

Denesuline Perspectives and Issues
About the Proposed
DeBeers Canada Diamond Mine at Na Yaghe kue

1. Background

NaYaghe Kue lies within the traditional territory of Lutselk'e Dene First Nation in an area we call **Katthinene**. This region is called **Denesoline Nene** (Chipeywan Dene land). We have lived and used this land for thousands of years. Our elders say this- "Our footprints are out there" (ND July 9, 1997)

Katthinene is the area of **Denesoline Nene** (Chipeywan Dene land) that elders describe as rich with resources. People would always go to **Katthinene** to harvest caribou, to trap for furs – traveling by dog team, by canoe and on foot. People always knew they could find food in that area. **Katthinene** is an older word which the elders use but is not commonly known by the younger generation. Other common references or spelling for **Katthinene** include **Katinene** or **Kakinene** which means that area at the end of the lake.

The water, ground, plants, animals, air of **Katthinene** are very valuable to us. All of these parts of the environment are connected together and to our community. This land is part of our past, our present day culture, economy health and identity. This land is also the basis for our future. It is because of our strong connection to this area that we are concerned about the environmental and socio-economic effects of the proposed De Beers Diamond Mine.

2. Land and Vegetation

The land where De Beers Canada Ltd. proposes to mine is called **NaYaghe Kue** or “very rocky area”. It is called that because of the large boulders and sharp rocks that can be found around the area. There are many different features within the **NaYaghe Kue** region that are valuable to the **Denesoline**. Although it appears to be a barren land, **NaYaghe Kue** is rich with landscape features and vegetation valuable for wildlife and for people.

The proposed De Beers Canada Ltd. Diamond Mine at **NaYaghe Kue** may have a variety of effects on the land and vegetation in the region. The following landscape features and vegetation species are of particular interest to the **Denesoline**.

2.1 Tsu’ dza de?a (small pockets of trees and willows)

Tsu’ dza de?a or the small pockets of black spruce (*picea mariana*) and the thickets of willow (*salix planifolia*) and birch (*betula pumila* var. *glandulifera*) found in the valleys and along rivers in the barren lands are very important areas of traditional use by the **Denesoline**. They provide shelter and are a source of dry wood and other resources for those hunting and trapping in the barren lands.



Photo 1 – **Tsu'dza de?a**
(Photo file of Lutselk'e Dene First Nation)

Certain **Tsu'dza de?a** have strong cultural and historical meaning to our community because we know our ancestors stayed in those places. Yu can see that they were there by the markings on the trees and the **kunk'e**(tent rings) on the ground. We continue to use these areas in practicing our traditional way of life.

Tsu'dza de?a are also important areas for wildlife. They provide shelter as well as food for small animals such as:

> k'asba	-ptarmigan	> gahcho	-arctic hare
> thele	-ground squirrel		

Other species that use these areas include:

> sascho	-grizzly bear	> nuni	-wolf
> naghai	-wolverine	> ts'iba	-white fox
> nagidhe	-red fox		

The proposed De Beers Diamond Mine will impact on some **Tsu'dza de?a** through the development of roads. Other **Tsu'dza de?a** in the **NaYaghe Kue** area may lose their cultural and ecological value to the **Denesoline** due to their proximity to the proposed De Beers project.

2.2 Thai hea (Eskers)

Eskers are part of the landscape at **NaYaghe Kue** that has both cultural and ecological significance for our community. There are several different kinds of eskers that we recognize as important including:

- >**thai hea** -eskers placement in the barren lands
- >**thai t'ath** -eskers on the tree line
- >**thai t'ath hea** -long eskers
- >**thai cho hea** -very long eskers
- >**thai tue thea** -esker with a lake on top of it*
- >**thai t'ath tue** -esker beside water (water underneath)

Not all eskers are the same. Different kinds of eskers have different values in terms of wildlife habitat and different meaning to the **Denesoline** elders. The proposed De Beers Diamond Mine will impact on some nearby eskers through the development of roads and the excavation of gravel resources.

