time ago, they use water ... to clean the rocks. [How] much acid ... [do they use to clean] the rocks.
- ... we could end up eating contaminated caribou [and] fish.  
... it would have an impact on health ... [by] depleting our food supply.

- ... the crush[ed] material is a very fine powder that would have to be contained in such a way that ... there's very little dust. ... blowing ... dust ... would effect the surrounding areas. ... it would ~~goat~~ [the vegetation] ... the migrating caribou eat the plants and that would have a great deal [or] effect [on us].
- ... mineral acids, if they ... drain the lake ... maybe they're thinking they're gonna put mineral acids into the dump.
- Trying to [know] what the animals do is hard. They might not stay around the area. ... they might disappear. The land ... has all kinds of animals. If the [animals] stay around the area [they] might be okay. ... they might eat something that they're not used [to] eating. ... it might [hurt] the animals. ... if [their food] gets dirty it might not be good for the animals.
- I don't like ... catch and let the fish go. I don't like that. It hurts the fish, if they're [going to] sport fish and not get it for themselves - they should give [fish] to the people instead of letting them go. I don't know how it's going to effect the fish...
- ... if they're going to be putting out ... chemicals, it's not good for the caribou, and we don't want to see that happen...
- ... Of course, you're contaminating the food chain when you have chemicals that ... leech [into the water] or [are] drawn to the air...

It seems most people in the region ... die of cancer. It makes you wonder why. I know a lot of people smoke and smoke heavily. It's been [a] habit for a long time. But I also wonder if our food is being contaminated. Is that why so many people, not just in Coppermine, but across the region ... have contracted cancer. ... that's something BHP should be looking into. There must be a way to check to see if the animals [are] eating contaminated [food].

#### G. Open Pit Operations

- Well, it's ... only granite dust. ... who knows how it effects the animals. ... personally [I don't think] when they're blasting and crushing all this rock there [will] be any animal within 10 miles to worry about...

- The animals ... eat dust when they feed from the ground.  
[I've seen] lots of ducks with ... sand in their stomachs...  
  
... animals will never feed if they're ... scared to stay in one spot.
- I don't think ... the vegetation [will] live very long if it [is] covered in dust ... it would not be good for ... wildlife ... and they in turn ... would become contaminated and not healthy for us to eat.  
  
... it would probably scare [caribou] ... [in] a different direction effecting ... migration patterns and their ability to reproduce young.
- ... if that dust is not contained or mixed with fertilizers to keep it from being blown away then ... it would go into the food chain system through the caribou.
- The dust doesn't really [go] that far. ... I know dust is not ... good for humans or animals. It's fine powder ... [if] you inhale it you can get an infection in your lungs. If the dust is flying around while the animals are close by, there's [a] lot of [potential to damage the] animal... That's one of them.  
  
I've worked at Lupin. I worked there from the scratch [from start up]. ...they start blasting the mine and even after spring breakup ... caribou got close ... to the area.
- You know, the chemicals they use are not good for the animals we hunt.  
  
I don't know. [Blasting sounds] just like gun shots - [caribou will] probably run away.
- The further I go into this questionnaire, the more concerned I am at how big the operation is that you're looking at. Are you going to end up ... depleting the wildlife that's there? Who's to blame - who's going to compensate us for that. ... we can't afford to live exclusively off food we get from the store. We have to supplement it with caribou. How is this going to impact the rest of the community. A lot of people in the community sustain themselves almost exclusively on caribou meat. How big is this operation you're looking at? If it [is] going to take away a good portion of our caribou, then it's not worthwhile.



## H. Processing Operations

- ...I'm concerned about ... building a 30 foot high dam ... what happens 50 years down the road [if] that dam breaks [releasing] all those tailings and sediments... I really don't think there's [going to] be much of a problem, ... in 50 years all the sediments will [have] settled to the bottom. ... at the same time we could have 30 feet of water coming down the river...
- If animals are not used to them [tailings] they might have a hard time finding food ...  
  
... if they spill the oil on the ground I don't think it'll grow back. ... I hope they store the fuel really good ...
- It would probably ... contaminate the fish ... and the water supply.  
  
Depletion of our food supply, we all use country foods. ... we supplement our daily food intake with country food, if that's depleted I don't see us surviving very long.
- The fine dust going ... in the streams and lakes would have an impact on the fish and wildlife around the lakes ... I believe [fine dust will] clog up the gills [of the] fish.  
  
... contaminants in the ... bodies of fish that are downstream from these tailing ponds.  
  
... fish [are a] main staple [in the] diet of the Inuit. ... it would have an effect if there's a decrease [or a change in] the quality of the fish.
- If the mining is close to the ....caribou ... they could spoil ... what they're eating, because it looks normal to them ...  
  
If they're thinking of building a mine, why should they fish in the area?
- Some of the fish will probably die.  
  
Most of the fish are gonna die ..., I guess.
- The fish are going to die. If the fish get buried,... they're going to die. If there's no water, they die.
- ... I would prefer that [they do] not take any short cuts ... There has to be a careful study and thought [about] how

you purify your water before you release it into the main stream. I know ... BHP's priority is how much money they can make, ... [rather] than focusing on how little you can disturb the surroundings. ... I would suggest there be an independent body to monitor ... so that ... the water ... comes out the other end clean and not anything anybody has to be concerned about ...

My concern is [for] the health and hazards that this [project] will bring. If you're going to contaminate the water, make sure it's clean before you release it. Do not take shortcuts ... [have] somebody else check to ensure [the water has] been purified and [is] ready to [put] back into the system.

## I. Power Plant.

- ... with all the proper catalytic and ... environmentally efficient controls they have on engines now-a-days I think the pollution ... [will be] very minimal. [They] are [going to] have to have proper dikes ... to contain all the fuel should they ever have a leak. [This] won't have an effect on me unless they run [it] down [into] the river.

- I think it would ... do something to the migration of the caribou herds ...

There's always a concern [about] fuel spills from sea-pitch and unsafe storage ... Contamination of our environment [worries us].

- The amount of the emissions that ... these generators would [put into] the air ... that's ... the concern that I have.

... [if there's a] spill [and] there's no containment area for the fuel storage, ... [should it get] into [a] stream that empties into the Coppermine River, then it would have a great effect [on us].

The quality of the water that empties into the Coppermine River from Lac De Gras ...

- ... air pollution, ... [and] fuel [spills].

Fuel spills [are bad]. ... the company wouldn't work without fuel. When I was working [at] Lupin, there were many trucks and I don't [remember] seeing any of them ever leak [too] much, but when you're travelling with a truck, you're using oil, antifreeze and gas ... whenever you stop for [the] night on a trail or a road, your engine is always

leaking oil [and] antifreeze. Those ... mark the ground where the machine is parked. ... they [need] an overnight [parking] area ... on the road, [as] everyone of [those trucks leave] a big black mark [under] the engine...

- It won't matter to the animals [as long as] they are not bothered, 'cause the land is huge and the animals are not scared [easily]. But when they want to walk, they are determined to go where they want to go. When there are a lot of caribou, it's hard for them to move.

If they are careful with the fuel and don't rush the job, it'll probably be okay.

- Probably gonna hurt the animals.

Animals [are going to] die if there is a spill.

- I don't know. ... we had generators running all day long [at] Lupin and it ... [never] affected the animals ...

They can't hurt the wildlife as long as they keep that stuff in the barrels and not laying on the ground.

- It sounds like it's going to be a little community. ... [in the] communities, ... the generators disturb everything ... You have to be sure you're taking all [the] precautions ... BHP wants it because it's feasible and profitable for them, ... [but] at what cost to the rest of us?

The fuel - you have to make sure you have [a] plan [for] spills. ... make sure every precautionary measure is taken to ensure you don't spill and if it happens, that you have a place where it's contained and can be easily removed.

#### J. Waste Management

- ... their sewage recycling system actually looks better than any community in the north, so their doing okay.

... anti-freeze, if its gonna leak, ... it's [going to happen] either in the mine or in the power house ... I don't think its gonna have that much effect.

They say they're [going to] burn everything and bury it [in]

rock dumps. ... what effect [is that going to] have, I mean every community in the north just dump their garbage on the side of the hill, these guys are not [going to] put [out] nearly as much garbage as Coppermine does ...

- ... if they don't look after the stuff that's really strong it might destroy the ground, environment and animals.
- I think that's a problem we have all across the north already ... it's not something that's unique, we've always had a problem with sewage disposal on permafrost. [There is] virtually ... no safe, clean way of disposing of it, eventually it seeps in through the ground ... into our water supply.

When you have an unhealthy environment it leads to health problems.

- [Dumping] that sewage directly into a lake without [any treatment] would have a great impact but if there's a tailings pond and you let off [the] discharge every so often through these lakes ... then there [will] be very little [impact].

... there [are] some chemicals that are very harmful to the atmosphere ...

... if these solids are not brought back out again after they [are] done mining then it [will] be a damn eyesore ... to top it all off, if they buried them, there [will] be some chemical leakage [from the] paints that are on the metals ... it'll eventually enter into the water stream.

... contaminants again, if ... [they are] conscientious [about] their actions it'll be very little impact.

- Sewage is normal. We live [with] it and not too many minerals go through the sewage ... antifreeze when they park for overnight ... on the trail ... that's the one that's always making marks from the engine.
- If they've got one spot for garbage, ... [and they] don't leave it all over the place, I guess it won't matter. As long as they have one berm for human waste - make a big hole in the ground for human waste.
- Years [ago] in Coppermine, we used to throw our garbage and sewage ... on the ice ... at that time we never thought anything of it. ... my worry is that you have a long term

plan, because eventually the sewage lagoon and garbage were moved ... people fish ... so if you're putting it in [a] dump, then look to see where it's going to have the least effect on anyone and make sure it sits for a while so it's not toxic.

My concern is that ... you [dispose of your garbage] properly - so it's not left [for] people [to] find after you've moved out.

#### K.L.M. Direct and Indirect Terrestrial and Aquatic Impacts

- It depends on how much actual drainage changing they do, how will it impact me ...

I sure [hope there are] careful studies and planning before they build these roads and start doing stuff around the denning areas ... depending on the time of the year they destroy the dens these animals [may be able to] find other dens anyway. I'm sure there's more than one home out there.

