

**REPORT TO NWT CUMULATIVE IMPACT MONITORING PROGRAM
MARCH 2004**

***MONITORING WILDLIFE POPULATIONS AND HEALTH IN THE
SAHTU: DEVELOPING COMMUNITY EXPERTISE***

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BACKGROUND

Tremendous changes are occurring across the Canadian north, including the Sahtu Settlement Area of the central Northwest Territories (NWT). These changes are expected to continue and to increase in both the short- and long-terms, since the NWT is expected to have the fastest-growing economy in Canada over the next 10 years. At the same time, the health and sustainability of wildlife populations is important for subsistence harvesters as well as to the overall economy of the NWT. Renewable and non-renewable resource development, climate change, and a greater human footprint can alter the patterns of disease occurrence in wildlife and have a direct impact on both wildlife and human health. Establishing baselines and long-term monitoring of wildlife populations, including distribution, population trends, and health, is essential for the assessment of cumulative effects and for the development of management plans to help ensure the long-term sustainability of wildlife resources. Community-based monitoring is one of the most effective means for detecting, understanding, and monitoring changes in wildlife population structure and health. Appropriately trained hunters in the field can serve as ‘eyes on the land’ for recognizing changes in wildlife.

This report describes our ongoing activities to increase awareness about wildlife species and to foster community-based expertise in wildlife health and population monitoring across the Sahtu Settlement Area. From 15-30 March 2004 we delivered a series of educational seminars about wildlife research, health and monitoring (with particular emphasis on caribou) to Renewable Resources Councils (RRC’s), schools, and the public

in four of the five Sahtu communities (Tulita, Déline, Norman Wells, and Fort Good Hope).

Unfortunately, we were unable to include Colville Lake during the current tour due to the tragic death of an elder in Fort Good Hope and our respect for the subsequent period of communal bereavement that occurs between the closely related communities of Fort Good Hope and Colville Lake at such times. Presentations will be provided in Colville Lake by the end of May 2004 and the results of that visit will be submitted separately as an addendum to this report.

In our visits to the communities, we focused on developing awareness about wildlife population and health issues in the Sahtu. We also initiated a pilot project in Déline to train wildlife health monitors. Two monitors received training and are the initial component of a multi-community, long-term wildlife health monitoring team in the Sahtu.

Participants in the project this year included the Sahtu Renewable Resources Board (SRRB), community RRC's, the Department of Resources, Wildlife & Economic Development (DRWED), the Research Group for Arctic Parasitology and Canadian Cooperative Wildlife Health Centre (University of Saskatchewan), and the staff and students of schools in Déline, Fort Good Hope, Norman Wells, and Tulita.

We received **\$25,000** for this project from NWT CIMP for 2003-04.

OVERVIEW OF PROJECT

1) Objectives

Baseline information on the current status of wildlife populations is essential for understanding how changes to the land in the Sahtu will affect wildlife populations and to establish long-term monitoring plans that can detect important changes. Subsistence hunters are the 'eyes on the land' for monitoring and detecting changes in wildlife populations. However, to be more effective in this role, education and training are essential. Wildlife harvesters should be informed and trained in how to recognize and safely handle abnormal tissue samples, to collect standard samples, and to submit their observations and samples to the appropriate people and agencies.

We had two main objectives for this project in March 2004:

- 1) To increase general awareness in communities (RRC's, public, and students) about wildlife population and health monitoring, and to provide wildlife harvesters with information about what to do when abnormalities are found. Given the importance of barren-ground, boreal woodland, and mountain woodland caribou to people in the Sahtu, we wished to provide a comprehensive overview of past, current, and future research and monitoring on caribou in the region. We also sought to have each community identify specific long-term

population monitoring projects in which they would like to participate as part of ongoing efforts to monitor cumulative effects across the Sahtu.

- 2) To initiate a pilot programme in community-based monitoring of wildlife health in Déline by training regular harvesters, chosen by the RRC, to be “Wildlife Health Monitors.” These harvesters would be trained in sample collection standards, handling, data recording, and submission. This sampling programme allows: 1) baselines to be established for current health status of wildlife; 2) detection of pathogens/diseases where there are no grossly visible abnormalities; 3) early detection of disease; 4) ongoing, long-term surveillance; and 5) building of an archive of samples/tissues for future analyses.