2.3 Other Landscape Features

Other landscape features important in this area that may be affected by the De Beers Diamond Mine include:

- >**tthe** -rock
- >**tthe cho** -boulder
- >**tthe cho hekal** -cracked boulder
- >**the cho cha** -boulder shelter
- >**?ek'a k'e** -boulder that can be used for shelter or as a waiting place in hunting
- >**tthe k'e dathela** -piled rocks on a boulder
- >**tthe nechaile ?ets'ala** -large pile of small boulders
- >**tthai hea** -drumlin
- >**nihekal tue katl'i** -ground is cracked and water underneath

Although impacts on these landscape features may appear insignificant, even subtle changes in this fragile landscape may be

profoundly disturbing to wildlife and community members to know that area well.

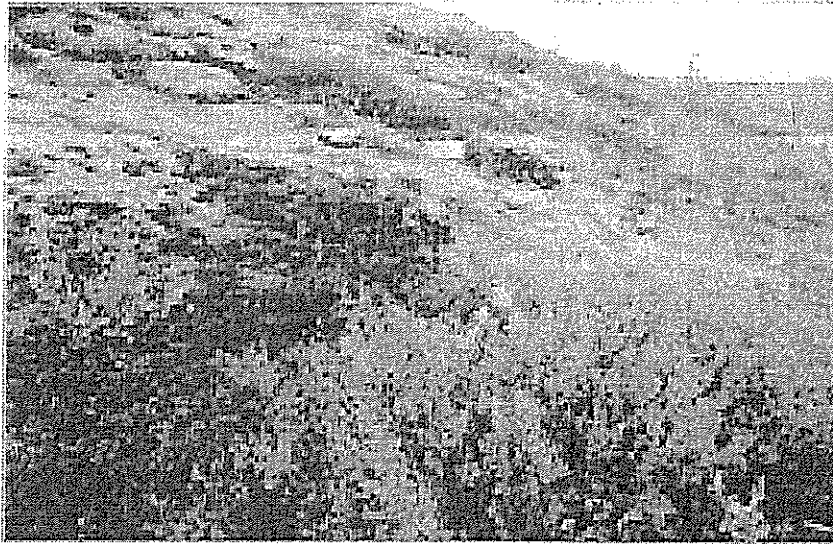


Photo 2 – T’abath and Thai hea (vegetation near an esker)
(Photo Credit: Lutselk’e Dene First Nation File)

2.4 Nickel (Wet areas of land)

Although NaYaghe Kue is a very rocky area, it is still an area of rich vegetation and plant life. The ground and vegetation is also very important. **Ni?el?aze**(hummocks), **nikel kue**(valleys with water and moss) and **nikele**(muskeg) provides valuable habitat for ducks and geese as well as provide a rich source of plant life including birch and lichens for caribou feeding.

>ts’aju	-shrub lichen, northern reindeer lichen
>ts’aju kal	-shrub lichen, Iceland moss
>ts’aju zen	-hair lichen, simple horsehair
>hat’es	-black dirt
>t’abath	-bog birch (dwarf birch)

2.5 Jie (Berries and Plants)

The NaYaghe Kue area is also rich with berries that are valued by the Denesoline for food and medicine.

>ts’at’eth dhe	-black berries	>nitl’er	-cranberries
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>denie jie	-bearberries	>tsachogh	-blueberries
>nadlare	-cloudberries	>jize naghe	-whiskey jack eye

Recommendations regarding Land and Vegetation.

De Beers Canada Ltd. has said that their project will have an insignificant impact on the land and vegetation in the NaYaghe Kue region. However, we do not feel that these predictions can be guaranteed.

We therefore recommend that ongoing monitoring based on traditional ecological knowledge of the Denesoline of the project and its effects on the land and vegetation be carried out. Monitoring should focus on key landscape features including:

>ts'udza de?a	>thai hea	>nikel
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Monitoring should focus on key species of vegetation including:

>ts'aju	-shrub lichen, northern reindeer lichen
>ts'aju kal	-shrub lichen, Iceland moss
>ts'aju zen	-hair lichen, simple horsehair
>hat'es	-black dirt
>t'abath	-bog birch (dwarf birch)
>ts'at'eth dhe	-black berries
>nitl'er	-cranberries
>denie jie	-bearberries
>tsachogh	-blueberries
>nadlare	-cloudberries
>jize naghe	-whiskey jack eye berry

Specific monitoring and studies should also be carried out related to the following issues and questions as identified through the interventions made to the Mackenzie Valley Environmental Impact Review Board.

Cumulative Landscape Effects

- What will be the total cumulative effect of the development projects (De Beers Canada Ltd., Diavik Diamond Mine, BHP Diamond Mine) on the land as defined and classified by;
 1. Traditional ecological knowledge?
 2. The Government of the NWT (i.e. land classification units)?