... they've pushed the wolves out of the northern states now they're importing wolves out of the territories, given a chance the animals [will] come back [but] they [have] to be given a chance ... I think once this mine is played out that people will just go away like Pine Point ... I wonder how many animals are around Pine Point [now], there's a prime example of what the impacts were, I think [they were] pretty minimal.

We don't know. It hasn't happened up here so how are we gonna judge.

This really concerns the char stock because the lakes feed directly into the Coppermine River system. If the water is polluted and the fish are poisoned it'll have a definite impact on us. That's something that's gonna have to be monitored very carefully.

- I don't want to see the animals gone for good from that spot. ... they were there before us, and I don't want them to ... leave that place [where they were] born ...

Like I said, if the animals [are not] out of their dens while they're building roads [and] they cover the dens, what's gonna happen to the animals ...

It might make the fish unhealthy [for people] to eat.

- ... the loss of fish would be a loss of [a] staple part of

our diet, [the] loss of their habitat ... is the loss of our environment.

A good many members of my family hunt and trap wolves and foxes ... [the mine could] ... take away their livelihood ... alternation [of the caribou migration] would effect our hunting grounds ... we would have to go further to supplement our diet, it would increase the cost of gas ...

... the Misery Lake waste rock dump ... would have an effect [with] regards to access roads because it [is] going through lakes and ponds. ... these eventually empty into the larger ... lake, which in turn will ... drain [into] the Coppermine River from Lac De Gras.

- [The area north of] Lac De Gras ... is accessible out of Coppermine ... so changes [to] caribou migration routes, [and] denning areas [are a] concern ... protecting these species of animals so they continue thrive [in] that area [is important].
- ... [when] I was at Lupin, I didn't see any loss ... of animals. ... when you crush a rock it may fly smoking, ... but most of the time [the] dust goes straight down 'cause the dust is very heavy.

... [during] construction animals can be disturbed. ... after everything is done, they're going to walk right over it, or follow the roads; ... I know that most caribou are kind of attracted to the roads ... [they will walk] right beside the airstrip, right along the banks of it.

Permafrost is hard.

They really don't live in the area ... during the migration, that's the only time when they [are] really around, 'cause most of the wildlife don't live in the same area ... [they] keep moving. I don't know how these animals are gonna be affected or disturbed from the roads ... most of the time [when] you see a truck moving ... it just builds smoke behind it ... if the mineral acid spreads over the feeding area it's not gonna be too good for the animals ...

If they want ... something done before they start mining, they should have everything secured before they start. If they're gonna do some mining, protect the area drainage. If they're gonna make an acid dump, they should protect those and make a stop on them. Before they start mining, everything should be done.

- If they start working on the site and the animals go elsewhere, it won't [be] alright.

- The only one that's going to be destroyed is the squirrel. If they see a bear [or wolf] den, they're got going to go over it. They're going to go around if they can avoid [it] ... But the squirrel's hole - they're going to go right over it.
- ... once you destroy it, it will never be the same.
- Once the company moves, I don't think animals tend to go back to where they have been disturbed.

#### N. Reclamation

- Nobody knows. ... I've seen cat tracks out on the tundra that I'm sure are 30 to 40 years old and they're still there. Tundra doesn't change that much.
- I don't think it'll ever recover.
- I wouldn't say [it will recover] for a good long while.
- ... the north is very fragile and very delicate, maybe in [a] 100 years [it will recover].
- How is it gonna be repaired.

#### O. Environmental Monitoring

- Well, who else [are you going to] ask? These people [have] lived here all their lives. They know what the environment's like. They'll know if it's changing.

Well, after they went to school for a lot of years and they learned about [environmental monitoring] they should know something ... I think it should be a co-operative effort, Aboriginal people should be hired but they should work in conjunction with southern scientists. I mean there's two sides to knowledge.

- I wouldn't mind Native people working on projects at the mine once in a while ... I wouldn't mind one person to go check on them once in a while.
- I don't mind the scientists testing the wildlife.
- I don't know, we've been studied to death ... half of me [says] what's one more study but [the] other half [says] if you don't know how it's gonna affect you then [you] need the studies ... it's a difficult call.

I think traditional knowledge is needed, ... if they are willing to incorporate that into their study then at least

they [are] showing some initiative.

I think scientists have their value. They certainly [have] a lot of education and a lot of intelligence or they wouldn't be who they are and where they are. [But] I [don't] think that they can discredit the Aboriginal people ... we may not have the educational papers but we certainly have the background [from] living off the land, that is equivalent [too] if not more appropriate than what scientists have.

- I'm all for [Aboriginal people being involved in environmental monitoring] ... they'd be more concerned than people from the south that would be monitoring the system.

Provided that the scientists are from around here I'm quite confident in them. If they're from a different state or they haven't lived in the north for very long, they don't really know the wildlife species ...

- ... if Aboriginal people are used in the monitoring [it will be okay].
- I like the idea.
- I feel they should have one Inuk or one Indian, just as an inspector, like looking after the land and checking out all the work places like Gulf has. Gulf calls them "monitors". They should have a monitor there all the time.
- If they follow the Inuit tradition, it'd be good.

Sometimes they make their own decisions, and sometimes they are hard when it comes to [Aboriginal] people. Sometimes we are not happy ... Scientists and wildlife people make their own decisions and say sometimes animals are in shortage and sometimes aren't.

- ... Looking at how little growth we have [on the Lurda]- each year [it will take the mine site a long time to recover]. Once you've disturbed an area it takes a long time to get [it] back to like it was. It will cover eventually, but it takes so long. It still leaves bits of things that weren't there to begin with. I don't think it will ever fully recover again once you've gone into a place and did the amount of construction that BHP seems to be working towards.

That's an excellent idea, providing you don't get people that are just going to say yes to everything BHP says. We're a long way from being assertive and saying "no, you can't do this because we disagree with you." A lot of times



we're very agreeable ... to bigger companies, [and] to people that we think are more knowledgeable because they've gone to school [or] have lots of money ... they must be right.

It's a good idea to have [Aboriginal] people involved because they have the most to gain and lose ... provided they're not intimidated by others into thinking they shouldn't demand better if BHP is lacking in some areas. You need people who are not afraid to speak up if they disagree.

- It's an excellent idea. [Scientists] will come in and figure they're experts in the field and therefore what they find is right, but not always. There are people here who might not have degrees but certainly know what they're talking about when it comes to living in the North and dealing with issues ...

Scientists are very knowledgeable, but they have to keep an ear open, listening, and not saying "well that's a silly concept" because it borders on something they don't believe in. If some people have folklore belief[s] that they don't agree with, it doesn't mean it's all wrong. It doesn't mean that because Inuks are very different from scientists, who are generally not Inuk people, [that] their concepts are totally wrong. It just might be that they come from a different angle.

#### P. Previous Experience with the Impacts of Other Mines

- Actually Coppermine has quite a bit [of experience] because we've got Echo Bay ... there [are also] a few old mine sites that have not been cleaned up around Cambridge Bay ... so you know we can see both sides. Echo Bay was run and cleaned [up] properly, maybe there [are] a few people still around from when that mine was in operation. Who knows, nobody studied it. Maybe a few of the elders know, they lived through it.
- I've been on the panel with Hunters and Trappers Organization [and the] Coppermine Impact Review Committee. I've seen the impact of what has happened at Hope Lake. Now [it] is a very pitiful site, there are solid waste and contaminants entering ... the stream. ... I've seen fish come belly up from the lake, dead ... I've collected all types of clean up sites [near] Coppermine, Cambridge, Bathurst and Bay Chimo for the Kitikmeot Region West. ... I've also worked with the DIAND - Land Use Office out of Coppermine and [the] KIA Lands. ... I'm the Kitikmeot Planning Co-coordinator.

Well today, the regulations [for] mining [are] more strict than [they have] been in the past ... I'm confident with today's regulations ...

- I worked at Lupin for four years , right from [the start] ... they hauled all the stuff [in] by winter road. There were eight of us waiting for [the] trucks with their loads [of] fuel after they built [the] tank ... the place was not even scratched when the trucks started coming in. They just put the tank on the ground ... they just drop it off on the ground without even levelling it ... just because they were [going to use it for the] start. There [were] so many trucks the first day, we got 32 trucks ... and there were only eight of us in the camp waiting for them. ... they work pretty hard, but what I've seen is something [that] is not protected ... [when] they just laid the fuel tank on the ground, [I knew it was going to] leak or spill.
- I've never had any experience working with the white man.
- ... Some years we get lots of caribou, foxes, and some years we don't. It doesn't mean the caribou ... or the foxes are scarce. They rotate. Maybe they get more foxes in Cambridge Bay one year, the next year maybe in Gjoa Haven. They're migrating around in circles so they're's always lots, but the movement is what makes them look scarce.
- My concern is that there are no mines. The closest we have is Lupin and it's a distance away. But it still impacts the camps that surround [it]. There are some camps at Pellet Lake. Maybe BHP would like to see what changes have been made by Lupin ...

It's all connected. It might be a long way, but I think one way or the other, it's one long chain that eventually gets back to us. Of course it's going to have some effect on us  
- good or bad remains to be seen.

#### O.R Other Environmental Concerns

- Fish habitat will be the first one, second is aesthetic appeal, clean the place up when you're done. Who knows what's going on under the ground after you bury everything...chances are people will forget about it...
- If all the dust goes on the berries and leaves that [is what] the animals eat.

...if they start using really strong chemicals to clean the rocks.

- Just the change in the migration pattern and the worry that I would have to go further, at a greater expense to supplement our diet. ... of hunting contaminated foods... the depletion of our food supply.

Altering the migration pattern of the caribou and the depleting of the fish supply. ... contaminating the environment [with] oil spills and hazardous waste ... toxic stuff like that.

- ... providing that they set up water monitoring stations - [at] the outlets ... [of] the main BHP camp, [at] the Misery Camp, and along the streams that empty [into] Lac De Grass. ... [I don't see any problems]

Contaminants entering into the Coppermine River basin, changes of caribou migration routes, and the [general] impact on the wildlife.