The specific objectives of the community visits were to:

- 1) Inform local harvesters and students about ongoing wildlife population research and monitoring in the Sahtu, with particular emphasis on barren-ground, mountain woodland, and boreal woodland caribou.
- 2) Determine which long-term wildlife population monitoring programs are of interest to RRC’s and schools in each Sahtu community (i.e., community-based monitoring)
- 3) Inform harvesters and students about wildlife disease in general, including impacts of disease on wildlife and people.
- 4) Provide an interactive forum for discussing wildlife research and disease issues in the Sahtu
- 5) Train interested harvesters and students how to detect and safely collect samples of abnormalities in wildlife and to record important details
- 6) Train RRC-selected harvesters in Déline to be Wildlife Health Monitors as part of a long-term community-based project

These objectives arose from a regional workshop on Research and Monitoring needs within the Sahtu Settlement Area (October 2002, Norman Wells), a series of meetings between SRRB staff and RRC’s (2002-2003), and a March 2003 series of community/RRC workshops and visits to schools in the Sahtu.

2) Project Delivery

Logistics

After approval of funding for the project by NTWT CIMP in January 2004, we began making logistical arrangements for the community tour. Principals and/or vice-principals from all five Sahtu schools were contacted by phone and email to arrange presentation dates and times. Similarly, all five RRC’s were contacted by phone, fax, and in person to

inform them of the forth-coming community presentations – these were intended primarily for RRC members, but the general public in each community was also invited. In order to accommodate the time schedules of all community residents, we scheduled both afternoon (1 to 4 pm) and evening (7 to 10 pm) sessions in each community. Posters advertising the community presentations (Appendix E) were sent to each RRC and their cooperation in advertising these events was requested. The Déline RRC was asked to assist with recruiting up to four candidates for the Wildlife Health Monitor pilot project.

Schools

Alasdair presenting to Kindergarten-Grade 3 students in Déline.



Susan presenting to Grade 4-6 students in Tulita.

The project took place from March 15-30, 2004. In each school we delivered curriculum-connected, interactive, hands-on, and slideshow presentations for students from Kindergarten to Grade 12 (Appendix A). These presentations included information about wildlife biology, research (with emphasis on caribou), and health in the Sahtu (Appendices B & C), as well as information on careers as veterinarians and wildlife biologists.



Glen presenting to Kindergarten-Grade 3 students in Norman Wells.

Students had the opportunity to examine jaws and parasites collected from various wildlife species in the Sahtu. We provided each school with a resource package (Appendix C) that will be integrated into future conservation education projects. We fostered partnerships with teachers to collaborate on small mammal population monitoring, insect biodiversity assessment, and long-term moose winter tick distribution and population trend studies.



Students in Fort Good Hope identifying with a presentation.

Students in Fort Good Hope learn about bear and beaver jaws!

A necropsy lab was held as a pilot project for Déline high school students. The purpose of the lab was to use local wildlife species to provide students with practical experience in biology, anatomy, dissection, and parasitology. Five lynx carcasses were provided by a Norman Wells trapper for this lab. Twenty students enthusiastically participated in the lab and teachers requested that more of such activities in the future.



Lynx dissections with Grade 10-12 students in Déline.

Community Presentations

We scheduled afternoon and evening PowerPoint presentations for the public in each community. These presentations included information about the Sahtu Renewable Resources Board, current and ongoing caribou research, and wildlife health issues and monitoring projects in the Sahtu. A hands-on display of Sahtu wildlife parasites and a poster presentation on wildlife research projects were also included during these events.



Lynx necropsy by Déline students.



Tulita Elders discuss parasites they've encountered.

Wildlife Health Monitors.

The Déline RRC selected two Wildlife Health Monitors (Chris Yukon and Bruce Kenny) and a training session was held in Déline on 17 March 2004. The training session was lead by Dr. Susan Kutz and included a classroom component and a hands-on necropsy of an adult female barren-ground caribou from the Bluenose-east herd collected by Mr. Kenny on the morning of 17 March near Déline.

The community Wildlife Health Monitors were trained in how to measure back fat, collect and store biological samples for scientific analyses, and to record their information on data forms designed for this project (Appendix D). The monitors were also provided with information packages that included wildlife diseases in the Northwest Territories, emerging diseases, and the role of Wildlife Health Monitors. In addition, both monitors received pre-labelled sample collection packages and personalized field data collection kits. Each of the Wildlife Health Monitors will submit samples from up to 10 barren-ground caribou that they harvest in spring 2004.