Waste Treatment and Storage

- How effective is the waste treatment system currently proposed by De Beers Canada Ltd.?
- What kinds of risks are associated with waste rock disposal at the “north pile”?
- What is the potential for acid rock drainage (including metals) from this area?
- What are the risks associated with uptake of contaminants in vegetation?
- Does De Beers Canada Ltd. have a reclamation plan that would prevent wildlife from feeding in areas that are at risk for contamination?
- What are the opportunities and risks associated with biological remediation of hydro-carbon contaminated soils in this environment (i.e. arctic environment)?
- What are the opportunities and risks of hydrocarbon contaminated soil storage facility?
- What are the long term challenges of maintaining this facility?
- The terms and conditions for abandonment and reclamation of the land must be more clearly defined.
- Definitions and criteria for future reclamation should be developed based on traditional ecological knowledge.

Landfill

- What is the benefit of a “dedicated engineered landfill” as proposed by RWED instead of the “land fill and farm system” proposed by De Beers Canada Ltd.?

Permafrost

- De Beers Canada Ltd. has proposed a plan in which the North Pile (NP) would freeze completely in two years and a surface active layer 2 metres thick would develop. What are the risks associated with the North Pile not freezing as proposed by De Beers?
- What risk does climate change (i.e. 1 – 2 degree increases in temperature) have on this proposed plan?

3. Lue and Kue (Fish and Water)

3.1 Kue and Tache Deze

NaYaghe Kue lies within the watershed of the **Tache Deze**(Lockhart River). **Tache Deze** is home to **Ts'ak'ui Theda**(Old Lady of the Falls), an important spiritual site to the Denesoline. This spiritual site is very important to the community of Lutselk'e and others. The water that flows through this system is sacred to the people because they are connected to this spiritual site. It is for this reason that the community is very concerned about the water in the NaYaghe Kue area and the potential risks posed by the De Beers Canada project.

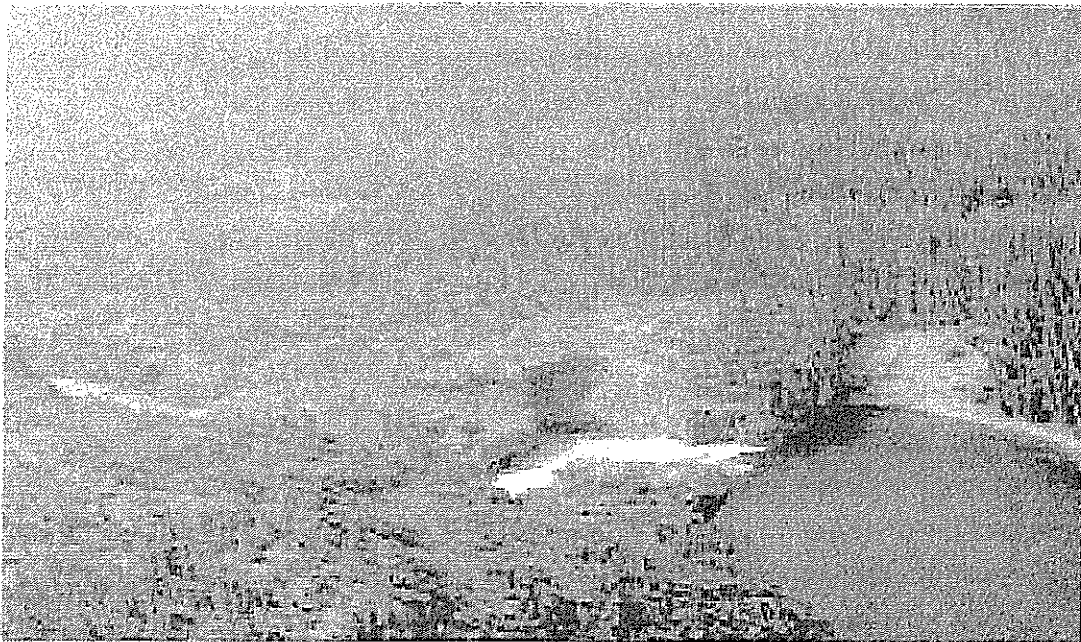


Photo 3 – **Ts'akui Theda** (The Old Lady of the Falls) on the Lockhart River is downstream of the proposed mining project (Photo – File of Lutselk'e Dene First Nation)

The following aspects of mining activity and its impact on water quality in the Tache Deze are of concern to the Denesoline.