- My most serious environmental main concern, is all [of] these questionnaires [that] are written down and whoever wrote them ... construction is gonna be hard for wildlife ... I know it's pretty hard for wildlife. ... some people thought about benefits from the mines ... after you finished work, you get laid-off or fired you get nothing out of it. ... they're disturbing your territory.
- How am I going to think? It's going to be hard now, 'cause they are gonna start work and I worry about what the wildlife might eat ...
- I don't mind the idea, as long as people are working.
- In the long run, I'm concerned that we're going to be the ones that end up paying ... the caribou move away, fish [are] contaminated or depleted. Who is going to decide that it's worthwhile to start a mine?... BHP's going in it with profits in mind, which is a good idea for any business. We'll end up with ... contaminated wildlife or [a depleted] food source that we've depended on as long as I can remember. Who's going to balance it and say [whether or] not [it's] worthwhile ... Is it going to be the people that are involved, or people ... who make money off these mines. I mean, I wish you the best, but on the other hand, we have to look out for ourselves too.
- You're going to contaminate and ... make it so that animals are [not] able to sustain themselves - ... reproduction [will] slow down and they be contaminated through your

activities.

- I don't know how much BHP is hoping to take from Coppermine, ... how many people are you looking at employing from here? My concerns are the environment - the impact that it's going to have within our communities. It's hard to imagine what exactly Coppermine is going to be getting, gaining or losing from this, so unless I'm told in depth exactly what your plan is, how it's going to effect the community, how many people you're looking at employing from here, it's hard to say. Money wise, it would help a lot of people. If people were employed from here on the other hand, that also means there's going to be an increase in drinking amongst ...  
[them]

## Socioeconomic Issues

### A. Foreign Names of Lakes

- ... [the lakes] they're on Inuit land [and] they should be named by the Inuit or the Dene or whoever's lands they are. [The Aboriginal people] should have first right in naming [the lakes] .... I grant these guys are putting up the bucks, but the names [they give to the land] don't mean that much.
- If miners want to work, they should ask somebody about the names [that we use for those lakes and streams] and they should name it in Inuktitut and Kahlunaatitut (English).
- ...I wouldn't know why the heck these lakes are when named like that. What does Koala, what does Panda mean up here ...? We don't have panda bears; we don't have koala bears.
- I don't see any problems with the names. They're all Australian names, so I don't see any problems with it.
- ... I don't come from the territory. I live in the North in Victoria Island, but I've never heard those names. I don't even know where they are.
- The white man shouldn't name these lakes, ... the people who do travel around the area should name the lakes because it's Inuit territory. It shouldn't have only white man names for the lakes. It'd probably be better if they do name them in Inuktitut.
- Where do you come up with these names? They're caucasian. Why don't you name them, Kokak or Angulalik? It gives the impression [that] you don't regard [recognize] the fact that we have our own dialects, our own languages and we have reasons for why names are the way they are. I don't blame people for being offended that you have all these names that don't reflect ... the northern lifestyle and what's come before.

### B. Employment in the Mine

- [We need] proper on the job training so these people could work up to the positions. [BHP could] maybe even [offer] training on other sites owned by the company to give them an [advantage] ... if [a person] knows positions are coming two years down the road [and] somebody's interested now, give them a chance at a site somewhere else.
- If [the Aboriginals] go [to] the meetings regularly... they

could get involved with ... the mines. Our neighbors here are too hard, maybe they'll try and look after things...

- You could have people on the interview committee to help with the hiring. You could send people out for education to take jobs, talk to people who are familiar with the land... things like that.
- Providing that they're trained to do the job, I believe they could do it, providing that they have the qualifications to do it and [are]willing to learn.
- If they [BHP] start working there, they should hire Native people who do know the land and not only the white people. [They should have] Native people monitoring, 'cause they do know the land.
- [It is] good I guess,... [we] could get more jobs.
- Well, a lot of young people that age can be involved. In the year 2000 [we] could have a lot of young people looking for work.
- You have to find someone that is gung-ho and ready to say "Hey, wait a minute. Why are you hiring so and so?" You need people that are going to be in a position where they can actually hire people or train people for this position, rather than immediately hiring and giving up a few token positions to maintain that you are hiring local people. You need someone that's going to be there and saying we expect our fair share. The reason people say that is because it's from experience. You think we're going to get all this [training and jobs] and find [that the project manager thinks this way: ]the excuse - "you're not qualified so we're going to have "x" number of labor positions and janitorial positions because that's all you're qualified to do." I don't [think] that's an excuse that BHP can use anymore.

#### C. Shift Work

- Any kind of shift work is gonna disrupt a family. But people have to realize that if you want to make a living, a proper living, you have to make commitments in life. I mean, everybody's got to make sacrifices. We all ... do things we don't want to do but at the same time these things have to be done. Now [if the shift schedule is] 2 weeks on/2 weeks off, what are you gonna do 1 week on/1 week off, or 6 weeks in and bring your family...there's lots of options...that would be a good shift if you could go in for 6 or 10 weeks and bring your family with you, then out for 2

weeks that's be alright. I think they should explore other avenues besides 2 weeks in/2 weeks off. I think they should also bring the families to the mine site and inspect the mines and see what their husbands do so they know [what he means] when he talks about something... that's where a lot of breakdown [not understanding] is. You listen to these guys from Echo Bay and they sit there and they talk about drill stands and pipes and ... people sit on the side and go "Ha? What are you talking about?" That leads to a breakdown in communication between families because the women don't understand what the guy's talking about, yet to the guy it might be important.

- Two weeks is good as long as the families at home are o.k. and the employees are doing o.k. and are not giving the family a hard time at home.
- That 2 weeks is good but ... [the employer] should have a meeting with their employees once in a while, if they go out for 2 week shifts. [The employer should] try and talk to them to be good to their families 'cause every time when an employee gets home to their family after 2 weeks they try to talk crazy or think crazy.
- No, with Echo Bay ...Dome Petroleum people are more used to the 2 weeks in/2 weeks out [and] I don't foresee other problems that have already been experienced through those projects.
- I think if you have an orientation program where you give them life skills and budgeting ... and included the spouse in that -- a little one to one counselling [on] how the responsibilities will differ when the spouse is not at home -- try and incorporate some budgeting, like I said, and financial responsibility in that -- and so that all their money doesn't go into improper things -- they learn how to budget and they could last.
- ... again, we're looking at social impact with the increased amount of money that would be entering into Coppermine. That would benefit the individual but then there's also the social impact in regards to these individuals being able to obtain whatever ... it would benefit some individuals. Then again, it would have a negative effect on some. Other than that I don't see too much of a problem in that area.
- I don't see any problem with that. If the individual is wanting to work and is in agreement with the 2 week rotation or whatever the time shift, then I don't see too much of an impact on that.
- Well, they've been doing it, like when we first started, the

other two [workers] were 2 weeks ahead of us and we came into the site after [2] weeks. But they allowed us 6 weeks at the start to work 6 weeks at the very beginning. And when the two first guys' 6 weeks come up, they headed home and then when these two guys were ready to go back to work [after their 2 weeks off], two others were supposed to be ready to go home to vacation, but how this guy did it was working [he did not want to go and stayed at the mine]. When I first got hired there at Lupin, when the two guys don't turn back, they just didn't get picked up ... [and] our Supervisor was not prepared [for being short-handed] and so when our time was ready to go home, those two guys never made it. So this guy had the power to go home - he was my partner - so he left and I'm left stuck behind and I still got 3 weeks, done no vacation. So what we need to do is have that rotation - do it right at the very beginning, instead of somebody getting [left behind] - you know what I mean. I was the only one left behind with all the machineries and I even built a little airstrip at Lupin, so I was tired, no helper or nothing.

- It's okay if their family get ... to go to the camp site or the man could come back if someone in the family is really sick.
- Two weeks in and 2 weeks out is best for the married people. I was rotating 6 weeks in and 2 off - 10 days off when we worked [at] Little Polaris - that was by the time we get home. We got off only after 6 weeks.
- We just started a project at Lupin, where we take families over to Cambridge Bay where they stay for two weeks, and the spouses and families go over for a week - the second week. They actually sit down and list the things they think they will encounter and how to deal with it before it actually happens. It becomes hard for families to be away, 2 weeks in, 2 weeks off, especially during this time of year when everyone goes hunting. Two weeks off work seems a good long time to some people, but taking into consideration that you're gone away from your family - away from your community for 2 weeks at a time, I think it's probably a very hard way to live. Maybe shorter shifts or taking families in every so often - but I don't know how economical that would be.
- BHP should take a role where they have ... a social worker. I think you need more social workers if you take a position like this, that would go around and help out with families - look at some support. A lot of the time I think what happens is that wives and children are left behind to cope on their own and it's hard to ask for help. So take the initiative and say "look I'm here to help, however I can", rather than waiting for problems to crop up and have to fix



them. Why not go in and talk to the families and see what problems you think you're going to have.

#### D. Ethnic Conflict

- There should be no such thing. If people are bigoted they have got no business being there. I think people have got to learn to get together and get along no matter who you are.
- Like long ago we used to hear the southerners bring lots of drugs to the employees from the north and they should check ...[for drugs] more often 'cause they want to work they shouldn't do these things.
- I think that's the same wherever it happens -- they can bring drugs, alcohol, bad habits into the community, increase the exposure of that.
- Number one is drugs coming up from the south. That tends to be entering into Coppermine through them because it's been smuggled in.
- To me, I don't think ~~they're~~ really disturbed that much. Like, some people are good at it and they're happy to do it and they're willing to work with Aboriginal people.
- Right now it's pretty hard to teach ... the young people. They are on their own and don't want to hunt any more. They're all looking for education so they can get a job. In the old days, the first and only thing you teach the young boy was to hunt and the girl, how to sew and housekeeping. Nobody wants that right now. They all want to be in the warm place I guess.
- When you have these people come in from the south, they think, "Well, we're here for a good time, we're going to party and be off again." You end up with young girls that are desperate. I think it is where they think well, this guy's going to come in and we're going to fall madly in love and he'll take me away from all this and I'm going to have a good life. In reality, these guys often come in, fool around with the young girls, and take off. Then we're left to take care of what they left behind.