Internet

The Sahtu Renewable Resources Board's website (www.srrb.nt.ca) will feature summary versions of our Microsoft *PowerPoint* presentations from this year's community tour by June 2004. Links to related websites including the University of the Arctic, Canadian Cooperative Wildlife Health Centre, Research Group for Arctic Parasitology, and the Department of Resources, Wildlife & Economic Development will also be provided.

Public Awareness

A special edition of the Sahtu Renewable Resources Board's regular newsletter documenting this project will be produced and distributed across the Sahtu (with special emphasis on getting copies to RRC's and schools) by early May 2004. The newsletter will include short articles from several students describing the school visits from their perspective. Finally, information packages to related agencies and news releases will provide further opportunities for public awareness.

PROJECT EVALUATION

The project was an overall success; however, we regret the necessity of having to cancel our visit to Colville Lake. We surpassed our objectives in the schools and were very pleased at having trained two community Wildlife Health Monitors in Déline.

Limited attendance during our public presentations significantly reduced our ability to record the observations of animal movements and wildlife health from local hunters and trappers. Moreover, we did not receive the level of feedback about proposed future initiatives that we had wished – in particular, the desire of the communities to become involved with a local ecological monitoring programme loosely based on the Arctic Borderlands Ecological Knowledge Cooperative, and long-term community-based wildlife monitoring projects.

General Education

We spoke about wildlife biology, management issues, and disease agents, and the potential impacts of development, global warming, and other changes, to over 450 students in the Sahtu. Students and teachers provided immediate positive feedback and many students demonstrated knowledge gained from our previous visit in March 2003. In addition, teachers from all four schools expressed great interest and support for our return next year. To further advance our success in 2005, teachers were asked to supply us with written feedback (Appendix F). This will help us tailor next year's presentations more closely to the Sahtu Divisional School Board's curriculum.

We scheduled our community meetings for both, afternoons and evenings in an attempt to reach a wider audience and involved the RRCs several weeks in advance of the tour. Despite these efforts, the attendance at meetings in some communities was low and we may not have had as great an impact as we wished.

Interactive forum for discussing wildlife research and disease issues in the Sahtu

Community members in Tulita and Fort Good Hope indicated that they were concerned about wildlife health and the impact of development, pollution, and contaminants on all wildlife species. They felt that more research on these problems was important and long term monitoring of wildlife health was a necessity. They also felt it was important for hunters and youth to learn about wildlife diseases in order to assess the safety of meat in the field.

Monitoring Programs

Partnerships for developing community-based monitoring programs were established in all four schools. These included small mammal population monitoring projects in three communities, the DRWED *Take a Kid Trapping* programs in four communities, insect biodiversity studies, and an on going, Sahtu-wide, winter moose-tick monitoring program.

Renewable Resource Officers with DRWED also expressed their interest in participating in long term monitoring programs as well as snowshoe hare counts and assessment of passerine populations.

Train interested harvesters and students how to safely collect samples of abnormalities in wildlife and to record pertinent information

The trial necropsy lab with high school students from Déline was a tremendous success. Using lynx as a model, students learned how to take biological measurements of body size, age, sex, and body condition. They learned about anatomy and some physiology as well as how to isolate various parasites in lynx. They learned how to record data in a standardized format. Science teachers in Norman Wells and Ft. Good Hope would like to include similar necropsy lab projects involving martens in 2005

Train Two to Four harvesters in Déline to be Wildlife Health Monitors

Two Wildlife Health Monitors, Chris Yukon and Bruce Kenny, were established in the community of Déline. Monitors showed interest and commitment in collection of biological samples from caribou for baseline information on body condition and disease. We anticipate that each hunter will collect samples from a maximum of 10 caribou by June 2004. Once these samples are received some will be processed immediately at the regional DRWED laboratory in Norman Wells (body condition measurements) and at the Western College of Veterinary Medicine in Saskatoon (Parasitology). Other samples will be archived in the –80C freezer in the RWED lab and examined in the future for diseases and contaminants. The Wildlife Health Monitors, Déline RRC, and Government of the Northwest Territories wildlife veterinarian Brett Elkin, will receive a written report on findings from these caribou. Any abnormalities will be incorporated into the CCWHC Database.

