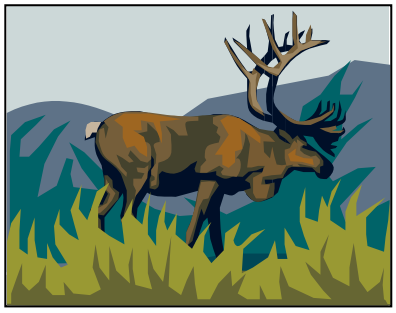
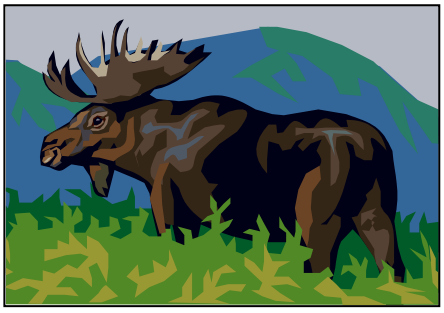




5TH BIENNIAL DEHCHO REGIONAL WILDLIFE WORKSHOP OCTOBER 19-20, 2010

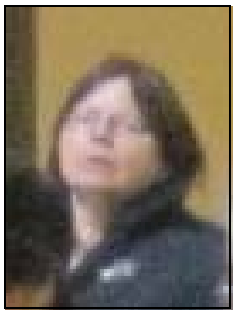
“Our animals are generally healthy; I hope they are healthy in the future” Jonas Antoine.

“I think this is a good forum for discussion” Jim Antoine.

“I am glad to be here, these meetings are important” Fred Tambour.

“It is a real pleasure to be invited back to this wildlife workshop” John Nagy.

“To participate in these ecology camps, the kids will change for the better” Keyna Norwegian.



DEHCHO REGIONAL WILDLIFE WORKSHOP
19-20 OCTOBER, 2010
FORT SIMPSON RECREATION CENTRE

2010 Wildlife Workshop Delegates

Ernest Hardisty– Jean Marie River First Nation
Billy Norwegian – Jean Marie River First Nation
Victor Jumbo – Sambaa K'e Dene Band
Maggie Jumbo – Sambaa K'e Dene Band
Fred Simba – Ka'a'gee Tu First Nation
Frank Bonnetrouge – Ka'a'gee Tu First Nation
Peter Sabourin – Katlodeeche First Nation
Fred Tambour – Katlodeeche First Nation
Jonas Antoine – Liidlii Kue First Nation
Allan Bouvier – Liidlii Kue First Nation
Marie Lafferty – Fort Simpson Metis Local
Danny Peterson – Fort Simpson Metis Local
Dolphus Codille – Acho Dene Koe Band
Ernest Timbre – Acho Dene Koe Band

Environment & Natural Resources (ENR) Representatives

Nic Larter – Regional Biologist (Dehcho)
Danny Allaire – Wildlife Technician II (Dehcho)
Carl Lafferty – ENR Superintendent (Dehcho)
Nichole McCutchen – Manager,Wildlife Research and Mgmt. (Yellowknife)
Terry Armstrong – Bison Ecologist (Fort Smith)
Brett Elkin – Disease/Contaminant Specialist (Yellowknife)

Nahanni National Park Reserve Representatives

Doug Tate – Conservation Biologist
Mike Suitor – Park Ecologist

University of Alberta Representatives

Jesse Tigner – MSc Student
John Nagy – PhD Candidate

Dehcho First Nations Representative

George Low – AAROM Coordinator

Sound provided by MJC Audio (Ronnie Antoine)
Translation provided by Betty Hardisty & Mary-Jane Cazon
Catering provided by Thomas Simpson School

Participants

Keyna Norwegian – Dehcho First Nations
Carrie Breneman – Dehcho First Nations
Pauline Deneyoua – Dehcho First Nations
Gerald Antoine – Liidlii Kue First Nation
Peter Corneille – Liidlii Kue First Nation
Edward Cholo – Liidlii Kue First Nation
Allan Bonnetrouge – Liidlii Kue First Nation
Johnny Denethon – Liidlii Kue First Nation
Phoebe Allaire-Cazon – Liidlii Kue First Nation
Ernest Tsetso – Liidlii Kue First Nation
Gilbert Cazon – Liidlii Kue First Nation
Michael Cazon – Liidlii Kue First Nation
Tonya Makletzoff-Cazon – Liidlii Kue First Nation
Mike Matou – Nahanni Butte Dene Band
Tim Lennie – Pehdzeh Ki First Nation
Steve Gooderham – ENR Fort Simpson

The Department of Environment and Natural Resources (ENR), Dehcho Region held a Regional Wildlife Workshop at the recreation centre in Fort Simpson on 19-20 October, 2010. This was the fifth regional wildlife workshop; the first was held September 2002 with the others occurring in Octobers 2004, 2006 and 2008. During the first workshop a decision was made to hold future workshops in October because a later date would not conflict with the fall harvest and would permit increased opportunities for harvesters to participate in the workshop. The key results of the 2008 workshop were direction for the various wildlife research programs, the communicating of results, and a list of 13 action items. The goals of the 2010 workshop were to:

1) provide an update on the status and results of ongoing wildlife research programs that ENR had been conducting since the 2008 workshop,
2) provide an assessment of how well ENR had addressed the 13 action items that had been identified from the 2008 workshop,
3) provide a forum for other agencies, organizations, and ENR research programs to present their findings,
4) provide an open forum for the discussion of any and all regional wildlife issues, and
5) ensure a continued open dialogue about wildlife research, monitoring programs, and wildlife issues between all Dehcho First Nations (DFN) and ENR.

During Day 1, ENR made a presentation detailing and critiquing how they had addressed each of 13 action items arising from the 2008 workshop. This was followed by presentations on the use of space by caribou (by John Nagy), seismic lines and marten (by Jesse Tigner), Dehcho boreal caribou and ecology camps (by ENR Fort Simpson), the Aboriginal Aquatic Resource and Ocean Management Program (AAROM; by DFN), Bull trout research in the Prairie Creek area (by Parks Canada), and the Dehcho moose and bison programs (by ENR, Fort Simpson). The walls of the recreation centre were adorned with numerous posters showing the results of a wide variety of additional wildlife research programs being conducted in the Dehcho. There was also a table where copies of reports, scientific papers, and plain language results from wildlife work done in the Dehcho were available. The posters and the report table became focal points during coffee and lunch breaks. The report table had to be restocked often during the workshop. Day 2 started with an ENR presentation on wildlife diseases and parasites. Following this presentations the floor was open to round table discussions. Many delegates and audience participants provided comment and feedback on a wide variety of wildlife-related topics and issues including the current and ongoing wildlife research programs. As in previous years the workshop was very well attended despite some inclement weather affecting air travel. ENR would like to take this opportunity to thank all of those First Nations who sent delegates to participate in the workshop.

What follows is the final workshop agenda, the key discussion items and comments from each of the presentations and round table discussions during the 2-day workshop and the list of action items generated from the workshop for ENR to pursue. At the request of delegates we have also included a listing of the action items that resulted from all previous workshops.

High school caterers.

Sound and translation.

Retrieved bison collar.