## E. Loss of Youth in the Communities

- I don't know about other communities but I look around Coppermine and I don't see many young people out hunting and fishing for a living ... What I see is a bunch of young people walking around the street with their hands in their pockets [and] nothing to do. I think jobs are far more important than the loss of traditional occupations because those traditional occupations cannot support the amount of people that are around here.
- I think this community really needs to do more family oriented things. I mean, just look at some of my old school year books and they show ball teams and stuff that communities used to have years ago. They used to travel -- I mean when they play ball the whole town move to watch -- I mean they need that kind of activities to draw people together. Don't ask me what it is because in a big town like this -- there's a lot of people to try and make happy. How to draw these people in I don't know. What the mines could look at, if they're looking at sponsoring things that get people in the community back together... look at school camps that involve more people in the community at one time than I can think of... except for frolics and Christmas games... an event that gets people out on the land -- those are the type of activities they could sponsor school camps. There could be one in the spring and one in the fall...
- People here in town... are always thankful when young people find a job.
- It's really difficult to answer that because with the high unemployment rate now -- and the fact that less young people are able to make a living traditionally like hunting and trapping and stuff like that -- even though there is some negative to it, it's hard to see it all as negative because of the increase of jobs -- it gives the young people something to look forward to, they're not going to school for nothing.
- ...[Children leaving home is part of normal life], of how you're brought up as a family. I mean, ... if our nomadic lifestyle has changed drastically, we're still nomadic in the sense that spring, summer, fall we're still out camping and doing things like that. While we may not do it on a year round basis -- and I think a lot of young people still have that connection -- and if that's just reinforced and [includes] family participation on their 2 weeks in -- it would enhance that; but also give them, like I said earlier ...[about the] rotation program, with life skills and some on the land skills like that.

- If the young man wants to work, he has to work too, to support the family.
- I think ...[the youth] wouldn't be able to participate as much in what the older people ...[do traditionally]. You see that now. It would make it even worse. A lot of the time you take the young people away to get education and job training and to get jobs, so older parents are frustrated with them because ...[the youth] don't know how to do what

they [the elders] think they should be doing. They might not have the skills to hunt because they haven't had the opportunity because they've been going to school. They haven't been taught to do what the elders expect them to [do].

#### F. Loss of Hunters/Trappers

- Well actually, I think with the total loss of the fur bearing industry and everything like that, these concerns are not realistic. I mean, these are concerns of 30 or 40 years ago, not of today. ...how many people are hunters and trappers in this community, how many real ones...you can count them on one hand, I'm sure. How many of those are you gonna lose to a mine, maybe one. I don't think any of them. I don't think that will have any impact on us at all.
- Some people do lots of hunting for their families or for their youth. They got to work for their ammunition. Some guys who work for Lupin ... go to Lupin by ski-doo and sleds and after their 2 week shift they come home with their ski-doods and sleds and on their way home they go hunting.
- Well, for the families that these hunters [and] trappers provide meat for, I could see an impact on them, but with the fur market being as it is today, with the European banning Canadian furs from entering Europe, then I don't see why these local hunters and trappers shouldn't get jobs.
- That I can't answer - that's a very broad one. It would be up to each individual, I would imagine.
- When I was young, the work was so handy, right at the very spot, and I thought about starting to work. And in those days we had dog teams only, so I was hunting and landed at the very spot and started working. I left my wife behind and she was staying with Kuliktana's. I left them there. I never turned back. So at ...[their] young age, ...[the

youth] might ...[see] some attraction ...[also] if they think the money is easier to get than hunting. That's what happened to me.

- They always pick out the best guys. They're hunters or whatever. I don't say all the best workers are the best hunters. They don't have hunters left anyway.

#### G. Disruption of Traditional Economies

- I just said, sponsor a second camp for kids or sponsor a whole summer camp where kids can go for 2, 3 or 4 weeks. Run it just like they do down south.
- Well, I think they can actively promote that and even be a participant or be a sponsor of our Northern Games and our northern activities. ... Certain periods of time [are special to us] -- spring is our traditional camping time -- and [the company should] make allowances for that.
- We don't see BHP or their representatives participating within our community, or trying to take an interest in what's important to us. They come in and think they go out hunting. I think you need people from BHP that are going to take an active interest in how we live and deal with the day to day life in the community. You can't expect them to be Inuks but at least have an appreciation of why we do things the way we do.

#### H. Introduction of Wage Labor

- You're never gonna prevent ...[family problems], [but] what you can do is help minimize them. I think ...that if these guys are really serious about helping the community and increasing the productivity of their employees, ...[they should] hire a full time family guidance counsellor. Somebody whose gonna go door to door and talk to all these people when their husbands are out, making sure that everything is o.k. [Perhaps] go by their place twice a week and visit people and say, "How's it going? [Do] you need anything or is there anything we can do to help you?" If there's a problem, she'll be a good person to catch it and be able to help. That's what they're gonna need -- a full time family guidance counsellor ... this counsellor could help with money management and to deal with other negative effects.
- Presumably they better not hire 100 non-natives, they better hire 1000 Natives and if they don't there's got to be a reason why not ... that would be because of poor planning,

they didn't start hiring people today and putting them on mine sites down south to train them for this mine coming ... on stream...

- The only way to prevent [problems] is not to order so much booze [and] I guess-not to let southerners bring drugs to them.
- Like I said, they should have meetings with their employees. If they want to go out to work for their 2 week shift, they should have meetings with them once in a while.
- I don't know if you'll ever prevent social problems [because] they've existed even before the beginning of this project. Just increase awareness and on-going counselling: availability of counselling, availability of treatment programs, increase awareness promoting a dry work site, alcohol free [and] drug free.
- Again, that would come as part of the life skills orientation program, where you teach budgeting, planning and long-term planning stuff like that.
- It would depend ...[upon the] family. Most people function quite well helping out their parents and stuff like that. They come in for 2 weeks and then they [make] sure that [the help] continues while [they are] out, like allocating [the job of helping the elders] to another family member.
- I think hiring on a fair hiring [program] -- doing it on a basis of education and experience -- it doesn't matter if you're male or female. If you ask most people around here, it would be an affirmative action policy. They don't want to be hired on their race -- they want to be hired on their ability.
- That they take maybe a training program as to how they can manage their money.
- Maybe have the Employment Officer within the community of Coppermine involved with BHP as for the hiring process of it.
- [Yes, there is a drinking problem.] That's what always happens. That's what even happened to myself. Like, every time I'm going home from Lupin,... [we have to go via] Yellowknife. We don't pay for the hotel rooms or plane fare

- the mining company pays for hotel room, meal - not meal but everything is paid for [and you get to drinking with your friends that night] --and when you're ready to go home the next day, pretty well the same I guess, and we end up buying a whole case (of booze) I guess, you know, just to bring home, and sometimes something happens.

- Spend it on food and clothes, whatever.
- They always go to the bar.
- I guess they've got to learn how to save money at first. They don't know how to save money yet, these young people.
- The big [problem] I have is increased drinking and family violence. You see [it] time and time again, where you get more money and people want to celebrate which is fun. But not being able to handle your booze becomes a problem. I'm not one to say people shouldn't drink (because it causes problems) because that's not necessarily true. I think it's a wonderful idea for people to get together and have a good time, but once things start to get out of control, [you need to stop it]. You need people that are going to be there to help them out, to perhaps not get as much booze and not get as drunk.
- [Budgeting your money is] hard because even when I was young I used to think, "Well, I have the money, so I should blow it." Which is probably what I did. I don't know if the banking is so foreign for most of us. You think, "Well I've got money so I should spend it." It's something that I'm bad for too, and it takes a long time before you turn around and put so much away every week. Pretty soon [you have saved a] nice chunk and think that this is what I could get if I save this much money. If people are going to be hired from here, then that's another area they should be helped with -- to put away a little bit of money each week. Eventually they can get a Honda, a ski-doo, [you] can get a house someday. But for most of us, it seems like it's not reachable, so why bother.
- [sharing/spending money]... A lot of time, older people forget [a] person has feelings and ways of doing their own thing. They say all these people have obligations. It makes them feel like everybody's telling them what to do. I think that's something the young people should be asked once they're working. It's something they should determine for themselves rather than being told.
- I've been in Personnel for some time and it's been hard at times. The best thing I can suggest is always look and seem to be fair when you deal with everybody. It doesn't matter

who [or] what family they come from [or] what status they have. You look at them the same way you look at everybody else and determine their qualifications.

#### I. Influx of Non-natives

- ...[The non-natives] are only going to the mine site and going away from the mine site. Do you see the guys from the south that work at Echo Bay except when we have the baseball game? [We] never see them, [so] what effect do they have on us? None.
- Our community doesn't mind Kablunaak's (White men) 'cause we have to like everybody, we're not to go against them.
- I think yeah, [non-natives coming into our community] would have a negative effect. It's bound to. It'll cause low self-esteem for some people and [who will] wonder why outsiders are being hired as opposed to them. It'll give a feeling of inadequacy. We're not good enough for the jobs. Now to mention the alcohol and drug level, -- that would increase badly [because the non-natives will bring it in] from outside. We already have a lot of these problems existing in our communities today, and it would just seem the level [of these problems] would increase in number if outsiders [are] coming in.
- [When non-natives come to a community] ... This is where the [negative] social impact again comes in [with] regards to drugs coming in. That would be one way and I can't think of any other way.
- ...There [are] lots of people unemployed who could .... be building the houses in the area. And they get people from down South just to put the nail on, cut the boards, and that's what's gonna happen to the mining area. But, ....like when I was at the DEW Line site, I was unionized. And union help people, more than just the unemployed. So if there's a way of having [a] union, there could be a lot of easier ways for the [Aboriginal] people [to be] working, maybe.
- If there are a lot of white people working there, it probably won't be good for the [Aboriginal] people; ...[but] if they have [Aboriginal] people in higher positions, things will probably be okay. It's hard, because they say they are going to work and it's hard, and I'm stingy for the land over there alright. And the land is for our future children and people to hunt off these lands, ...[because] those people do [that] now and the young people do [that] now, 'cause they have worked, and if they monitor the place carefully, they'll probably finish the job and look after

the animals carefully.

- If there were more Native people in the mine, it'd be better.
- .... Decisions that are going to be made should be checked out with the people that are going to be involved in one way or the other, maybe not directly in the mine, but maybe at home. If it's going to have an impact on some old chap, then he should have an opportunity to say how it's going to effect him.