PLANS AND RECOMMENDATIONS FOR THIS PROJECT IN 2005

General Education

Continue to visit schools and do presentations to all grades, with particular focus on high school students in science. We should seek to work more closely with teachers so we can more effectively merge our presentations with their curricula. In addition, we should do our tour before the Sahtu Regional Science Fair (March each year) in order to promote participation in the fair by students from all five schools in the Sahtu, and assist students with understanding of and adherence to the scientific method. The 2005 tour should occur in either January or February to allow for travel on the winter road at a time when students are in class and preparing projects for their Science Fairs.

Interactive forum for discussing wildlife research and disease issues in the Sahtu

A considerable amount of the budget both was spent on hall rentals and translation services for community meetings. Given the low turnout for these meetings, in the future we should offer to do the presentations but have the RRC's make the logistical arrangements and cover costs of hall rental and translators. Other options for increasing our impact at the RRC/community level will be investigated.

Monitoring Programs

We plan to implement the various monitoring programs in summer 2004. During the tour in 2005 we will meet with partners (schools and wildlife officers) to assess these projects.

Train interested harvesters and students how to safely collect samples of abnormalities in wildlife and to record important details

In 2005 we will expand the necropsy labs to high school students in schools in other communities. We will use marten in these labs, as this species is the most economically important fur-bearer in the Sahtu. We will discuss trap line management, biology anatomy, disease, and physiology. We will consider holding hands-on workshops for harvesters interested in a more detailed understanding of diseases in common wildlife species.

Maintain and Expand Wildlife Health Monitor Program

In 2005 we will meet with the monitors to discuss the sampling program, address any concerns they may have, and update them on any new sampling procedures. We will also expand the program to one or two additional communities.

APPENDIX A – SCHOOL PRESENTATIONS

School/Community/Date	Delivery	Grade	Students
Chief Albert School Tulita March 16 2004	Presentations	K-4	47
	Presentations	4-6	35
	Presentations	7-9	27
	Presentations	10-12	9
Total Student Audience			118
?Ehtseo Ahya School Déline March 18 and 19 2004	Presentations	K-3	42
	Presentations	4-7	38
	Presentations	8-9	16
	Presentations	10-12	22
	Lynx dissections	10-12	20
Total Student Audience			138
Mackenzie Mountain School Norman Wells March 23 2004	Presentations	K-3	50
	Presentations	4-6	28
	Presentations	7-9	22
	Presentations	10-12	19
Total Student Audience			119
Chief T’Selyie School Fort Good Hope March 26 2004	Presentations	1-3	31
	Presentations	4-6	20
	Presentations	7-9	28
	Presentations	10-12	10
Total Student Audience			89
Total Student Audience			464

APPENDIX B - HANDS-ON DISPLAYS

Jaws and Teeth: A comparison of dentition among carnivores, omnivores, and herbivores (Glen Guthrie)

Dall's sheep (*Ovis dalli*)
Beaver (*Castor canadensis*)
Caribou (*Rangifer tarandus*)
Grizzly bear (*Ursus arctus*)
Black bear (*Ursus americanus*)
Moose (*Alces alces*)

Parasite Disease Specimens (Susan Kutz)

Caribou



Warble fly bots (*Hypoderma* sp.)

Throat bots (*Cephenemyia* sp.)
Besnoitia

Muskox

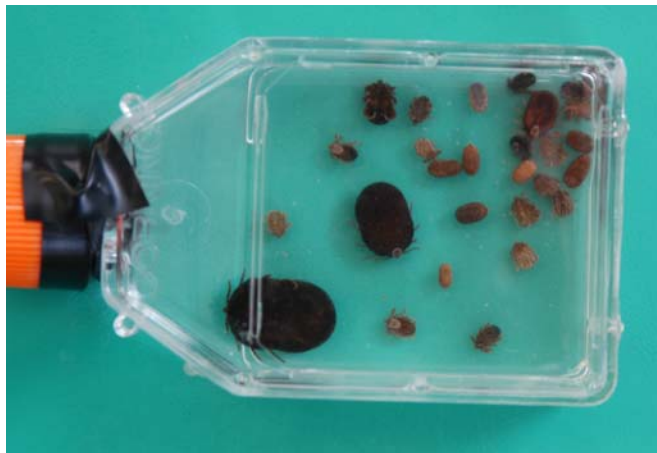


Stomach worms (*Teladorsagia boreoarcticus*)

Lung worms (*Umingmakstrongylus pallikuukensis*)

Lung worms (*Dictyocaulus*)

Moose



Winter ticks (*Dermacentor albipictus*)

Tapeworm cysts (*Taenia* sp.)