Day 1 – 19 October, 2010

0930 Opening Prayer – Peter Sabourin

0935 Welcoming Comments - Carl Lafferty, Regional Superintendent, ENR

0940 Review of 2008 workshop action items - Nic Larter, ENR

1020 Coffee Break

1035 Use of Space by Caribou - John Nagy, U of A

1145 Seismic Lines and Marten - Jesse Tigner, U of A

1210 Lunch catered by TSS

1325 Dehcho Caribou Program - Nic Larter, ENR

1400 Dehcho Youth Ecology Camp - Danny Allaire, ENR

1415 Update on the Dehcho AAROM Program - George Low, DFN

1450 Coffee Break

1520 Bull Trout Research in the Prairie Creek Area – Doug Tate/Mike Suitor, PC

1550 Dehcho Moose Program - Nic Larter, ENR

1620 Dehcho Bison Program - Nic Larter, ENR

1700 Closing comments and Closing Prayer – Jonas Antoine

Day 2 – 20 October, 2010

0915 Opening Prayer – Dolphus Codille

0920 Wildlife Diseases and Parasites - Brett Elkin, ENR

1025 Coffee Break

1040 Round table discussions on moose research program and future large-scale survey in the Dehcho

1140 Round table discussions on bison research and NWT bison strategy

1200 Lunch catered by TSS

1320 Round table discussions about boreal caribou program and future collar deployments

1440 Round table discussions of ecology camps

1455 Coffee Break

1520 Round table discussions of ecology camps continued

1525 Round table discussion to determine action items/current and future workshop formats

1625 Workshop closing comments and Closing Prayer – Margaret Jumbo

Day 1

Presentation on 2008 Action Items

This presentation stimulated discussion on 1) the value of these workshops as a good forum for open discussion of wildlife issues, 2) the need for Dene people to work with GNWT programs to help maintain the connection to the land and encourage living off the land; Dene people have treaty rights to hunt, fish and trap on the land, 3) the value of traditional knowledge (TK) and the need to have TK and western science work together especially when it comes to making decisions about the management of animals on the land; western science needs to be aware that TK is something that comes in many forms, some you can talk about, some you write about, the true sense of TK cannot be put on paper as it has a spirit that goes with it, and 4) bison in communities are a nuisance; bison have lost their fear of humans, and wander through communities, getting into residents' yards and gardens and interact with dogs in town.

Presentation on The Use of Space by Caribou

Key messages

Boreal caribou and barren-ground caribou use space differently. Barren-ground caribou range over a much larger area and do things together as a group so when they calve they all do it together in one area. Boreal caribou range over a smaller area, they do all calve at about the same time but when they calve they space out away from other females. Herds of migratory barren-ground caribou have large annual ranges which overlap. The greatest overlap of the different herd ranges occurs in the central barrens; an area of mineral development. Boreal caribou avoid seismic lines

at certain times of the year. Avoidance periods are different in different areas of the Northwest Territories, but in all areas seismic lines are avoided during the calving and early summer period. The length of time they avoid seismic lines is longer in the Cameron Hills area which has the most linear disturbance. Boreal caribou females avoid seismic lines up to 400m.

In order to try not to be killed by predators (wolves, bears), female boreal caribou space out when they have calves and they also space away from seismic lines and development. If they wander near seismic lines they move faster to cross them. We focused our work on the areas where the collared female caribou (and their calves) wanted to be - looked at it from the caribou's point of view - instead of focusing on how much of the range was affected by disturbance. In the Dehcho there is a lot of secure habitat (at least 500m away from seismic lines and disturbance), but most is in small patches. Boreal caribou did better where there was more secure, unburned habitat and where secure habitat was in large patches (at least 500km^2). There is no magic threshold level of seismic lines or disturbance for maintaining boreal caribou populations. We need to manage for secure habitat which requires large patches of boreal forest free of any disturbance.

Delegate comments

There was comment that with development as a priority in Alberta they are losing their boreal caribou populations. Industry and boreal caribou cannot exist on the same landscape. Caribou are sensitive and undergo population cycles which are not fully understood. Industrial development and disturbances on the landscape affect the way caribou use space. Alberta was fingered by delegates as a prime example of what could go wrong without effective land management. Resource development south of 60^o is

their first priority; we have seen the amount of seismic lines down there. Delegates indicated that the Dehcho Land Use plan is trying to protect the boreal caribou landscape. It may be too late for them, but we have a chance up here in the north.

People questioned whether the information used to look at avoidance of areas in the Cameron Hills took into account pipelines as well as seismic lines. It was indicated that all linear disturbances were taken into account although the presentation had focused on seismic lines and the results clearly show avoidance (or less use of an area than expected if animals were just wandering around). There was avoidance of the Dempster highway by boreal caribou. There was comment about dust on the Dempster highway that might be affecting caribou use along the highway corridor. There was discussion about some of the seismic lines cut in the past having started to reforest. Some have grown back very thick but they are still being used by predators to travel on while some might not be used as travel corridors. The Cameron hills have more recent seismic lines and they are being used for travel. There are permafrost issues in the Inuvik area; when seismic lines are cut the permafrost melts and some of the land becomes swamp.

Delegates were impressed by the amount of work that had been done on boreal caribou in particular not only in the Dehcho, but also in the Inuvik and South Slave Regions. They were glad to see such good use of information collected from collared caribou because collaring caribou is always a sensitive issue. Delegates were advised that this and other work on caribou would be presented by John Nagy and Fort Simpson ENR staff at the 13th North American Caribou Conference in Winnipeg October 24-31, 2010.

Presentation on Seismic Lines and Marten

Motion sensitive cameras were placed on seismic lines and 500 metres away from lines in the forest throughout the study area to record use by animals, marten in particular. The study area included southwestern Northwest Territories, northeastern British Columbia, and northwestern Alberta where there are different densities of seismic lines on the landscape. Looked at areas with seismic line densities ranging from 0.5km/km^2 to >20km/km^2. Different animals respond differently to seismic lines. Marten were more detectable: where lines were narrower versus wider and where lines were "fully regenerated" versus having no regeneration. In areas of medium or wide lines and no to partial regeneration marten were detected more in the interior (500m away from lines). Contrastingly, black bears seemed to be attracted to the larger open seismic lines likely because they are easier for them to travel on. Large predators like wolves are known to use seismic lines to facilitate moving around the landscape in search of prey. In general as seismic line density increases the probability of detecting marten decreases. At line densities of >20km/km^2 detection of marten is very low. Because of what has been seen in the south we are trying to find a better way of establishing seismic lines in the north. Making lines narrower, encouraging regeneration of wider lines, and zig-zagging lines instead of keeping them all straight to reduce the line of sight for predators are some mitigating measures that can be used.

It was noted that marten have a much smaller home range and therefore would be less affected by line densities that were high whereas boreal caribou have much larger home ranges and are not nearly as tolerant of even lower line densities, as indicated in the previous presentation. If

management was aimed at maintaining boreal caribou populations then there would be no worry of reduced marten populations.

Presentation on Dehcho Boreal Caribou Program

Key messages

The presentation highlighted some of the key findings from the work with collared female boreal caribou from the Dehcho. This information was also used in the larger territorial-wide analyses covered in John Nagy's presentation. By using movement data from collared caribou we can tell when and where a calf is born. Now we do not need to fly a survey to find out if females have had calves, so there is reduced harassment of caribou. We know when the peak of calving is and can program all collars so they can provide information on calving. Caribou avoid seismic lines at certain times of the year. They cross lines much less than if just walking around and if they cross lines they move faster. They have a negative response to seismic lines. Caribou in the Dehcho prefer to use: forest stand ages of 100 years or older, areas of open conifer, and areas that have not burned.

Delegate comments

Delegates wanted to know whether the Dehcho boreal caribou population was at a normal size, whether it was stable or decreasing, and how healthy it was. Boreal caribou have never been in great numbers (unlike barren-ground caribou), even in the past with relatively pristine habitat, and they are very sensitive to disturbance. Given the best information we have to date, over the past 5 years the population has shown a decline. The boreal forest system in the Dehcho is more complex than in other areas of the Northwest Territories. There are more predators (specifically wolves and

black bears) and many different kinds of prey species (bison, moose, beavers) to sustain predator populations so when the opportunity arises for them to prey on boreal caribou more predators may get more caribou. Information from the blood and poop collected from collared caribou shows a variety of parasites and exposure to some diseases (no brucellosis) but that caribou are generally quite healthy (see the paper at the report table).[1] There was consensus for the need to continue monitoring Dehcho boreal caribou. There was discussion about how many collars would be needed to properly monitor the population. It was recommended that there should be at least 25-30 functioning collars. It was reiterated that there would be no collaring in February 2011 as had been agreed upon after the successful deployment of collars in February 2010. However, it was cautioned that depending upon how many collared caribou die during the upcoming spring we may have to collar caribou in February 2012 in order to keep the 25-30 minimum of active collars on caribou. Because there are currently only 27 active collars on caribou in the study, it is most likely that we will need to consider deployment of a limited number of collars in February 2012 to maintain adequate monitoring. ENR tossed out the idea of providing each FN partner with a collar that would be available for deployment in an area of their choice in February 2012. They suggested that delegates think about this idea and discuss it more during the round table discussion on day 2.