What happens when they explode the rock – everything (the dust) spreads out everywhere? If that happens, the fish will die or get spoiled. Dams – they flood the area and the land dies – the overflow kills the plants. The fish start to eat the plants from the land and they die. The water we drink will also be spoiled. There are large dynamite explosions at the mine – in the water. It's very loud. I think it will kill the fish. They shouldn't use so many explosives. (GM 1130 00)

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

*The animals/birds live on the land they drink the water...they will feel the effects.
(PC 1130 00)*

The caribou around that place: I am concern about if they caribou start eating food around the mine area; anything that spills on the ground is taken up by the plants. There is muskeg in that area too. The spills will stay in that area. Someone said they would put up a fence in that area but they haven't done anything yet. If they put a fence in that area – we wouldn't worry about the caribou. It's not good to have caribou in that mine area. (JB 0214 01)

3.2 Lue (Fish)

Fish in the region of **NaYaghe Kue** are valued for many different reasons and in different geographic areas. At least 12 different species of fish are commonly harvested in lakes throughout the study region. The lake trout is called **lue zane** in Dene Yati and is among the most commonly harvested species along with the **lue** and **luecho**(whitefish). Both species are valued for their relative abundance especially in late spring and summer when caribou are scarce. People value fresh fish and would also dry and store it for future use for themselves and for their dogs.

Recommendations regarding Fish and Water

De Beers Canada Ltd. has said that their project will have an insignificant impact on the water and fish in the **NaYaghe Kue** region. However, we do not feel that these predictions can be guaranteed.

We therefore recommend that ongoing monitoring based on Denesoline traditional ecological knowledge of the project and its effects on fish and water be carried out. Monitoring should focus on key indicators of water quality and the health of fish including:

Water

>water levels

>respect of the water

>water quality

Fish

- >size/shape: length/weight ratio
- >fat – fat around organs
- >colour/texture of flesh

- >organs – parasites
- >population/diversity

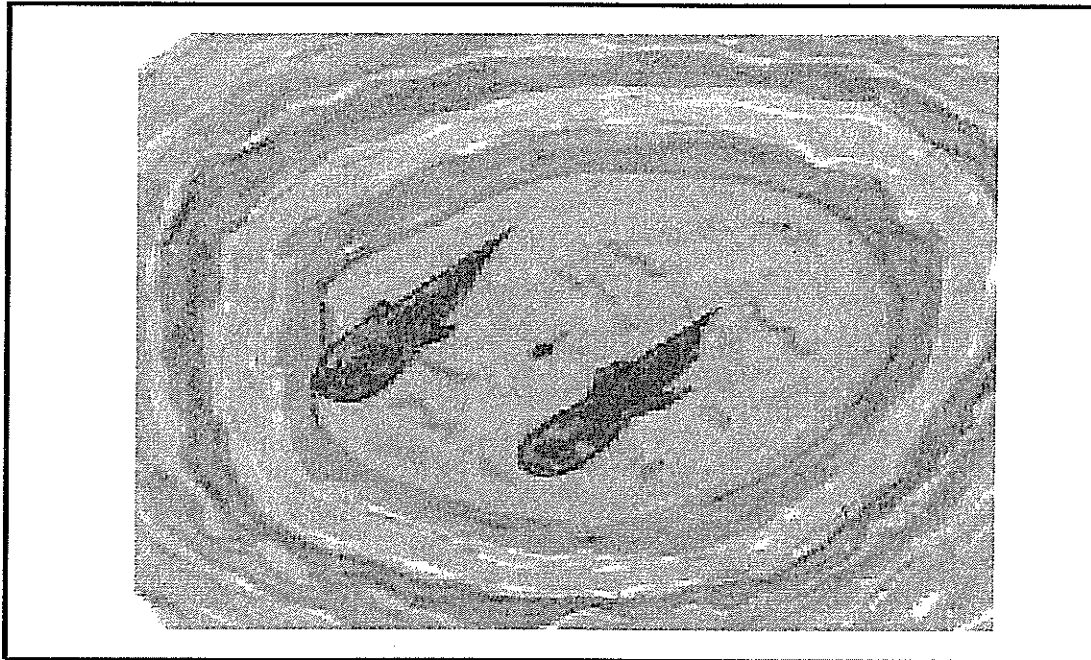


Photo 4 – Drawing of **luwe** (fish) below the ice in the barren lands (2001) (Photo-File of Lutselk'e Dene First Nation)