Liver Fluke (*Fascioloides magna*)

Sheep



Abomasal (*Marshallagia* sp.)

Muscle worm (*Parelaphostrongylus odocoilei*)

Lynx



Tapeworms (*Taenia* sp.)

Intestinal worms (*Toxascaris* sp.)

Black Bear



Intestinal worms (*Baylisascaris* sp)

Tissue worms (*Dirofilaria ursi*)

Fox

Lice

Fleas

Sarcocystis

Wolf



Tapeworm (*Diphyllobothrium* sp.)

Ducks

Sarcocystis

Fish

Tapeworm (*Diphyllobothrium* sp.)

Gastropods

Slugs (*Deroceras laeve*)

Snails (*Vertigo* sp.)

APPENDIX C - RESOURCE MATERIALS DELIVERED TO SCHOOLS

Wildlife Management, Research, Safety, and Information

The Sahtu Renewable Resources Board Newsletter. Spring 2004.

CD-ROM – *Animated Movements of Barren-ground Caribou Tracked by Satellite*. Geomatics, Wildlife Management, Inuvik Region, Department of Resources, Wildlife and Economic Development, Government of Northwest Territories. August 1, 2002.

Be Bear Aware, Getting Along with Bears, Some tips for Kids. Interagency Grizzly Bear Committee, the Colorado Division of Wildlife and The Center for Wildlife Information. Department of Resources, Wildlife and Economic Development, Government of Northwest Territories.

Polar Bear Research in the Northwest Territories. Brochure. Department of Resources, Wildlife and Economic Development, Government of Northwest Territories.

Arctic Animals. 1988. Text by Jonquil Graves and Ed Hall, Illustrations by Germaine Arnaktauyok. Department of Renewable Resources, Government of the Northwest Territories.

Arctic Wildlife Sketches Series. Government of the Northwest Territories.

Wildlife Health

(Guide to) *Common Parasites, Diseases and Injuries of Freshwater Fishes in the Northwest Territories and Nunavut*. Department of Fisheries and Oceans, Central and Arctic Region, Canada.

A Field Guide to Common Wildlife Diseases and Parasites in the Northwest Territories and Nunavut. 3rd Edition, June 2002. Department of Resources, Wildlife and Economic Development, Government of Northwest Territories.

Rabies. Awareness Brochure. Health and Social Services, Government of the Northwest Territories.

Wildlife Harvesting

The Trapper Magazine. The Canadian Trapper. March/April, 2004.

Genuine Mackenzie Valley Furs Newsletter Winter 2003/2004.

Northwest Territories Summary of Hunting Regulations. July 1, 2003 to June 30, 2004. Department of Resources, Wildlife, and Economic Development, Government of Northwest Territories.

Lets Go Trapping: an activity book for children and students. 1998. Department of Resources, Wildlife, and Economic Development, Government of Northwest Territories.

Forests and Habitats

Forest Fire Prevention Coloring Book. Forest Management Division. Department of Resources, Wildlife and Economic Development, Government of Northwest Territories.

Forests of the Northwest Territories. 1997. Natural Resources Canada, Canadian Forest Industry.

Trees and Common Shrubs of the Northwest Territories. 1991. Forest Management Division. Department of Resources, Wildlife, and Economic Development, Government of Northwest Territories.

Conservation

Make Your Voice Heard. Species at Risk Poster.

Protecting NWT Species at Risk: A Progress Report. Department of Resources, Wildlife and Economic Development, Government of Northwest Territories.

Conservator. 2003. Ducks Unlimited Canada Magazine.

Conservator. 2004. Ducks Unlimited Canada Magazine.

Canada's Boreal Forest. Ducks Unlimited Canada.