Presentation on Dehcho Youth Ecology Camps

The presentation detailed the ecology camps held at Cli Lake in 2009 and at Ekali Lake in 2010. Delegates praised the success of the camps since

[1] Johnson, D. et al. 2010. Serum biochemistry, serology, and parasitology of boreal caribou (*Rangifer tarandus caribou*) in the Northwest Territories, Canada. J. Wildl. Dis. 46: 1096-1107.

2003 and the program and reiterated the continued need to get youth out and back on to the land. Some participants in ecology camps have gone on to college in environmental programs. There was discussion about the pros and cons of having camps run much longer (up to 3 weeks instead of the 7-10 day format). Some youth did not want to leave after a week because they had just got into the swing of things and longer camps would be better for them. Other youth wanted to participate but not for a long period of time as they had other things to do in the summer. The costs and logistics of longer camps was an issue, especially without a serious commitment by youth to participate. On some occasions youth have backed out at the last minute. The loss of one major source of funding (CIMP) was discussed but also the opportunities to pursue a partnership with the AAROM program for ensuring future camps. There was consensus that ecology camps need to continue in some fashion, and that other funding sources need to be found. There was discussion about trying to work with the high school to explore getting credits for Career Technology Studies as a way to attract more students to the program. ENR will try to communicate with the Education Boards on CTS credits for attending ecology camps. It was noted that Justice Department also uses out on the land programs for youth and if dwindling student attendance is an issue with ecology camps, cooperative programs may be a possibility to consider.

Presentation on Dehcho AAROM programs

Getting youth involved in water related sciences has been part of Aboriginal Aquatic Resource and Ocean Management Program's (AAROM) mandate since it became involved with Dehcho First Nation (DFN); the summer youth ecology camps are a great venue to accomplish this. The

camp at Ekali Lake this past summer was a great opportunity to expose youth to aquatic sciences. Dehcho First Nations partnered with AAROM in order to get aquatic science programs established in Dehcho communities along the Mackenzie River, Liard River, Trout Lake, Tathlina Lake and Kakisa Lake. A diversity of programs have been provided and/or established including stream health assessment, fish stock assessment, fishing monitoring, pleasure craft operators courses, and the collection of traditional and scientific knowledge of local aquatic resources along the Mackenzie and Liard Rivers. Equipment (summer/winter) and training has been provided to communities that are involved. Winter stock assessment programs have been initiated for this winter on some of the bigger lakes in the Dehcho Region and there may be opportunities for winter camps with ENR participation. Storage of equipment for these capacity building programs has become an issue for AAROM in smaller communities, garage packages are being assessed at this time.

Presentation on Bull Trout Research in the Prairie Creek Area

There have been concerns raised about a known spawning site at Funeral Creek that is located upstream from the Prairie Creek mine site. Bull Trout inhabiting this area may pass by the mine site during their seasonal summer life cycle. Monitoring of Bull Trout started this winter by assessing winter habitat; photos were taken of open water and ground water influences. Fish tagging occurred in August and October 2010. A total of 27 Bull Trout were equipped with acoustical tags. Fish were captured, they were cut open so that the acoustic tag could be placed inside the body, and then they were sewn up before being released. Also visual Floy tags were put on the dorsal fins of other Bull Trout that were caught. Acoustic

receivers are put in the water to determine when fish with acoustic tags have passed by the receivers. Each tag makes a different acoustic sound so movements can be monitored. Eighteen receivers were placed along Funeral and Prairie Creeks. Tagged trout were later caught or visually identified by staff. All but one receiver, with its stored data, were retrieved from the study area this fall. A small landslide made it impossible to retrieve that one. Preliminary results show that these large fish occupy some small creek branches. Some fish travelled extensively throughout the creek drainages; two fish moved from Funeral Creek to Prairie Creek. The sutures were healing on the limited number of recaptured fish.

Presentation on Dehcho Moose Program

Much of this presentation dealt with the health of locally harvested Dehcho moose in relation to the Health Canada public health advisory on the consumption of moose organs issued in February 2009.[2] This advisory was based upon the findings from the ENR study with local harvesters. ENR had been working with public health to produce a plain language poster putting the findings in an appropriate human health context. The poster had been circulated in September 2010 just prior to the fall hunting season. The level of cadmium especially in the kidneys of moose harvested from the Mackenzie Mountains was quite high. Cadmium is a naturally occurring element found in soil, willows accumulate cadmium from the soil and moose eat willows. Cadmium levels increase as a moose gets older. The average age of locally harvested moose in the samples was only 4.3 years. Few people eat entire kidneys. The amount of cadmium absorbed by eating an

[2] Larter, N.C. & Kandola, K. Levels of arsenic, cadmium, lead, mercury, selenium, and zinc in various tissues of moose harvested in the Dehcho, Northwest Territories. *In*: Chapter 8. Food security and our environments. Circumpolar Health Suppl. 2010;7.

entire kidney of a moose harvested from the Mackenzie Mountains would about the same as from smoking 5½ packages of cigarettes and for a kidney from a moose harvested from the Mackenzie/Liard River valley less than 1 pack. Cadmium levels in muscle tissue are low and similar to those found elsewhere. The bottom line is that moose meat from moose harvested in the Dehcho remains a very healthy food choice. Delegates concurred that rarely were harvested moose skinny or sickly.

Delegates indicated the need for getting a better idea on the number of moose harvested and to remember to harvest only what you need. ENR indicated that the upcoming small-scale November monitoring survey would be the last before doing a large moose population survey of the Mackenzie and Liard River Valleys in November 2011. The last large moose population survey occurred in winter 2003/04 and the time has come for another one. There was discussion about the need for all First Nation partners in the moose survey to be actively involved in determining the survey area and in updating the block descriptions with recent harvester information. ENR indicated that maps with the previous survey area and block descriptions would be forwarded to all FN partners for their comments. There was discussion about increasing the area of the moose survey to include traditional areas of Deh Gah Gotie Dene Band. It was indicated that the South Slave Region ENR had conducted a moose survey in the traditional areas of the Katlodeeche First Nation in November 2009 and it would be the South Slave Region that would be taking the lead in moose surveys in the Deh Gah Gotie Dene Band areas. The final report of that moose survey is nearing completion and would be circulated once available. Some elders wondered why ENR chose areas of poorer habitat for moose to be included in the moose survey, especially since aircraft are expensive and there are no

observations made for long periods of time. Although it seems like a waste of time and money it is important to survey areas of both good and poor habitat to get a more accurate assessment of moose distribution and density over the greater landscape. Also because we do not survey every block, we have to fly between blocks and often this may mean flying over poorer habitat. ENR plans on reevaluating survey blocks with their FN partners for the 2011 survey.

Presentation on Nahanni Wood Bison Program

Currently the Nahanni bison population is relatively stable and it is highly unlikely that this population will ever increase in size like the Mackenzie population. Bison have been known to create and use trails a lot. Collared bison use the road and seismic lines a lot in their moving around and they move around a great deal in the summer including into British Columbia and back. Finding or making new trails for bison could bring them into new areas or let them avoid areas where they are not wanted. The electric fencing program at the Nahanni Butte airport was a successful deterrent. A population survey will be done in March 2011. The last survey was in March 2004.