More specific study and monitoring should also be done in respect of the following questions and concerns:

Ground Water Flow and Contamination

- What are the current patterns of ground water flow?
- How will the proposed mining activity affect and be affected by these flows?
- How does De Beers Canada Ltd. ground-truth the computer models that have been developed to understand ground water flows?
- How will groundwater seeping into the mine be managed?
- What is the plan for ensuring that water seepage does not exceed the capacity of water treatment facilities?

- What is the proposed process for testing and treating mine water (deep ground water, and water infiltrating from the lake) for dissolved metals (e.g. chromium)?
- What is the proposed process for testing and treating water from inside the rocks (connate water) for dissolved solids such as phosphorus?
- How will groundwater be managed and monitored upon abandonment?
- How will De Beers prevent dissolved chemicals from the backfilled pit from surfacing and contaminating Snap Lake?
- How will connate water (water from the pores of rocks) affect overall water quality?
- What is the potential impact of sulphides and dissolved phosphorous?

Waste Water (Effluent) Discharge

De Beers Canada Ltd. proposes to treat water from the mining operations and release it back into the NaYaghe Kue using a pipe that sprays the water out in to the lake (a diffuser). This water is heavier and a different temperature than the rest of the lake so it may just sink to the bottom of the lake in a cloud (plume). Also this cloud of water may affect the fish.

- How will ice conditions affect the plume?
- What alternative plans are there for discharging this treated water?
- What are the cumulative effects of effluent discharging this treated water in Snap Lake over the life of the mining project?
- How will the effects of this treated water on the lake and watershed be monitored and managed?
- More studies are needed on the “very small fish” and “insects” that live at the bottom of the lake (benthic invertebrates)
- How will the effects of the cloud of water (plume) being released into the lake be monitored?
- The area around the diffuser (where the water is being released into the lake) may be important for fish. They may be feeding or laying eggs (spawning) in that area. It may be a safe area for very young fish (rearing habitat). What does De Beers Canada Ltd. know about how fish use the area around the diffuser?

4. Wildlife

4.1 Etthen (Caribou)

Etthen (caribou) are very culturally and ecologically important to the Denesoline. We have always depended on the caribou for almost every aspect of our daily life. Caribou meat has always been and remains today, the main source of protein in the diet. The caribou is also the basis for the community's social and cultural well being, tying families and extended families together in traditional activities that date back thousands of year.

The fall caribou harvest at the tree line holds particular significance to the Denesoline of Lutselk'e. After many months without caribou meat, the fall harvest has always been associated with great celebration.