#### J. Has the Mine Created Tensions between Dene Groups

- ...[The different Aboriginal groups] have been fighting [each other] for years, I mean they've been killing themselves for 50 years ... these guys will never get together at a table so what is the problem? Give them ... money and [tell them] "Here you go" and that'll make them happy.
- Let somebody try and make [the Aboriginal groups] talk to each other or have a meeting with each other.
- I don't think these tensions could be reduced unless they make a decision one way or another as to whose land it is. We know it's our [land, but] they claim it's theirs. Unless it's resolved, that tension is just gonna be there. Like you say, ... the different people that are laying claim to [the same land] like the conflict because if it's not solved, then it delays things for everybody.
- I think ...[Dene have] been trying to do the same thing with Lupin also, but I don't think [the Dene] ever lived any further than Snare Lake. ...I hear of people living north of Snare Lake and Great Bear Lake area, into that Territory.
- It's the Inuit land, 'cause there's no trees and no "Indians", but Inuit people have been there ...people try to take our lands, and ... the Inuit try to keep the land, not only me, and I try to help the Inuit, 'cause I know the land. I was brought up in the area.
- Well that's been talked about even when we were negotiating land claims [the conflict between the company and the ~~different-Aboriginal~~ bands on the land]. That was the talk they gave us. They claimed Contwoyto was their land and as far as I know, I've never seen an Indian living in around Contwoyto. So I say it's Inuit land. Inuit used to trap and hunt south of there in those lakes. If you're to make



them happy, you have to cut back quite a bit. So we made an agreement that hunting on either side doesn't affect them and doesn't affect us. If we're chasing a wolf on Dene land, we're not going to stop right there and let them run away. It's the same for them. I have no say on land in there, as long as everybody's happy.

- First of all, the government has to say they accept that we have a claim to this area. [They must] look at the needs of the two Treaties. Eventually, they have to come up with a compromise so that both are generally happy.

#### K. Loss of Archaeological Specimens and Graves

- I agree, there's a risk of some potential disturbance of burial sites and artifacts ... but, again, who the hell knows where they are anyway?
- I heard [about disturbing graves, etc.] so many times. When the miners want to work [at some place] they should try and inspect the place [before they begin] their working ... they've been told not to touch any burial grounds. You know where [the elders say they] used to have their tents long time ago.
- I think that just being aware—[of burial sites] and making sure that everybody knows that they [may] stumble across something or find something that ... might be from a burial site, [that] they just not disturb it [but] bring it to someone's attention. [They should not say] to themselves, "I found this", and pocket it.
- Well, at this time there are laws that you can't disturb or remove artifacts at a historical site and if these laws are enforced, I don't see any problem with it.
- Historical sites such as grave sites [and] old camp sites tend to be lost when they're building new roads or access roads or even opening new pits; and that [is] all in the name of progress.
- It's gonna be hard. ... when they started building Coppermine, just for an example, ... and people [did not] even bother to [preserve] ... a burial spot or anything. Look at all these houses in this place. There are some human skulls in the area ...
- The white people [will] probably sneak and take some artifacts. But if they find artifacts, they should show people where they found [them]. ... they shouldn't take artifacts. ...

- If the non-natives take artifacts without permission, I don't think it's a very good idea.
- [Taking artifacts happens everywhere] not only here, but also in the East. I was there for a conference last year, and they do that all the time. They find a bow and arrow head and they're not going to leave it there. They're going to take it without letting anybody know. But people claim they should leave the stuff there because there is more stuff like the hunter used .... They should never take it out of the burial grounds.
- I think you have to ask the members of Treaty 8 and Treaty 11. For sacred grounds, that's something that BHP would have to tread very carefully on and ensure they're not going in after a couple of consultations because they figure they know what the answer is. If anyone started disturbing burial sites from my area, I don't think I'd be too happy with that.

#### L. Indirect Terrestrial Impacts (General)

- BHP has to take an active role in trying to get a good grasp and understanding of why we do things the way we do [and] why we are the way we are. Rather than just coming in and thinking that since they've been here for a year, [they] know everything there is to know about Inuks in Coppermine or Treaty 8 ... [They should] sit there and get a good idea of why people believe what they believe. They shouldn't take it as just another myth or not take [our legends] into consideration because they think it's silly. There has to be a reason for why some things might seem silly to one culture and serious in another.

#### M. Length of Operation

- ... Too bad it's not 30 or 40 years ... My concern is that it's too short.
- We've had lots of experience here with Echo Bay, with Gulf Oil, with Canmar, yeah, we have had lots of experience here.
- I think actually ... Dome/Canmar, Gulf and Echo Bay [mines] have substantially raised the lifestyle of a lot of people in this community. I mean these companies have pumped a million dollars [in] here [from] Echo Bay just in salaries. Yeah, they put a lot of money into this community so there are socioeconomic benefits, but there are also impacts. You can tell when there's an Echo Bay shift change because there's a lot more people drinking. There are some negative

impacts.

- They could work as long as people are not complaining about what they are using or destroying the lands.
- I don't have a comment on that one way or another -- it's gonna happen anyway. So as long as [the mining companies] hopefully clean up behind themselves and lessen the contamination.
- It is very long. It is 25 years and I see within 25 years there's gonna be a lot of changes and there will be impacts on the environment and social impacts. Who knows. I can't really answer that question.
- It's hard for me to tell twenty five years, 'cause I may not be living. But those people in the future [and] the young people should be notified if the job is done.
- That 25 years is kind of short life for a mine.
- You'd have to weigh the pay-back we get as opposed to the length of time that the company is going to be there. What's the point [of] having a mine that's going to disappear in 25 years when we've gotten nothing but low-paying jobs out of it? On the other hand, if it means that 100 people from here are going to get very good jobs, who is to weigh it? You need someone that's going to sit down and say, "Yes." It's worthwhile for this project to go ahead because what we're getting is worthwhile. On the other hand, if ... that means we're going to have meager positions for 25 years, you need people that are going to be sitting in with you to say that it's not worthwhile for people in my community to have this project. That's something you have to do before you start this mine up.

N. Previous experience with social and economic impacts of other mines

- I've seen employees coming in and out of Lupin and that's the only one that I can think of. I don't see any problem with it.
- I don't know too much about mines. ... I was [on the] surface crew, ... unloading airplane, maintaining the road, maintaining the airstrips from snow, and sometimes, when I got nothing to do, the garbage and that.
- Every so often you'll have families that are in crisis ...because of the 2 weeks in, 2 weeks out - ...money management, separation, [and] child bearing. Being a single

parent directly involves our staff because a lot of time they're people that are having problems and we have to help out. That's what we're here to do. I wish there were some way all this could be minimized before it happens. [I am worried] because [of what happened] with Echo Bay Mine. They have social workers, but they're not here. We don't see them. I don't know what involvement they have with families that are left at home. They might be involved with the employees, but there's also the other half. So, if you were coming in, I think you should speak to Social Services because from what I see, a lot more problems start to happen when families are being separated for two weeks.

#### O. Other Concerns

- I think it's got to be the impacts on the families of people going to work. It's got to be the most serious one, because if you have a happy family life everything else falls into place. It's got to start with the family. You know if you're happy at home you could be piss-ass broke and still be happy and not worry... My most serious concern is, how are we going to ensure that people out of Coppermine are going to get some [good] out of this, because ultimately it's [the] Coppermine River that's gonna pay the price and that means people in Coppermine.
- Lots of mines are [opening up] these days; and like I said, some people never have anything before, but when they start working for the mine, they buy Ski-doo's or Hondas.
- Like I said before, we'll have concern if they start using strong stuff to clean the rocks with or if they start spilling things in the river or the lakes.
- ... [the company] should try and meet with their employees when they go out for 2 weeks, and try and let them talk to, or be good to their families at home and their kids and use their money wisely.
- Just the increase in social problems and the decrease in food supply and contamination of the environment that's about it.
- Speaking from a personal level again -- the decreased food supply and increase in cost and further distance to go to supplement our food supply -- contaminating the ground through oil spills and hazardous waste spills, etc. -- depletion of fish -- increasing social problems with a greater influx of drugs and alcohol. I mean, it's already readily available, but this would just seem to increase it further. My feeling [is] if they're just employed without

education, than it's going to be all this money and not knowing what to do with it and [they] won't be able to spend it wisely or budget it accordingly. ... I see children ... as being the ones that lose out if their parents go out on drinking binges....

- Mainly drugs coming in from the south as a social impact and possibly relationships between husbands and wives or between partners ... I see an impact there. I can't think of any others at this time.
- It don't matter if they work.

P Previous Experience with Impact of Other Mines

- Employment - If they want to work [in] the area, [they should] employ the Aboriginal and train them to be ... heavy equipment operators ... Some people are fully [trained] equipment operators like myself. I can run all kinds of heavy equipment. But nowadays, you have to learn one thing at a time instead of doing all kinds of machineries. Like instead of just being a laborer, you have to have something to work with. Like often, with machineries, with most of my work... I never work with my legs or my feet or my hand. I just sit in the machine and that's how it's working now - I'm too old to go to work.
- I think because people do make money when they work, for the white people, and if people make money working off the land over there, it's okay. Our future children - it's ... their money too. They work now for money and they're not so poor. We should try and help our future children, and white people should know that it's Inuit land. Thank you.
- Buying booze [is a problem].
- Keeping the land clean [is a major problem].
- Decisions are going to be made by people other than the people that have been here all their lives. Decisions are going to be altering the way that we live. ... I know you have to go ahead and do things - but on the other hand, decisions that are going to be made, that are going to impact the rest of us, have to be sought by you from us, and I can't say that enough. Because I don't want it to get to be like an industrial town where other people are making all

the decisions while it involves us and it's going to impact  
[us] ...