There were many comments about bison being a nuisance, especially when coming into communities; elders were frustrated with their presence. Having bison outside of the communities was fine but not in communities. There was also the feeling that bison were a novel wildlife or a foreign species to the area. However, wood bison are not historically a foreign species to the Dehcho. They have been absent for a couple of generations, with the last known bison in the area being shot in 1890, but historically wood bison were present and they were hunted for food. Delegates were

pleased to see that the NWT wood bison strategy was moving ahead and that another population survey was planned in March 2011 so that more up to date numbers would be available. There was agreement on the need for a committee for a Nahanni bison management plan and that its membership should not be limited to Fort Liard and Nahanni Butte.

Day 2

Presentation on Wildlife Diseases and Parasites

People want to know what is out there for wildlife diseases and parasites and what kind of condition the animals they harvest for food are in. Hunters and trappers are the eyes and ears out on the land as they provide information on the kinds of diseases and parasites in the wildlife and the geographic distribution of these diseases and parasites. ENR encourages hunters and trappers to notify ENR about abnormal things they find in wildlife and if at all possible to provide samples from any animals that appear abnormal. ENR has produced a wildlife disease pocket book which has been provided to harvesters and is available at the Regional Office and at the report table.

Most animals are generally quite healthy, they may carry a low level of disease or parasites, but some individuals may show signs of being very sick or unhealthy. It is these fewer animals that getting samples from is very important. The Dehcho region participates in some targeted disease and parasite surveillance and has conducted a study on contaminants in moose. They collect mosquitos and ravens to monitor for West Nile Virus. They monitor trichinosis in bears and wolves. This disease can be transmitted to

people. They also monitor for diseases in bison because currently the Nahanni bison population is considered to be free of brucellosis and tuberculosis. There has never been anthrax in the Nahanni bison population. They are monitoring for Johne's disease which has been found in domesticated bison. The Dehcho region has also participated in a study that monitored previously unknown diseases in frogs and toads and monitored the health of boreal caribou. They continue to monitor for winter ticks in moose; the incidence of ticks in Dehcho moose remains much lower than in other regions of the Northwest Territories.

Delegates wanted to know whether caribou were drugged in order to collar them. ENR does use tranquilizing drugs on bison but never on caribou. Caribou are live captured with a net gun; bison are too big to net gun safely. It was noted that the GNWT has a committee called the Animal Care Committee (the Dehcho Regional Biologist is a committee member) that provides wildlife handlers with specific and strict guidelines for them to abide by when handling wildlife. All precautions are taken and adhered to by net gunners while handing caribou.

Some delegates were concerned that the issue of collaring animals (which means handling them) and doing aerial surveys (which disturbs animals) to gain information may be doing more harm than good for the animals. Certainly some individual animals are handled and may be disturbed. The key is to find a reasonable balance and to disturb and handle animals as little as possible but to be able to find out the answers to questions that people have about different animals. Some questions can only be answered by collaring and surveying. Some delegates wanted to know if it was necessary to get medical shots before going out hunting and cutting up wildlife. It was indicated that as long as one was careful when skinning and

gutting animals they would not get sick. Hunters wanted to know how they could determine if waterfowl and other wild game was healthy before eating them. It was indicated that most animals are generally healthy and as long as game is properly cooked there should be no need to worry. However, if there is something that looks out of the ordinary harvesters are encouraged to contact ENR and if possible provide biological samples. Harvesters are at the frontlines of wildlife disease monitoring.

Having global warming affecting the North, there are new animals and plants moving into the southern Northwest Territories and particularly the Dehcho. We need to be aware of the changes that are happening. Trucks are always coming to the north transporting things. There is the chance that trucks can bring in new, and unwanted, species of plants and animals with them. We must be aware of this.

Round Table Discussions on the Moose program

There was much discussion about the large scale moose survey that was planned for November 2011. It would be a major operation covering a much larger area, taking more time to complete, requiring more local observers, aircraft, planning, and funding than any previous moose surveys in the Dehcho. Fortunately funding has been secured so that the planning and logistics can be started well in advance. Not all delegates were familiar with the survey design. Briefly, this design breaks the whole survey area into blocks of about 16km^2. Each block is described as either good or poorer moose habitat. A proportion of the blocks are picked to be surveyed; most in good habitat but some in poorer habitat. The survey blocks are randomly picked by a computer program. For each block that is surveyed a plane flies over the entire block to count every moose that is inside the block. More

details are found in the one paper available at the report table.[3] Questions were raised on why some First Nations were not included in the large scale survey. The areas around Fort Providence are not part of the ENR Dehcho Region and the most important study in the Sambaa K'e area was boreal caribou. Delegates wanted to see the survey area extend south of the Northwest Territories/British Columba border because it is a part of Acho Dene Koe Band traditional area. ENR indicated they would pursue this request with the Government of British Columbia. There has been good cooperation on wildlife programs with GBC recently. First Nations wanted time to review the large survey areas to ensure the designation of survey blocks was still accurate and current. Some areas that burnt in the mid 1990's have grown over again with willows and now are considered good moose habitat. It has been 8 years since the initial large scale population survey. ENR promised to forward maps of the 2003/04 survey areas to each FN involved shortly after the workshop so that local harvesters could comment and update the survey areas and block designations.

There were concerns raised that some families were overharvesting moose during the fall and that the moose survey should be done before fall hunt so it would report a higher density of moose. ENR conducts the moose survey immediately after the fall hunt because not only are conditions better after the freeze up for observing moose from the air but because it provides a more conservative estimate of moose density and distribution. Moose are much more difficult to observe when there are still leaves on the trees. During November the trees have lost their leaves, there is snow cover and moose are more active, making observing moose from the air much easier.

[3] Larter, N.C. 2009. A program to monitor moose populations in the Dehcho Region, Northwest Territories, Canada. Alces 45: 89-99.

Also at this time the calves are still noticeably smaller than adult moose and male moose have not dropped their antlers. This makes it easier to get an accurate assessment of the sex and age class of all moose observed. An accurate sex and age classification of moose is an important result from the November surveys.

Round Table Discussions on the Nahanni wood bison program

There were some concerns that because the survey would be made with an aircraft not all bison will be visible or counted during the bison population survey in March. ENR realizes that they will not be able to see and count all bison during the survey. The survey will give us an estimate of how many bison are in the population. We will fly transects over an area where the bison range. We count all the bison we see in the flown area and use that number with the proportion of the area we looked for bison to estimate the population size. This year we will have a number of bison equipped with radio collars before the survey. We will be able to find these bison and count the number of animals in the group with them, even if we cannot see them. By being able to find these collared animals that we cannot see from the plane we will get a more accurate count and population estimate. The survey technique used in 2004 gave a reasonable estimate and we will use a similar technique but this time with collared animals. We will be sending maps of the 2004 survey area to Nahanni Butte Dene Band and Acho Dene Koe Band for them to suggest other areas to survey or not to survey in March 2011.

There is still a need to get the bison management committee up and running. The committee will be addressing local concerns. There were names of potential members put forward already but one of the Nahanni

Butte members has left the community. This year we are trying to attract bison to a newly cut fire break that will allow bison to bypass Nahanni Butte and get to the river. After discussions with the community we requested that the outfitters dump the excess salt from hide preparation at the beginning of the new fire break down the winter road from the community. Hopefully bison will find this fire break and establish a new trail to the river that not only avoids the community but with their constant use will also keep the fire break open removing the need for manual brushing.

Round Table Discussions on the Boreal Caribou program

Some delegates questioned if ENR had harvest estimates of boreal caribou from each community. It was indicated that there is no requirement for First Nations to provide harvest information to ENR and that ENR does not collect harvest information from GHL holder(s). In other regions where land claims have been settled there are Renewable Resource boards set up by the First Nation and harvest information is collected. There is no settled land claim in the Dehcho. ENR does collect information on harvest of woodland caribou by resident and non-resident hunters.