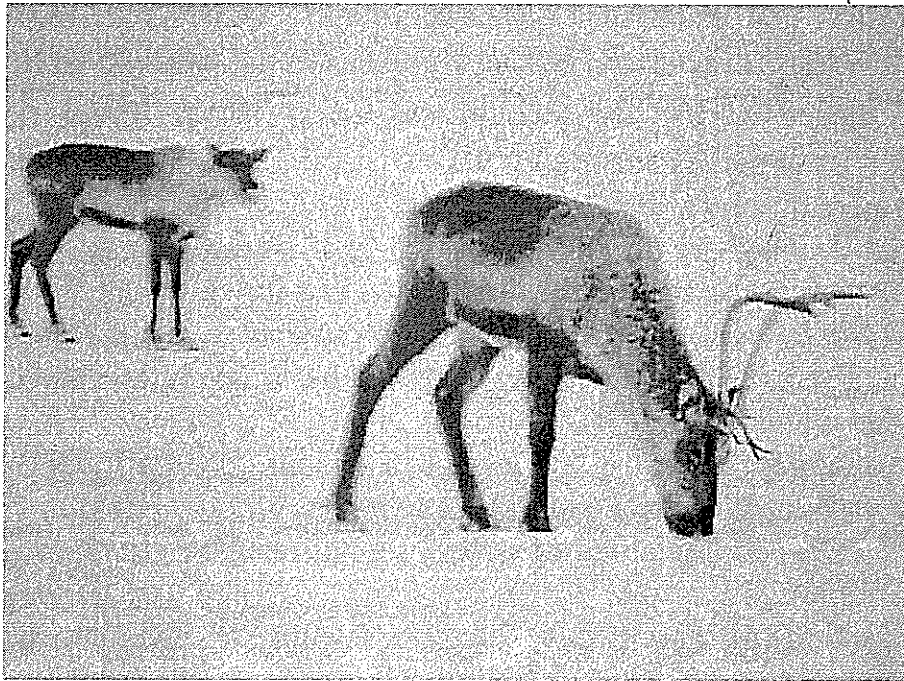


Photo 5 – **Etthen** (Caribou) in the Barren lands
(Photo – File of Lutselk'e Dene First Nation)

The proposed De Beers Project has created two major concerns with respect to the caribou.

- How will the proposed project affect caribou coming from the west (Bathurst) and their migration towards our community?
- How will the proposed project affect caribou health?

Caribou Migration

Elders have raised concerns that the proposed mining activity will affect the caribou migrating from the west (Bathurst Herd). In particular, they have raised concerns about how roads, planes and blasting will affect their movements.

In a few years, the caribou will change their route again. They will go a different way. They will be disturbed by the winter road, planes and blasting. You will see (these changes) in 3 – 5 years from now. (LA 2001)

Roads are of particular concern to elders; they are perceived as unnatural barriers to caribou movements.

Regarding the winter road – if you make a road you cannot make it too high. It's too hard for the caribou to get over it. It should be lower. The caribou won't just pass through a little pathway you make, they go all over. The road needs to be fixed. (JBR 2000)

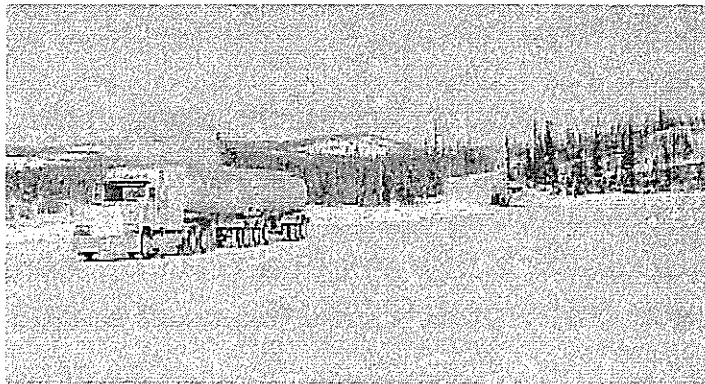


Photo 6 – Trucks on the Winter Road
(Photo – File of Lutselk'e Dene First Nation)

Other concerns relate to the overall health of the herd and how mining operations including waste, spills and contaminants may affect them.

The caribou around that place; I am concerned about if they caribou start eating food around the mine area; anything that spills on the ground is taken up by the plants. There is muskeg in that area too. The spills will stay in that area. Someone said they would put up a fence in that area but they haven't done anything yet. If they put a fence in that area – we wouldn't worry about the caribou. It's not good to have caribou in that mine area. (JBR 2001)

4.2 Sas Cho(Grizzly Bears)

The grizzly bears are also an important species to the Denesoline. Oral histories of the Denesoline describe the grizzly as having spiritual powers. He can be nurturing. The Denesoline legend describes how a young man was cared for by a grizzly after being lost in a winter blizzard. Although he may act as a protector, the grizzly can also be dangerous. Camps, including mining camps in the **NaYaghe Kue** area, may be at risk to grizzly bears that are used to this area as part of their natural habitat. In some cases the bears need to be shot to prevent them from harming people. It is for this reason that elders have raised concerns about the impact of mining camps on grizzly bears.

De Beers Canada Ltd. must develop an approach to preventing grizzly bears from being attracted to the area and keeping mine workers in the area safe. Some ideas include:

- >keeping the area clean of waste that might attract the bears.
- >developing grizzly bear safety policies for the mine workers.

4.3 Naghai (Wolverine) and Other Furbearers

Wolverine and other furbearing species are also very important to the Denesoline. The Denesoline have traditionally trapped in the region of **NaYaghe Kue** and depended on the wolverine, as well as white fox and wolf for furs. Fur bearing animals also pose risks for people. The proposed De Beers mining camp may be visited

often by animals who view this area as their home or natural habitat.