YELLOWKNIVES DENE FIRST NATION

POLICY GUIDELINES FOR

*Yellowknives Dene Traditional Knowledge*

SAVING  
OUR COMMUNITY  
CULTURAL HERITAGE  
RESOURCES

*February 1995*



**YELLOWKNIVES DENE FIRST NATION**  
**POLICY GUIDELINES FOR**  
*Yellowknives Dene Traditional Knowledge*

**R E A S O N I N G**

**WHEREAS**, Yellowknives Dene traditional knowledge is a community cultural heritage resource that our First Nation wishes to protect, and

**WHEREAS**, Yellowknives Dene Elders and experienced land users, who hold our traditional knowledge, want our community to benefit from their knowledge, and

**WHEREAS**, our First Nation needs to develop the ability to document, save, and make community use of the knowledge of our Elders and experienced land users -- with their consent, and

**WHEREAS**, our First Nation is receiving increasing numbers of requests from outside our community for our "traditional environmental knowledge", when the nature of the information requested is often unclear, and

**WHEREAS**, our First Nation needs to clarify the actual nature of information being requested from outside our community and to develop ways of fulfilling them, and

**WHEREAS**, in the interests of conserving our resources, our First Nation needs to determine strategies whereby we can accomplish internal goals and fulfil appropriately defined external requests -- while protecting the intellectual property rights of our community cultural heritage resources --

**THEREFORE**, the Yellowknives Dene First Nation needs policy guidelines for consistent ways to

- care for the traditional knowledge held by Yellowknives Dene Elders and experienced land users, and the materials in/on which it is documented
- meet clarified and carefully defined external requests for Yellowknives Dene traditional knowledge, while protecting our intellectual property rights
- ensure beneficial use of our community cultural heritage resources for our First Nation, with the consent of our people holding our traditional knowledge

## YELLOWKNIVES DENE FIRST NATION

### **POLICY GUIDELINES FOR** *Yellowknives Dene Traditional Knowledge (YDTK)*

#### *Regarding YDTK Outside our Community*

- > **Whenever possible, Yellowknives Dene First Nation members, leadership, and staff can educate and inform people about the nature of our traditional knowledge and why we think of it as a community cultural heritage resource.**

*Explanation:* Traditional knowledge holds our identity as a people. the history, spirituality, values, principles, and practices we can live by as Yellowknives Dene. With traditional knowledge, our Elders can teach our young people our languages -- the words as well as the ideas behind the words as they evolved on the land. With traditional knowledge, our Elders can help to develop Dene words for modern terms and ideas. With traditional knowledge, our Elders can teach younger people how to participate in our land-based economy, teaching them bush skills so they can survive on the land and guiding their involvement in present land-based activities without selling our culture negatively. With traditional knowledge, our Elders can show younger people how to visit the land and to observe and remember changing natural patterns. The more recent knowledge of our Elders includes their recommendations for ways to share our lands and resources according to our values -- and as reflected in the Treaty relationship -- so that we can coexist with people from other cultures.

The traditional knowledge of Indigenous Peoples is not well understood by literate, highly individual-centred, and competitive cultures. Our cultural heritage has much to offer to people from other cultures, and whenever possible, we can express our pleasure in being a Yellowknives Dene while we educate and inform people from outside our First Nation about our community cultural heritage. Our educating and informing can include our reasons for wanting to save and protect Yellowknives Dene traditional knowledge.

- > **Yellowknives Dene First Nation leadership can lobby other governments to support the protection of our community cultural heritage by implementing and improving their policies that affect our traditional knowledge.**

*Explanation:* Government policies (ie, those related to land use, languages and education, and economic development) may affect Yellowknives Dene cultural heritage. Conditions for funding programs may exclude our Elders as advisors or trainers. Scientists may study our traditional lands without our consent and without consulting our Elders, despite their government's traditional knowledge policy that they must. We can lobby for better policy accountability.

## YELLOWKNIVES DENE FIRST NATION

- > **Whenever possible, Yellowknives Dene First Nation members, leadership, and staff can seek and locate materials within and outside our membership that contribute to our community cultural heritage resource, and alert appropriate staff about their status and condition.**

*Explanation* In the past, our Elders were very generous about sharing their knowledge. During the past 40 or so years, many people have interviewed or recorded stories of our Elders: university professors, journalists, anthropologists, community development fieldworkers, and specialists working for government. Our Elders say that sometimes their knowledge has been used only for the benefit of a person or a government department outside our community. We know that materials contributing to our community's collective traditional knowledge are located in many places. When we visit museums, universities, government departments, libraries, and so on, we can ask if they have any Yellowknives Dene materials. If so, we can try to find out two things: what condition the materials are in, and what regulations or policies the institution has about the materials. We can report this information to the appropriate staff in our community, for further recommended action.

- > **Yellowknives Dene First Nation leadership and staff can find ways to have materials located outside our community either transferred to us or duplicated.**

*Explanation:* When we locate Yellowknives Dene cultural materials outside our community that are in good condition, we can ask if the holder of the materials is willing to transfer them to us. If so, we can discuss such issues as suitable places to store or display the materials, and carry out strategies for the transfer. When we locate cultural materials, such as audio tapes, outside our community that are in poor condition, we can discuss with the holder of the materials some ways to copy or transcribe the materials so that the knowledge in the materials can be transferred to our community, even if the original materials are not worth transferring. We can decide whether the originals ought to be destroyed once copies are made.

- > **Yellowknives Dene First Nation leadership and staff can negotiate with external holders of our traditional knowledge materials, particularly tapes or transcripts of stories by our Elders, to restrict access to them until our consent is obtained.**

*Explanation:* When external holders of Yellowknives Dene cultural materials insist on retaining copies or originals, we can negotiate for restricted access to the materials, perhaps with the condition that the owner of the intellectual property rights in the traditional knowledge give informed consent for access to the materials.

## YELLOWKNIVES DENE FIRST NATION

- > **When presented with external requests for our traditional knowledge, Yellowknives Dene First Nation must clarify the actual nature of information being requested, then seek our leadership's advice about fulfilling the request.**

*Explanation:* Often, what external governments or companies asking for our traditional knowledge actually want is identification of areas within Yellowknives Dene traditional territory that are highly sensitive. That is, when land uses are proposed by anyone other than Yellowknives Dene members, governments and/or companies want to be able to predict where potential conflicts may arise. They may not really want detailed oral history or land-use records, because those materials require interpretation by our specialists. What may be more helpful to governments and companies are materials that indicate land areas of sensitivity -- that is, areas of significance to the Yellowknives Dene, however we define it. Therefore, as well as educating and informing people about our traditional knowledge, our Elders Society and our staff can discuss with people or companies making requests what information they actually need or are expecting to get -- to reach agreement about the actual nature of information being requested.

- > **Through a registered non-profit society, our Elders can arrange research contracts and other projects through which appropriately clarified and approved external requests for information can be met.**

*Explanation:* A registered non-profit Elders Society can discuss and clarify the true nature of external requests for Yellowknives Dene traditional knowledge, which can be submitted to our leadership for approval. Once approved, the Elders Society can we can make arrangements (such as a research contract or sub-contract), so that they can provide the information services needed to fulfil the external request, in co-operation with one or more of our First Nation programs. The proceeds from such contractual arrangements can support community cultural projects in which our young people learn our ways from our Elders.

- > **To protect Yellowknives Dene intellectual property rights, *no primary detail or evidence drawn from our traditional knowledge* can be interpreted or presented by or to external information users. Secondary information provided to external information users with our consent and approval, unedited use of materials prepared by Yellowknives Dene, and full accreditation or acknowledgment.**

*Explanation:* Yellowknives Dene Elders and experienced land users feel strongly that their traditional knowledge should not directly benefit people outside our First Nation community. We face challenges, especially limited resources, for documenting our traditional knowledge for our community's benefit. We need strategies to meet internal and external demands, while protecting the detailed primary information that comes directly from our Elders and land users.

## YELLOWKNIVES DENE FIRST NATION

### POLICY GUIDELINES FOR *Yellowknives Dene Traditional Knowledge (YDTK)*

#### *Regarding YDTK Community Issues*

- > A Yellowknives Dene First Nation Elders Society can explore strategies for documenting, saving, and making our traditional knowledge accessible to our community for beneficial use, with the consent of our Elders and experienced land users who have parts of our traditional knowledge.

*Explanation.* Yellowknives Dene Elders and experienced land users say that they are willing to have their knowledge recorded, for instance, on tape and on maps, as long as recorded materials are used within and for the benefit of our First Nation community. Our Elders have said repeatedly that they are not willing to give their knowledge directly to outsiders, especially when they suspect that the use of their knowledge may not benefit our community. Some Elders prefer that their voices not be aired publicly after they pass away, such preferences can be stated on signed "informed consent" documents that can be kept with the recorded materials

- > A Yellowknives Dene Elders Society can develop guidelines for the beneficial use of our traditional knowledge by our First Nation community, including its use for and by our First Nation government.

*Explanation:* Our First Nation community -- like any other human community -- has potentially conflicting interests. We want to protect intellectual property rights of individual Yellowknives Dene members with traditional knowledge (either their own or inherited materials), but still provide access to our collective knowledge as a community cultural heritage resource. Our Elders can help us design some flexible guidelines for ways in which our community can use and benefit from their knowledge, ways to reassure holders of our traditional knowledge that it will not be misused during or after their lifetime, and ways to encourage individual members to contribute their knowledge. Finding ways to incorporate our traditional knowledge within our First Nation government can provide models for other parts of our community.

- > The Yellowknives Dene Elders Society and Land & Environment Program can develop traditional and current characteristics and criteria to define land areas considered to be sensitive or of significance to our First Nation. *To protect our intellectual property rights, any primary evidence or detail must remain within our First Nation community.*

## YELLOWKNIVES DENE FIRST NATION

*Explanation* As noted, the nature of information required by government or industry requesting our traditional knowledge may actually be quite different. To accomplish our community goals of documenting our Elders' and land users' knowledge and to try to meet more accurately identified external information needs, our Elders Society and Land & Environment Program can begin defining what we mean by land that is "sensitive" and "significant" to us.

For instance, characteristics for our own meaning for land that is sensitive for the Yellowknives Dene might include: the presence of burial sites, former gathering places, birthing grounds, hunting areas, and so on. Then we can develop criteria for Yellowknives Dene significance that we might attach to each of these characteristics. For instance, for the "sensitivity characteristic" of burial sites, we might have "significance criteria" for a single isolated grave, the burial site of a highly respected Elder, a mass grave site, multiple sites within a defined land area, and so on.