Delegates were concerned that non-resident hunters from British Columbia and USA were hunting animals in the Dehcho and then leaving to go back home. Delegates questioned whether this was being monitored by ENR. The non-resident harvest by guided hunters is closely monitored by ENR; that includes the number of each kind of animal harvested and the distribution of meat (see the detailed annual report at the report table[4]). According to the outfitters more hunters from BC and elsewhere are

[4] Larter, N.C. and Allaire, D.G. 2010. Mackenzie Mountain non-resident and non-resident alien hunter harvest summary 2009. G.N.W.T. Environment and Natural Resources Manuscript Rep. No. 208. 79pp.

choosing to drive up to the Northwest Territories to hunt and also visit and see more of the area as tourists. All of these hunters must have an ENR wildlife export permit in order to leave the NWT with any part of a harvested animal. These permits are issued either in Fort Simpson or Fort Liard. Most hunters driving up from the south prefer to be permitted and leave via Fort Liard.

Collaring caribou will always remain a contentious issue. FN's in this region have agreed to collaring in order to answer questions that complement traditional knowledge of boreal caribou. There may be times when we do not collar animals. It was reiterated that there would be no collars deployed on female boreal caribou in February 2011 and that there were currently 27 active collars out on female caribou in the study. During the 2008 Wildlife Workshop it was agreed that a target of 25-30 active collars was needed during the calving season in order to get estimates of calves per 100 females and female and calf survival through late winter. There was consensus that ENR may have to redeploy collars in February 2012 depending on the number of mortalities of collared female this spring. Delegates thought that the idea of providing each FN partner with a collar that could be deployed in their chosen location or that could be provided to another FN partner for deployment was something that should be pursued. This deployment would not occur before February 2011. Caribou have always been collared in areas identified by FN's except when caribou have not been present in these areas; no collaring has occurred in areas FN's have indicated they do not want this activity.

Delegates believed that proper landscape management for boreal caribou is more desirable than using various threshold numbers that do not protect caribou as has been demonstrated in the south. It was noted that

some individual caribou do not travel as much as other caribou do. They have found suitable habitat that requires smaller annual home ranges. This should not be forgotten.

Caribou collars are expensive to make, delegates asked if there was a reward for handing one in if they had harvested a collared caribou. ENR would appreciate if collars could be turned in, instead of being left on the land. We can go out and retrieve them but that takes time and money. Retrieved collars can be refurbished at a reduced cost and then be redeployed. Some delegates wanted to know if there were any caribou being collared in northeastern BC. ENR indicated that caribou have been and are continuing to be collared in NE BC. Some of those collared in NE BC have travelled up to the Trout Lake area just like some of the females ENR collared near Celibeta Lake travelled into BC. ENR will try to get copies of any reports from collared caribou in NE BC and provide them to First Nations.

Delegates wondered if ENR was going to continue to collect caribou samples from the Trout Lake area? ENR indicated that they would be open to establishing another collection program if First Nations wanted to provide biological samples from harvested caribou to ENR. One delegate wanted to know why a bid by a local business on the caribou collaring operation was not successful. It was indicated that the bid was not received by the deadline. Also collaring caribou below treeline is an extremely dangerous operation, all members of the team have a specialized job to do and each one holds the life of another in their hands. Animal and people safety is the main concern in such an operation. There are huge safety concerns with putting together a net gun crew with no previous experience to collar boreal caribou below treeline as a first operation.

Round Table Discussions on the Ecology Camp program

Delegates wanted to know how the ecology camps were awarded to different First Nation's organizations. A request for proposals to run a summer youth ecology camp is advertised in the local newspaper and all Dehcho First Nations are notified by fax of the opportunity to provide proposals for running a summer youth ecology camp. A deadline for those proposals is indicated. The proposals are forwarded to Dehcho First Nations. The proposals need to provide some details on: location, staff, infrastructure, agenda, logistics, and a budget. DFN and ENR come to a decision on awarding the camp based upon the proposals. The camp cannot be hosted by the same group two years in a row. It was suggested that ENR should look into partnering the ecology camp with the school when they do their Nahanni River trip. However, the river trip is not a guaranteed annual event and it occurs during the school year for some ages of youth. There was some discussion about providing an opportunity for parents to participate in the camps with their children. The need to separate older and younger youth, either by having different camps or some type of separation in living quarters during the camps was a concern. At least during recent years youth at camp have been all in the 12-14 year range. The concern was having high school aged youth and 12-13 year-olds mixed together. There was concern that the general camp policies may be outdated and should be revisited with the proposals or at least with the group running the camp to ensure they were appropriate for the camp. This was a point well taken. The opportunity for youth that were getting into trouble in town to participate in the camps was voiced. Being out on the land with other youth may change these more troubled youth for the better. This should be a consideration even if it works

only for one troubled youth. There were suggestions about how to better promote the ecology camp to try and get more youth to become involved in the program. Powerpoint presentations, visual posters and producing a video that could be distributed and shown at school etc. were all ideas to promote the camp.

General Comments made at the Workshop

There were comments about how long it was taking to change the old Wildlife Act and questions as to the status of the changes to the Wildlife Act. It was noted that not all of the recommendations made by the Wildlife Aboriginal Advisory Group (WAAG) were included in the newly drafted Wildlife Act. WAAG had a vision for future generations and that is why they made their recommendations. It was noted that completing the Species at Risk Act had taken precedence over the changes to the Wildlife Act, causing delays in drafting the new Wildlife Act, but with the Species at Risk Act completed all attention has now focused on the new Wildlife Act and incorporating changes to it based upon such information provided by WAAG. Community meetings and meetings with aboriginal groups and other agencies on the newly draft of the Wildlife Act are scheduled to begin in November 2010.

There were many positive comments about the workshop and the fact that communication was a two-way street, which made the workshop format so beneficial, government people and people from communities talking together. There were suggestions to have these kinds of meetings more frequently and maybe in communities other than Fort Simpson. Maybe this kind of meeting can be given to elders groups and youth groups. There was praise about the work that had been done and presented. People learn a lot

and share a lot at these meetings. It was noted by delegates themselves that First Nations should chose their delegates wisely, sending only those who are interested to this workshop, and that delegates should attend all sessions. Inclement weather affected travel for some First Nations to the workshop this year. It was suggested that hard copies of the workshop final report be made available to DFN leadership during their winter leadership meeting.

Some delegates mentioned the marten stretchers provided by ITI and distributed by ENR to harvesters last year were too small for their marten. Apparently these stretchers had been made based upon Ontario marten which must be smaller than Northwest Territories marten. This information would be passed on to ITI.

Prior to closing the workshop there was a healthy discussion on what should be key action items for ENR to follow up on after the 2010 workshop; 16 action items were agreed upon and follow:

Action Items from October 2010 Workshop

1. ENR to distribute the Final Report of this workshop to First Nations on a timely basis.

2. ENR to secure funding to host another Regional Wildlife Workshop in 2 years; the timing of the workshop should remain.

3. ENR should work with DFN to seek funds to provide future summer youth ecology camps, and if possible extend the length of such camps. Camp policies should be "tailor" made for each camp or at least reviewed prior to each camp to lessen difficulties for facilitators.

4. ENR should try to communicate with the schools concerning ecology camps; Career Technology Studies (CTS) credits for high school students may encourage more students to participate in these camps. The number of students participating in camps is sometimes an issue.

5. ENR should ensure a wide distribution of the Final Report of this workshop, not limited to the agencies and First Nations participants.

6. ENR should post the final report of the 2010 Regional Wildlife Workshop on the ENR website. They should try to post final reports of previous workshops.

7. ENR should provide hard copies of the final report for the 2010 Regional Wildlife Workshop to Dehcho First Nations Leadership in time for their winter leadership meeting, posters should be made available as well.

8. ENR should distribute the large scale geospatial moose survey maps to their First Nations partners so local harvesters can update survey blocks and modify the survey area for a more accurate moose survey.

9. ENR should conduct another large scale geospatial moose survey November 2011 along the Mackenzie and Liard River Valleys covering a similar area to surveys in winter 2003/04.

10. ENR should endeavour to deploy as many of the 7 available collars on Nahanni wood bison prior to conducting a Nahanni wood bison population survey in March 2011.