De Beers Canada Ltd. must develop an approach to dealing with furbearing animals on site. Some preventative tactics include:

>keeping the area clean of waste that might attract the animals.

>developing safety policies for the mine workers.

Recommendations regarding wildlife

De Beers Canada Ltd. has said that their project will have an insignificant impact on the wildlife in the **NaYaghe Kue** region. However, we do not feel that these predictions can be guaranteed.

We therefore recommend Wildlife Monitoring and Management based on Traditional Knowledge of the project and its effects on wildlife be carried out. A comprehensive process for monitoring the impact of disturbance in the NaYaghe Kue region on the health of wildlife needs to be developed. This system should be based on traditional knowledge of the Denesoline people.

The Denesoline have their own ways of monitoring caribou or “watching, listening, learning and understanding” the caribou.

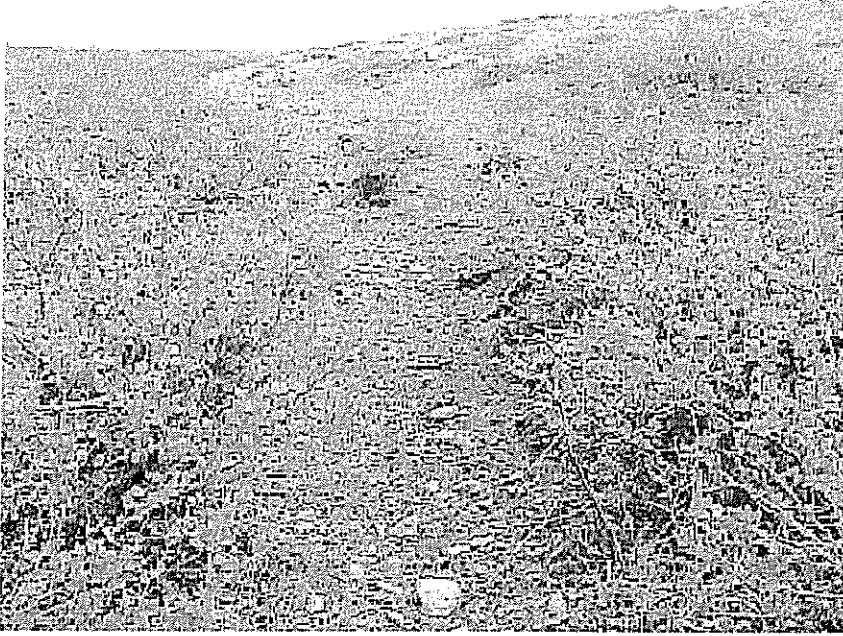


Photo 7 – **Etthen** (Caribou) trails in the Barren Lands
(Photo – File of Lutselk'e Dene First Nation)

Using Denesoline strategies for caribou monitoring during the fall hunt, it may be possible to design a regional monitoring system to track impacts of development. Such a system would not only examine the affect of individual roads, but also the cumulative impacts of a number of mines, their associated roads and other resource developments across the range of the caribou heard. Monitoring caribou crossings over all – weather roads and winter roads, elders may be able to predict potential changes in migration and in winter range. Such traditional systems of monitoring can help address community concerns over new uncertainties. They also have the potential to complement scientific methods to help understand how the proposed De Beers's project and other mining activities in the region may be impacting the caribou. Some other issues that need to be addressed include:

Caribou Population and Movement Studies

- The information (baseline data) that De Beers has collected suggests that there are very few caribou migrating through the NaYaghe Kue area.

However, the studies done by De Beers Canada Ltd. have been short terms in nature. More studies, including long term monitoring of caribou population and movements through the NaYaghe Kue areas are needed.

- More studies are required to determine the total loss of grizzly bear habitat that may result from the proposed De Beers Project:
- What impact will this proposed project, the Diavik Diamond Mine and the Ekati Diamond Mine have on grizzly bear habitat (cumulative effects)?

Waste Management Plans – Prevention and Protection of Wildlife on Site

- A waste management plan needs to be developed based on traditional knowledge as well as western science. This waste management plan is important for ensuring that grizzly bears and furbearers are not attracted to the site. What other plans does De Beers Canada Ltd. have for preventing and managing wildlife on site?
- Can De Beers Canada Ltd. guarantee that no wildlife will be destroyed (“no mortality”) as a result of the project?