- > **Applying these characteristics and criteria, the Yellowknives Dene Elders Society and Land & Environment Program can produce maps (of primary information) to show areas within our traditional lands according to their degree of sensitivity and significance to our First Nation. And, for clarified and approved requests, the Yellowknives Dene Elders Society and Land & Environment Program may produce composite (secondary information) maps or other materials for specific land areas.**

*Explanation* When the Elders and experienced land users have developed Yellowknives Dene "sensitivity characteristics" and "significance criteria" for each characteristic, they can begin plotting each characteristic on a map, according to the degrees of significance attached to each criterion. *Each sensitivity map must be considered to be primary evidence*, because it will be a direct record of our Elders' and experienced land users' knowledge, as such, *Yellowknives Dene sensitivity maps cannot be for external presentation or public circulation.*

On request, we can consider preparing composite maps, with a brief interpretive explanation for presentation, of a specific land area of interest to the government or company making the request. Only secondary information maps can be presented to an external user, *once each agrees to obtain our consent and approval, to use our prepared interpretation and presentation unedited and with full accreditation or acknowledgment, and, prior to release, to pay in full all agreed recompense according to contractual arrangements.*



## **Appendix I-A9**

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### **Applicable and Potentially Applicable Laws, Regulations, Standards, Policies, and Guidelines**

#### **Federal Government**

*Archaeological Heritage Protection Act*

*Canada Labour Code*

*Canada Noise Control Regulations*

*Canada Sanitation Regulations*

Canadian Environmental Assessment Act

Canadian Environmental Protection Act

Department of Environment Act

Department of Natural Resources Act

DFO's "Policy for the Management of Fish Habitat" (1986)

DIAND's "A Guide to Territorial Land Use Regulations" (1981)

DIAND's "Environmental Guidelines, Pits and Quarries"

DIAND's "Environmental Operating Guidelines, Access Roads and Trails"

DIAND's "Exploration to Development: DIAND's Regulatory Requirements in the Northwest Territories" (1995)

DIAND's "Guide to Completing Application for a Land Use Permit Pursuant to the Territorial Land Use Regulations (New 4 page form)"

DIAND's "Land Use Guidelines Mineral Exploration"

DIAND's "Northern Natural Resource Development Requirements Procedures and Legislation"

DIAND's "Reclamation Guidelines for Northern Canada"

EARP Guidelines Order (1984), issued as an Order-in-Council under the *Government Organization Act*



Environment Canada's "Environmental Code of Practice for Mines"

Environment Canada's "Guidelines for the Control of Liquid Effluents from Metal Mines"

Environment Canada's "Mine and Mill Wastewater Treatment"

Environment Canada and Transport Canada's "Glycol Bulletin" (1994 and foll.)

*Explosives Act*

Explosives Regulation

*Fisheries Act*

*Fishery (General) Regulations*, Part IX (s. 58): "Authorization to Alter Fish Habitat"

*Metal Mining Liquid Effluent Regulations* passed under s. 36 of the *Fisheries Act*

*Northwest Territories Fishery Regulations*

Hazardous Materials Information Review Act

*Hazardous Products Act*

Migratory Birds Convention Act

*Navigable Waters Protection Act*

*Northwest Territories Act*

Northwest Territories Archaeological Sites Regulations

*Northwest Territories Waters Act*

*Northwest Territories Waters Regulations*

*Territorial Lands Act*

Canada Mining Regulations

*Caribou Protection Measures*

*Territorial Dredging Regulations*

*Territorial Land Use Regulations*

Territorial Lands Regulations

*Territorial Quarrying Regulations*

Transport of Dangerous Goods Act

**Territorial Government**

*All Terrain Vehicles Act*

*Boiler and Pressure Vessels Act*

Commissioner's Lands Act

*Coroner's Act*

Culture and Communications unit of the GNWT's "Archaeological Sites in the Northwest Territories - A Notice to Individuals or Companies Conducting Land-use Operations in the Northwest Territories."

Culture and Communications unit of the GNWT's "Guidelines for Developers for the Protection of Archaeological Resources in the Northwest Territories"

*Emergency Medical Aid Act*

*Engineering, Geological and Geophysical Professions Act*

Environmental Protection Act

Environmental Rights Act

Explosives Use Act

*Fatal Accidents Act*

*Fire Prevention Act*

*Gas Protection Act*

GNWT Energy, Mines and Petroleum Resources' "A Guide to Legislation Affecting Exploration and Mining in the Northwest Territories" (Nov., 1991)

GNWT Renewable Resources' "Safety in Bear Country - A Reference Manual"

GNWT Renewable Resources' "Safety in Grizzly and Black Bear Country"

GNWT Renewable Resources' "NWT - Summary of Hunting Regulations"

Historical Resources Act

Labour Standards Act

*Mining Safety Act*

*Blasting Certificate Regulations*

*Environmental Monitoring Regulations*

*Fire Safety Regulations*

*Medical Certificate Regulations*

*Medical Monitoring Regulations*

*Mine Hazardous Materials Information System Regulations*

*Mine Occupational Health and Safety Board Regulations*

*Mining Safety Regulations*

*Propane Cylinder Storage Regulations*

*Radiation Hazard Regulations*

*Shift Boss and Hoist Operator's Certificate Regulations*

NWT Water Board's "Guidelines for Abandonment and Restoration Planning  
for Mines in the Northwest Territories" (1990)

*Pesticides Act*

Public Health Act

*Public Highways Act*

Safety Act

*Scientists Act*

*Transportation of Dangerous Goods Act*

Workers' Compensation Act

*Wildlife Act*

### **International Treaties, Conventions, and Agreements**

Convention Between the United Kingdom and the United States for the Protection of Migratory Birds in Canada and the United States (Washington, Aug 16, 1916)

Convention on Biological Diversity (Rio de Janeiro, June 5, 1992)

Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington, Mar 3, 1973)

Convention on Long-Range Transboundary Air Pollution (Geneva, Nov. 13, 1979)

Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar, Feb 2, 1971)

International Covenant on Civil and Political Rights (New York, Dec. 19, 1966)

International Covenant on Economic, Social and Cultural Rights (New York, Dec 16, 1966)

Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal, Sept 16, 1987)

Treaty on the Conservation of Migratory Species of Wild Animals (and Convention Annex I List of Animals forbidden to be taken) (Bonn, June 23, 1979)

United Nations Framework Convention on Climate Change (New York, May 9, 1992)

Vienna Convention for the Protection of the Ozone Layer (Vienna, Mar. 22, 1985)

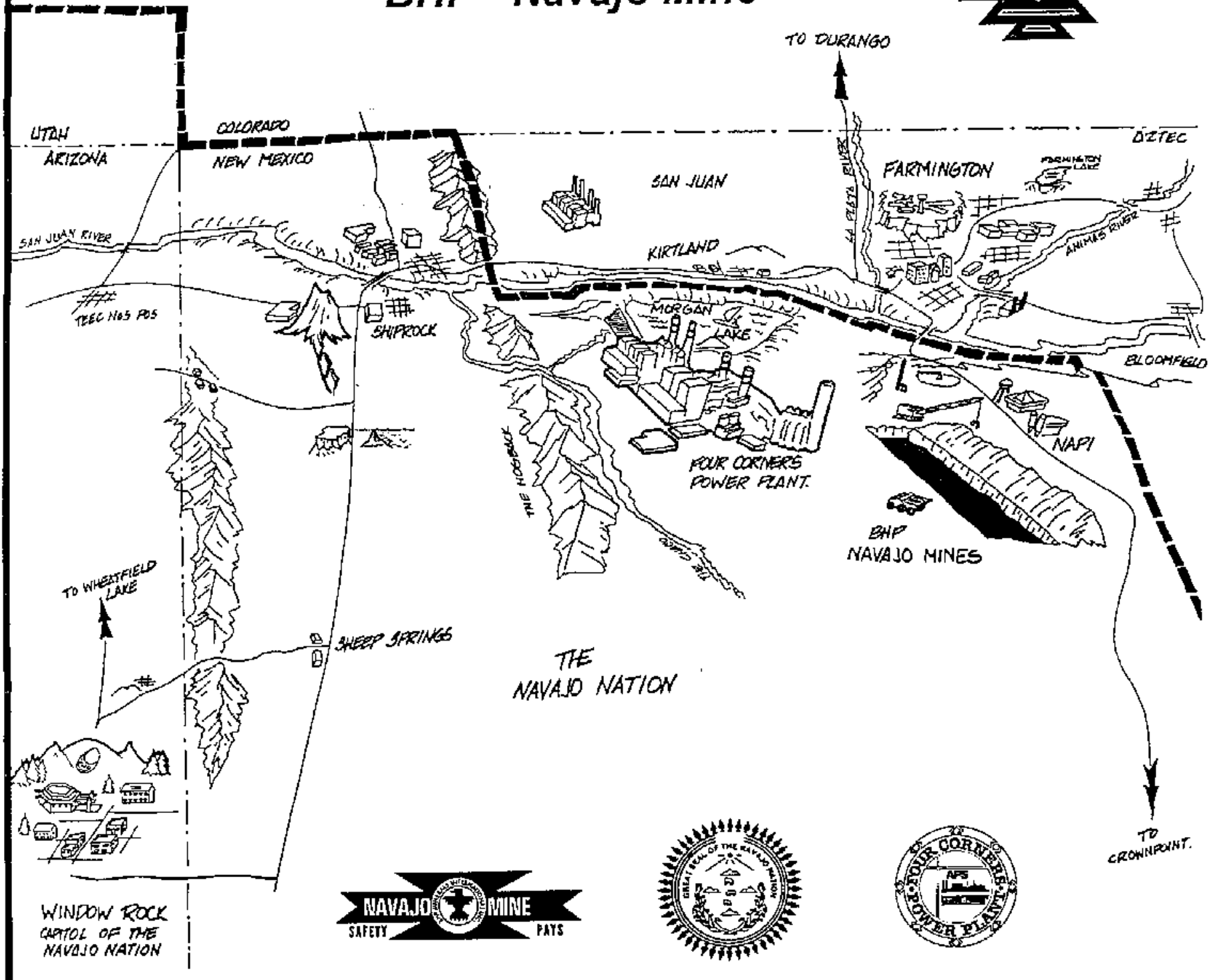


The Navajo Nation

BUILDING OUR FUTURE

Four Corners Power Plant

BHP - Navajo Mine



**B**HP-Navajo Mine, APS-Four Corners Power Plant and the Navajo Nation have been working together for over 30 years. Together we have built partnerships in business, employment, community development and education. Our success is your success. It's a natural partnership... now and into the future.