11. ENR should extend the current moose and bison surveys south of 60^{o}N latitude to include traditional harvesting areas of the Acho Dene Koe Band in northeastern British Columbia.

12. ENR should forward letters to First Nations requesting them to provide ENR with suggestions and guidance for future deployment of collars on boreal caribou. There will be no collaring in February 2011 but at least 1 collar will be available for each First Nation to deploy in February 2012. ENR should keep a minimum of 25-30 active collars on boreal caribou for each calving season, depending on mortalities through 2011. ENR will request First Nation permission to deploy collars in areas where mortalities have occurred.

13. ENR should follow up with the Dehcho First Nations' Grand Chief on the formation of a working group for boreal caribou.

14. ENR requests that Dehcho First Nations submit names for membership on the Nahanni Bison Management Plan committee.

15. ENR should get hard copies of the South Slave moose survey circulated to all First Nations involved, once it is available to the general public.

16. ENR should get hard copies of the northeastern British Columbia boreal caribou and moose survey reports distributed to appropriate Dehcho First Nations.

A listing of action items from previous wildlife workshops.

2008 workshop

1. ENR to distribute the Final Report of this workshop to First Nations on a timely basis.
2. ENR to secure funding to host another Regional Wildlife Workshop in 2 years; the timing of the workshop should remain.
3. ENR requests that Dehcho First Nations submit names for membership on the Nahanni Bison Management Plan committee.
4. ENR should work with DFN to seek funds to provide future summer youth ecology camps, and if possible extend the length of such camps.
5. ENR should ensure a wide distribution of Final Report of this workshop, not limited to the agencies and First Nations participants.
6. ENR should look into making a brief presentation of the Final Report of this workshop at a DFN Leadership meeting, likely in January 2009.
7. ENR should endeavour to deploy as many of the 11 available collars on Nahanni Bison as soon as possible.
8. ENR should extend the current moose and boreal caribou programs to include traditional harvesting areas of the Katlodeeche First Nation.
9. ENR should forward letters to First Nations requesting them to provide ENR with suggestions and guidance for future deployment of collars on boreal caribou. Information requested would include where to deploy collars, how many collars to deploy, type of collars to deploy and whether to pursue the deployment of collars in February 2009. (8 collars will be available).

10. ENR should follow up with the Grand Chief on the formation of a working group for boreal caribou.
11. ENR to provide workshop to Jean Marie River and Trout Lake on fur handling and wolf snaring techniques.
12. ENR to follow up with ITI regarding access to Western Harvester Assistance Program for Jean Marie River and distribute information on moose and caribou hide program.
13. ENR to include discussion of predator management programs when developing bison management plans and the boreal caribou action plans.

2006 Workshop

1. ENR to ensure that the final report of the workshop is distributed to all First Nations in a timely basis.
2. ENR to ensure that these workshops become a biannual event, and that participation by elders and youth of the region is actively supported and encouraged. The current timing is good.
3. ENR to ensure that a bison management plan is developed for the Nahanni Bison Herd.
4. ENR to initiate discussions with trappers in the Dehcho communities to stimulate cooperation in designing and conducting basic research and monitoring programs.
5. ENR to continue seeking proposals for hosting the summer youth ecology camp so that the camp curricula can be varied and can be held in different locations in the Dehcho.

6. ENR to seek funding for conducting an additional youth ecology camp during a different season of the year, preferably starting with a winter camp when students could be taught trapping.
7. ENR to actively pursue a collaring program for Nahanni Bison to provide baseline information on movement and range of distribution.
8. ENR to pursue the idea of a working group for boreal caribou in the Dehcho by presenting it as a topic for discussion at the November, 2006 DFN leadership meeting in Fort Providence.
9. ENR to ensure that the 5 GPS collars and all available satellite collars are deployed on boreal caribou throughout the region in January 2007.
10. ENR to ensure that once the results of the elemental analyses from moose organs are received, that they are analyzed and a plain language report of the results is circulated as soon as possible.

2004 Workshop

1. ENR to ensure that the final report of the workshop is distributed to all First Nations in a timely basis.
2. ENR to ensure that these workshops become a biannual event, and that participation by elders and youth of the region is actively supported and encouraged.
3. ENR to ensure that a bison management plan is developed for the Nahanni Bison population.
4. ENR to initiate discussions with trappers in Dehcho communities to stimulate cooperation in conducting basic research and monitoring programs.

5. ENR to discuss changes and modifications to the current youth ecology camp location, timing, and format with local communities and DFN and investigate other available option for the camps.
6. ENR to continue to promote and support community wildlife monitoring programs.
7. ENR to support and self-management programs related to wildlife harvest that may be initiated by local First Nations.

2002 Workshop

1. ENR to ensure that the summary and hard copy of the presentations covered at the workshop is distributed to all Dehcho First Nations.
2. ENR to arrange meetings and discussions with those First Nations that were unable to send delegates to the workshop (Trout Lake, Kakisa, Fort Liard). For the Kakisa meeting the Regional Biologists from both the South Slave and Dehcho should attend.
3. ENR to circulate letters to schools in the Dehcho indicating that there is now a Regional Biological Program with ENR and that they are available to make school presentations if requested.
4. ENR to explore options and develop a proposal for how a science camp/research station could be established in the Dehcho.
5. ENR to identify ways that moose populations in the Dehcho could be monitored at regular intervals.
6. ENR to identify ways that the Nahanni bison population could be monitored regularly.
7. ENR to identify ways that the status of boreal caribou in the Dehcho could be clarified and the potential impacts of oil and gas exploration

and development on boreal caribou could be studied in the Cameron Hills area and possibly other key areas in boreal caribou range in the Dehcho.

8. ENR to identify ways that community-based monitoring of wildlife health could be implemented in the Dehcho.
9. ENR to identify ways that monitoring the harvest of wildlife in the Dehcho could be enhanced.
10. ENR to identify appropriate indicators for monitoring and assessing environmental and landscape change (including those resulting from climate change) that could be established in the Dehcho.
11. ENR to identify studies that are needed to support protected areas initiatives in the Dehcho.
12. ENR to maintain contact and dialogue with all Dehcho First Nations to ensure that all research and monitoring programs are developed and implemented together.

Appendix 1.

Review of 2008 Dehcho Regional Wildlife Workshop Action Items

Presented by Nic Larter, ENR Fort Simpson

Dehcho Regional Wildlife Workshop
Fort Simpson, NT
19-20 October, 2010

Co-Sponsored by DFN and ENR

In October, 2008, The Department of Environment & Natural Resources (ENR) and Dehcho First Nations (DFN) jointly hosted a fourth Dehcho Regional Wildlife Workshop in Fort Simpson.

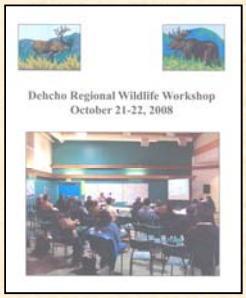
The main objectives of the workshop were to: review the progress made on action items from the October 2006 workshop, provide an update of the various regional wildlife research programs (ENR and other agencies), and provide an open forum to discuss regional wildlife programs and issues to ensure open dialogue between ENR and Dehcho First Nations.

At the end of the workshop 13 follow-up activities were recommended by the delegates in attendance.

What follows is a description of the activity and the action by ENR on each item.

Item #1

Ensure that the final report of the workshop is distributed to all First Nations in a timely basis.



Action:
On 15 December a hard copy of the final report, including all presentations, was forwarded to all First Nations. Digital copies, including audio files were available upon request.

Item #2

Secure funding to host another Regional Wildlife Workshop in 2010. The current timing of the workshop is good.

Action: Secured funding to conduct 5rd Biannual Dehcho Regional Wildlife Workshop, covering the costs for 2 participants from each First Nation. Encouraged each First Nation to send 2 participants to the Workshop and to include youth, elders, harvesters and council members as participants. Maintained the timing of the workshop.

Item #3

Request DFN to submit names for membership on Nahanni Bison Management Plan Committee.