APPENDIX D - CARIBOU HEALTH MONITORING 2004 DATA CAPTURE FORM (Adapted from

Caribou Health Monitoring 2004 **ANIMAL ID:** _____

Hunter Name: _____ **Date of Kill:** _____

Location: Name _____

Latitude _____ **Longitude** _____

Sex: (✓) Cow Bull

1. Was cow producing milk? (✓) Yes No Unknown

2. Was cow with a calf? (✓) Yes No Unknown

3. Was cow pregnant? Yes No

Sex of fetus: Female Male Unknown

4. Amount of back fat: _____ cm

Remember to turn in: (✓) _____

Tooth Leg bone Left kidney

Liver (small fist size piece) Fecal sample Blood (on filter paper)

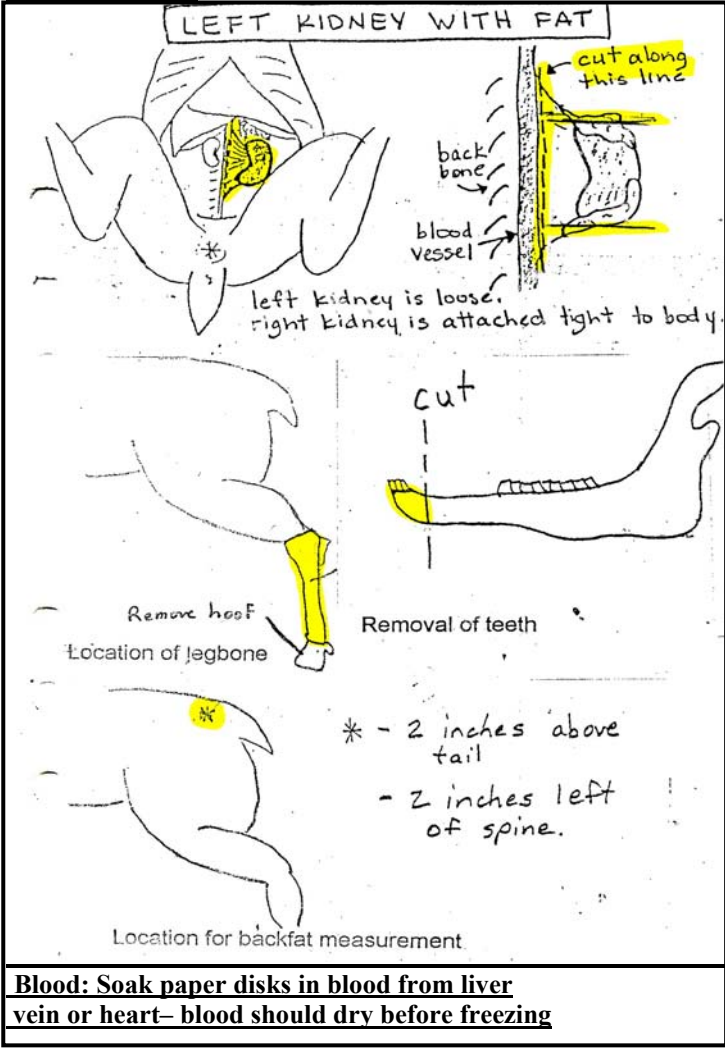
Hunter's overall assessment of animal's condition

For this time of the year, is the condition of the animal: (✓) _____

Poor Fair Good Very Good

<u>Any abnormalities?</u>	<u>Circle if found</u>	<u>Describe</u>
<u>Joints:</u>	<u>fine</u> <u>swollen</u> <u>other</u>	
<u>Testicles:</u>	<u>fine</u> <u>swollen</u> <u>other</u>	
<u>Liver:</u>	<u>fine</u> <u>cysts</u> <u>other</u>	
<u>Skin on legs:</u>	<u>fine</u> <u>rough</u> <u>other</u>	
<u>Eyes</u>	<u>fine</u> <u>white spots</u> <u>other</u>	
<u>Meat:</u>	<u>fine</u> <u>cysts</u> <u>other</u>	
<u>Lungs</u>	<u>Fine</u> <u>cysts</u> <u>other</u>	