Four Corners Power Plant and BHP - Navajo Mine is located in Northwestern New Mexico on the Navajo Nation.

Fueled by the coal mined by BHP - Navajo Mine, Four Corners Power Plant's five generating units are capable of producing a total of 2,040 megawatts, making it one of the largest electricity producers in the Southwestern United States. The five units burn about 28,000 tons each day or 8.4 million tons of coal annually.

EMPLOYMENT

Four Corners Power Plant and Navajo Mine employ 1,150 men and women with a combined annual payroll of \$ 63.6 million. The combined work force is 75 % Native American making Four Corners and Navajo Mine two of the top five employers on the Navajo Nation.

ROYALTIES PAID TO THE NAVAJO NATION

In 1994, BHP-Navajo Mine and Four Corners Power Plant paid over \$ 22 million in royalties to the Navajo Nation along with \$ 653,000 in lease commitments.

1994 TAXES PAID TO THE NAVAJO, FEDERAL, STATE & LOCAL GOVERNMENTS

Tribal Royalties	\$ 22,067,000
Tribal Tax	\$ 4,728,000
Federal Tax	\$ 7,792,000
Resource Excise Tax	\$ 1,043,000
Conservation Tax	\$ 251,000
Gross Receipts Tax	\$ 9,642,000
Payroll Tax	\$ 5,404,000
Severance Tax	\$ 10,038,000
Property Tax	\$ 6,375,000

COMMUNITY PARTNERSHIPS

BHP-Navajo Mine and Four Corners Power Plant employees make personal contributions to surrounding communities through their volunteer efforts in a variety of youth athletic leagues, service organizations, chapter and community service projects, serve as elected or appointed officials for school boards, non-profit organizations and chapter houses.

Employees also donate part of their earnings to Navajo Way and United Way. In 1994, Navajo Mine and Four Corners Power Plant and their employees contributed over \$ 266,000 making them top contributors to the Navajo Way and United Way organizations.

EDUCATION FOR NAVAJO YOUTH

For 10 years BHP and Four Corners Power Plant have contributed over \$600,000 to the Navajo Education and Scholarship Foundation to help educate Navajo students.

In 1995, Four Corners Power Plant announced the Four Corners Power Plant Navajo Scholarship Program. The program provides \$ 30,000 annually to assist Navajo students in attaining a quality education in areas related to the utility industry.

Since 1993, BHP has offered scholarships to qualified Navajo students annually totaling over \$10,000 in scholarship awards. BHP also awards \$2,000 annually for local chapter scholarships.

Because we believe in the preservation of the Navajo culture, Four Corners Power Plant and BHP have committed \$ 800,000 to the Navajo Nation Library and Museum Project.

## Your guide to what's on

This special issue of the Island Copper newspaper, the Island Miner, has been prepared for today's Totem Day celebrations.

We hope it will assist in your tour of the operation, and that you will keep it as a souvenir of your visit.

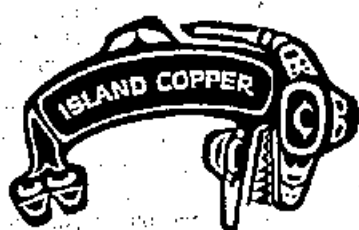
The program will be as follows

12 00 — Bus pickup at mine parking lot.  
12 35 — Totem ceremony in front of administrative buildings.

1 35 — Tours begin.  
Bus transportation will return people to the car park area and those wishing a tour will be grouped at the mine dry

Visitors will see the mine, the mill building, the copper concentrate storage area and ship loading facilities.

Island Copper Mine asks visitors to stay with their groups and stay well clear of men and equipment at work. We strive to keep Island Copper a safe operation for everyone.



# ISLAND MINER

JUNE 8, 1974

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## It's thank you day at Island Copper

Island Copper Mine will host today guests invited to share in the Totem Day celebrations.

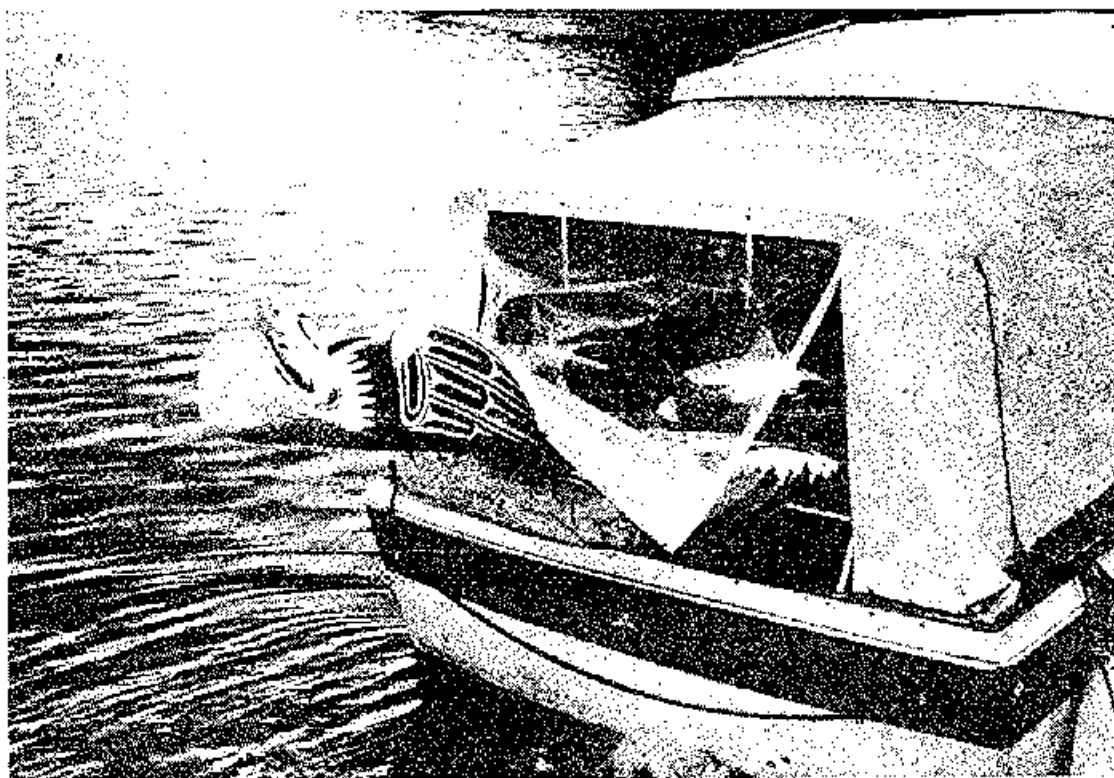
Feature of the event is a Quatsino bear pole, carved by Norman Charlie, hereditary chief of the Quatsino band.

Mort Pratt, Island Copper general manager said "Some people might be wondering what this Totem Day is all about, and why we're putting up a totem

here for hundreds of years, and some of them are relative newcomers.

"We wanted to say thank you to the North Island people, and when we thought of doing that, it seemed appropriate to put up a totem pole carved by the hereditary chief of the island's first people.

We hope that the Quatsino bear pole brings them happiness and prosperity and if it smiles on Island Copper Mine as well, so much the better."



ABOVE: Quatsino bear totem pole leaves for Island Copper in Harry Hole's boat

BELOW: Indian carver, and fisherman, Norman Charlie.



pole.

"Well, the answer isn't all that easy but you could say it's about people. It's about the people in the North Island who helped make this operation possible, and the people who work here.

"Most of them live within a few miles of Island Copper; some of them are descended from families that have lived

For centuries the killer whale, the bear and the thunderbird have been important figures in the tradition and culture of Indians of the West Coast of Vancouver Island.

So when Utah Mines Ltd. started looking for a tangible symbol of its appreciation of the efforts of the North Island people in developing and operating the Island Copper Mine, it was decided that a Quatsino bear pole incorporating the tradition of the Island's first people would suit that purpose admirably.

Norman Charlie, hereditary chief of the Quatsino band, carved the pole from a log of red cedar on the beach at Quatsino. He first roughed out the figures with an adze, then, working from memory, carved the features with a couple of small knives.

He spent two and a half months completing the pole, working on the beach in between fishing trips on his troller.

The finished totem pole was brought by boat from the beach at Quatsino to a nearby wharf where

to the Island Copper Mine site.

The 13½ foot tall Utah pole was the first big pole Mr. Charlie has attempted, although he had carved a number of smaller ones. He learned his art by watching other Indian craftsmen.

Red cedar is the traditional medium of Indian carvers and builders on the Island. For generations their houses, canoes, totem poles and even utensils were wrought from the huge trees.

One tribal legend tells of the building of the first Quatsino house, and the difficulty the men had heaving the heavy posts into position. A mighty bird (the thunderbird) swooped down from the sky, picked up the posts in his claws, and placed them with ease.

The thunderbird plays a prominent role in Quatsino legend, bringing thunder with a flap of its wings and lightning with a blink of its eye.

On the Quatsino bear totem, the killer whale is placed directly below the thunderbird. The tribes of the West Coast of Vancouver Island were the only In-

dians who pursued the whales, and another legend tells of whale bones found in the branches of enormous trees where they had been left after being picked clean by the thunderbird.

The bear at the base of the pole is another important figure in the mythology of the Indians on this part of the Island. It is a mother figure closely associated with the earliest attempts of the tribe to carve settlements out of the wilderness.

The totem pole is more than simply decorative; it served as a heraldic badge, a reminder of the brave exploits of long-dead ancestors and a constant reminder of heroic tradition.

The placing of this totem, with all its rich tradition, against the setting of the Island Copper Mine and some of the most modern mining equipment in the world, adds a new dimension to its symbolism—the inter-dependence of the old and the new.

Island Copper hopes it will provide a lasting symbol of the link between the mine and all the people of the North Island who played such a big part in the development of the mine.



E.W. LITTLEFIELD, International Inc. chairman, will assist in the ceremony.