Action: As part of the NWT Wood Bison Management Strategy ENR met in both Nahanni Butte and Fort Liard in May 2009. Both communities provided names for membership in a management planning committee. Funding has been secured and we are in the process of establishing such a committee. ENR Fort Simpson continues to monitor the population.

Item #4

Work with DFN seeking funds to continue providing summer youth ecology camps, and if possible extend the length of such camps.

Action: Funding was acquired for the 2009 camp at Cli Lake, and the 2010 camp at Ekali Lake. DFN is pursuing avenues of funding for longer camps and/or additional camps beyond the current program.

Item #5

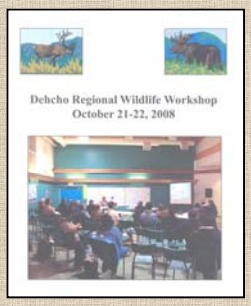
Ensure a wide distribution of the Final Report of the 2008 workshop, beyond participant groups.

Action: The Final Report was widely circulated to all First Nations, participating agencies, and the Fort Providence Resource Management Board, the Dechinta Society, the Harvesters, Elder, Youth Committee, and Crosscurrent Associates.

Item #6

ENR to make a brief presentation of the Final Report of the 2008 workshop at a DFN Leadership meeting, ideally January 2009.

Action: The leadership meeting was postponed to February 2009, but ENR was advised that there was no room on that agenda. ENR was unsuccessful at making the following agenda and did not pursue giving a presentation at future meetings. Leadership did receive a copy of the Final Report.



Item #7

Endeavour to deploy as many of the 11 available collars on Nahanni bison as soon as possible.

Action: ENR deployed 3 collars in November 2008 and 4 more collars in January 2009. Bison continue to be very capable at removing collars with release mechanisms; currently 6 collars are being refurbished.

Item #8

ENR should extend the current moose and boreal caribou programs to include traditional harvesting areas of the Katlodeeche First Nation.

Action: In November 2009, ENR South Slave completed a similar moose survey in these areas as requested. A final report is nearing completion. Locations of currently collared boreal caribou include these harvesting areas; there are plans to deploy more collars on boreal caribou in these areas.

Item #9

ENR should use suggestions and guidance from First Nations for future deployment of collars on boreal caribou prior to February 2009 proposed deployment.

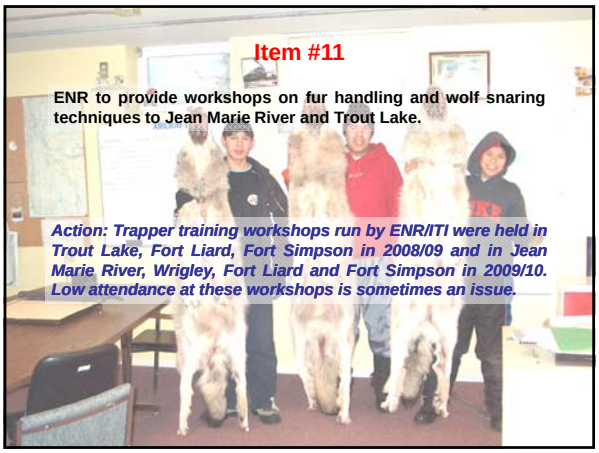
Action: ENR contacted all First Nations November/December 2008. First Nations indicated where collars should be deployed and areas to avoid collaring. First Nations approved a permit to deploy 8 collars in February 2009. The collars were successfully deployed.

Item #10

ENR needs to follow up with the Grand Chief of the Dehcho First Nations on the formation of a working group for boreal caribou.

Action: Correspondence between ENR and the DFN Grand Chief has been ongoing. Names of potential members have been submitted, funding for a group has been established. An initial meeting of such a group is anticipated before the end of 2010.

Item #11



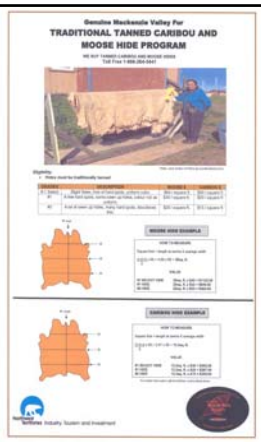
ENR to provide workshops on fur handling and wolf snaring techniques to Jean Marie River and Trout Lake.

Action: Trapper training workshops run by ENR/ITI were held in Trout Lake, Fort Liard, Fort Simpson in 2008/09 and in Jean Marie River, Wrigley, Fort Liard and Fort Simpson in 2009/10. Low attendance at these workshops is sometimes an issue.

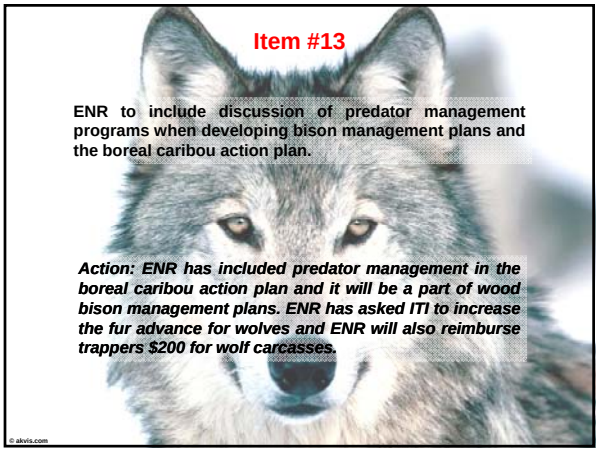
Item #12

Follow up with ITI regarding Western Harvester Assistance Program for Jean Marie River and distribute information on the moose and caribou hide program.

Action: Jean Marie River needs to discuss accessing the Western Harvester Assistance Program funding with ITI. ENR distributed information on the current moose hide program to First Nations.



Item #13



ENR to include discussion of predator management programs when developing bison management plans and the boreal caribou action plan.

Action: ENR has included predator management in the boreal caribou action plan and it will be a part of wood bison management plans. ENR has asked ITI to increase the fur advance for wolves and ENR will also reimburse trappers $200 for wolf carcasses.

Programs/Projects Dehcho ENR Undertook/Participated in Since 2002

- Problem Bear Disease/Parasites Monitoring
- Diseased/Parasitized/Injured Wildlife Sampling
- Wolf Carcass/Stomach Collection and Disease Monitoring
- Small Mammal Trapping and Hare Turd Counts
- Beaver and Moose Heavy Metal and Contaminant Level
- Tourist and Staff Wildlife Observation
- Edehzhie and area Wildlife Survey
- Samba K'e Candidate Protected Area Wildlife Survey
- Boreal Caribou Survey/Satellite, GPS, VHS Collar Deployment
- Boreal Caribou Disease and Paraasite Study
- Boreal Caribou Harvest Sampling (Age, Health, Condition)
- Boreal Caribou Occupancy Model Refinement
- South Slave Boreal Caribou Classification Survey
- Nahanni Bison Sex/Age Classification Survey
- Nahanni Bison Population Survey/Satellite, GPS, VHF Collar Deployment
- Nahanni Bison Disease Monitoring
- Youth Summer Ecology Camp
- Moose Population Survey – Mackenzie River Valley
- Moose Population Survey – Liard River Valley
- Moose Annual Population Monitoring Surveys
- Moose Harvest Sampling (Age, Health, Condition)
- Dall's Sheep Survey Nahanni/Liard Ranges
- Dall's Sheep Horn Growth
- Non-Resident Hunter Harvest Monitoring/Sampling
- Mountain Goat Surveys Flat River
- Monitoring EnCana Gravity Survey
- Mosquito Trapping for West Nile Surveillance
- Trichinella Occurrence in Different Wildlife Species
- Grouse DNA Sampling
- Participated in Wolverine Carcass Collection
- Participated in Barren-ground Caribou survey
- Participated in Dene Nation Contaminant Study
- Participated in Trout Lake Track Count Study
- Participated in Wrigley Community Caribou Hunt
- Participated in BC Government Porcupine Survey
- Participated in University of Alberta Mink Study
- Participated in University of Calgary Amphibian Study
- Participated in DFO Fish Tagging Studies
- Participated in University of Alberta Small Mammal/Linear Development Study
- Participated in Bear/Wolf Growth with Age Study with Florida Fish & Wildlife