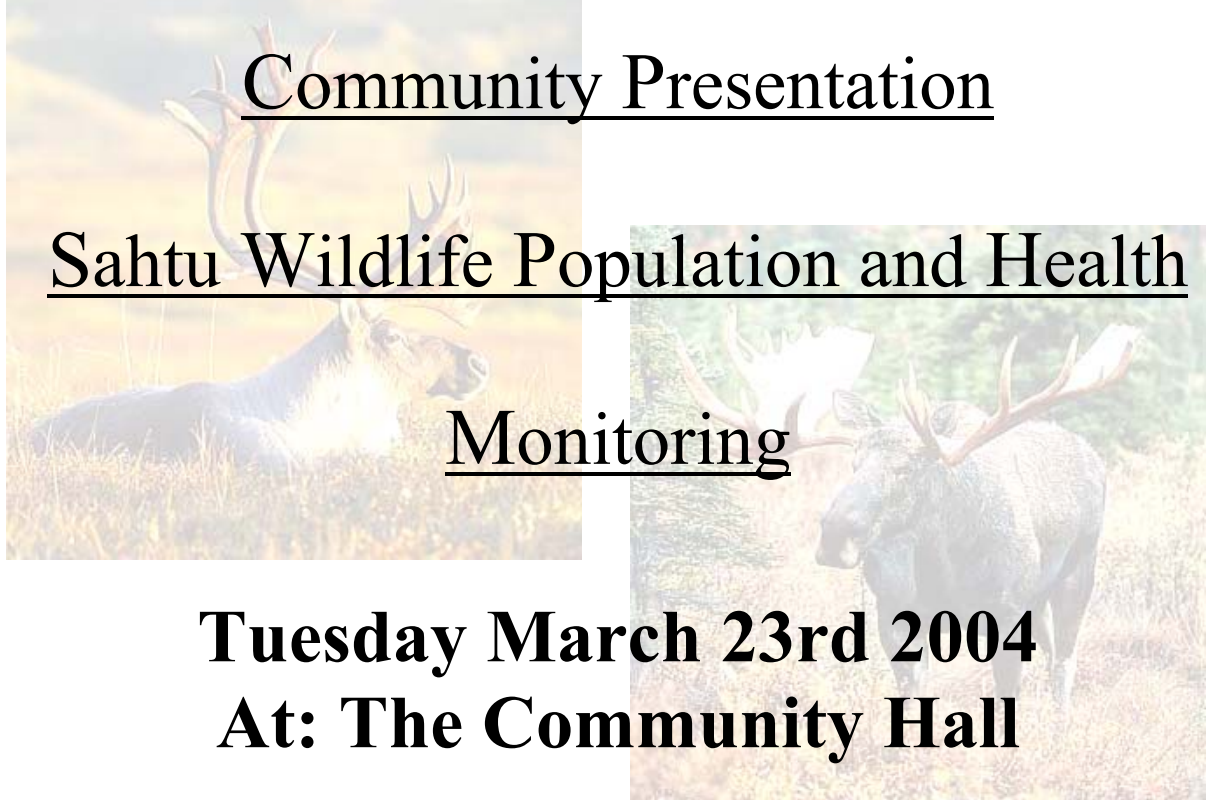
Additional comments here:



CARIBOU COLLECTION CHECK LIST

<u>REMEMBER TO:</u>	<u>COLLECT:</u>
<u>Record Animal ID#</u> <u>Measure Back Fat</u> <u>Check for Milk</u> <u>Examine for other abnormalities (joints, testicles, eyes, skin, meat, liver)</u>	<u>Left Kidney with Fat</u> <u>Piece of Liver</u> <u>Blood</u> <u>Leg Bone</u> <u>Lower Jaw/teeth</u> <u>Any other abnormal tissues</u>

APPENDIX E - COMMUNITY POSTER EXAMPLE - NORMAN WELLS



A community presentation on wildlife research in the Sahtu will be provided twice for your convenience.

1 PM to 4 PM



and

7 PM to 10 PM



Everyone is welcome to attend.

Featuring

Alasdair Veitch (Biologist, RWED)

Susan Kutz (Veterinarian, University of Saskatchewan)

Glen Guthrie (Communications Officer, SRRB)

APPENDIX F - E-MAIL FEEDBACK

Dear Glen and al:

The visitation by you (Glen), and your colleagues to our school was very well received by the teachers and the students. The students were very interested and enthusiastic about the presentations, especially with the lessons on teeth and parasites. I would like to encourage the RRC to continue with this approach, as the impact on the students will have a great carry over to the parents as they discuss hunting, conservation and wildlife management around the kitchen table or out on the land. Programs such as this, that I have been involved with in Newfoundland, have had a tremendous impact on families as the parents often listen more to their children than they do to presenters. Please consider doing this again next year.

Thanks again Glen and al.

Regards!

Graham

Graham Wood
Principal
Chief T'Selehye School
Fort Good Hope, NT
X0E 0H0
876-598-2288
867-598-2025 (fax)

Hi guys,

Just wanted to let you know how much we appreciated your visit. The kids are still talking about it! Thanks for helping our kids get excited about science.

Take care,

Christie

Christie Chester
Science Teacher
?Ehtseo Ayha School
Deline, NT
X0E 0G0
867-589-3391
867-589-4112 (fax)