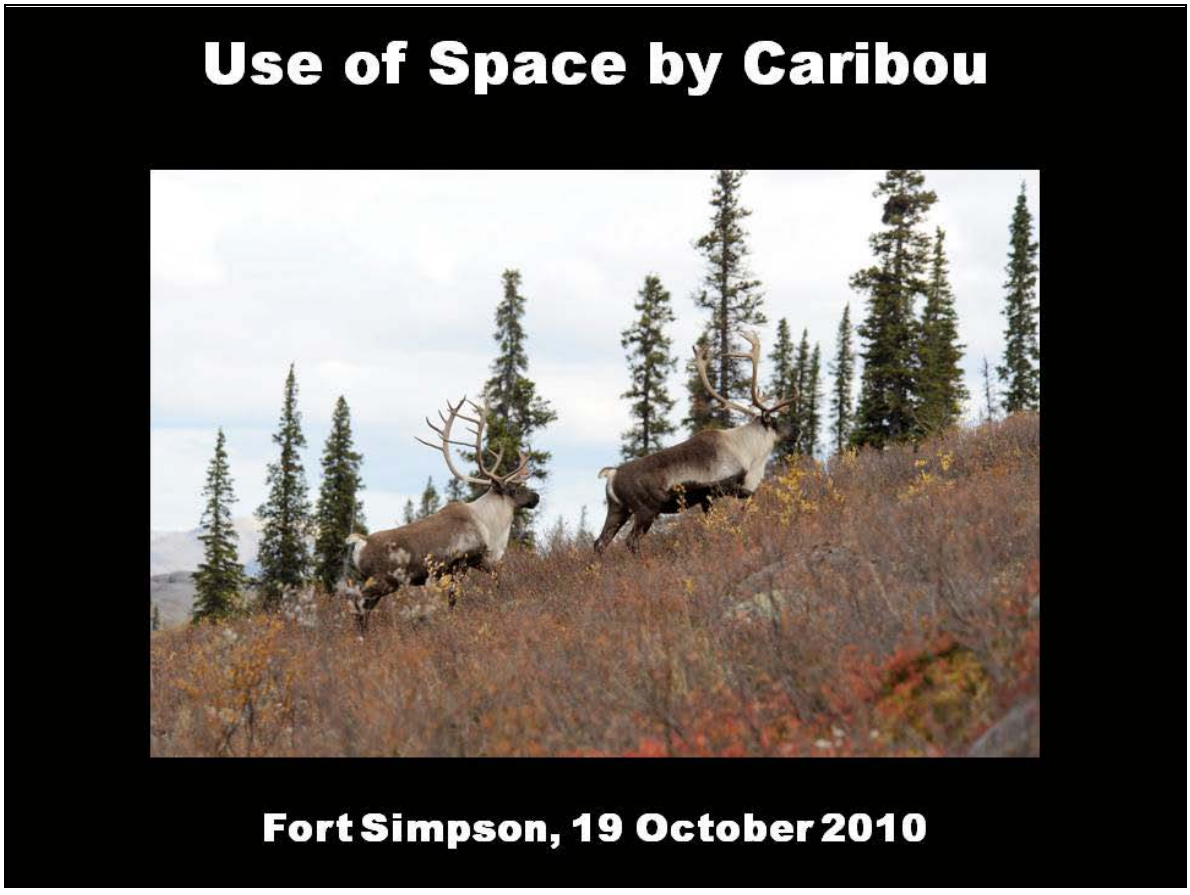
Appendix 2.

Use of Space by Caribou

Presented by John Nagy, University of Alberta

Nagy et al. in prep. Temporal and spatial response of boreal caribou to seismic lines in Arctic and sub-Arctic Canada. (interim title)

Nagy et al. in prep. Size matters for boreal caribou: towards a definition of critical habitat.



Use of Space by Caribou

Fort Simpson, 19 October 2010

Acknowledgements: Funding

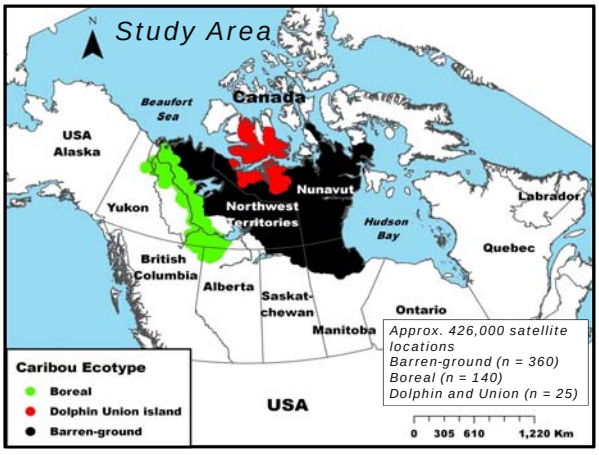
- *Department of Environment and Natural Resources (Wildlife and Forestry)*
- *Government of the Northwest Territories*
- *Department of Environment, Government of Nunavut*
- *Inuvialuit Land Claim Wildlife Studies Implementation Fund*
- *Gwich'in Renewable Resource Board*
- *Sahtu Renewable Resource Board*
- *Nunavut Wildlife Management Board*
- *Western NWT Biophysical Study*

Acknowledgements: Support

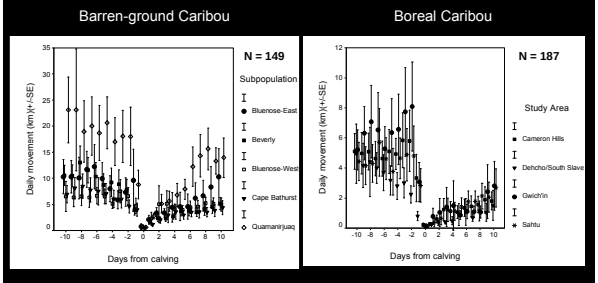
- *Inuvialuit Game Council*
- *Wildlife Management Advisory Council (NT)*
- *hunters and trappers committees in the Inuvialuit Settlement Region*
- *Gwich'in Renewable Resource Board*
- *renewable resources councils in the Gwich'in and Sahtu settlement areas*
- *Kitikmeot and Kivalliq hunters and trappers associations*
- *Sambaa K'e Dene Band*
- *Liidlii Kue First Nation*
- *Jean Marie River First Nation*
- *Pehdzeh Ki First Nation*
- *Nahanni Butte Dene Band*
- *Acho Dene Koe Band*
- *Fort Simpson Métis*

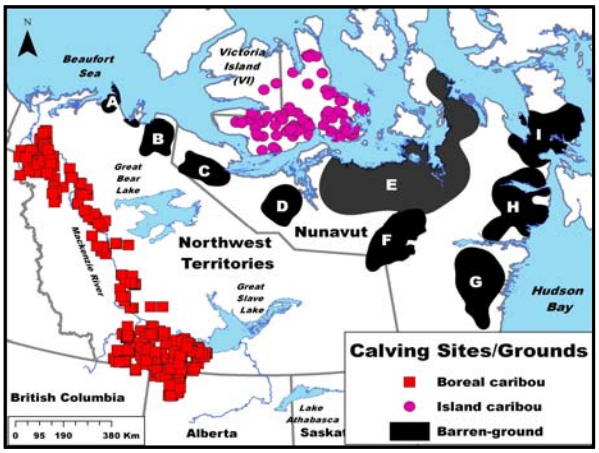
Collaborators

- Nic Larter, ENR, GNWT
- Danny Allaire, ENR, GNWT
- Allicia Kelly, ENR, GNWT
- Andy Derocher, University of Alberta, Alberta
- Mitch Campbell, DSD, GNU
- and others



Time of Calving and Calving Sites




Beaufort Sea
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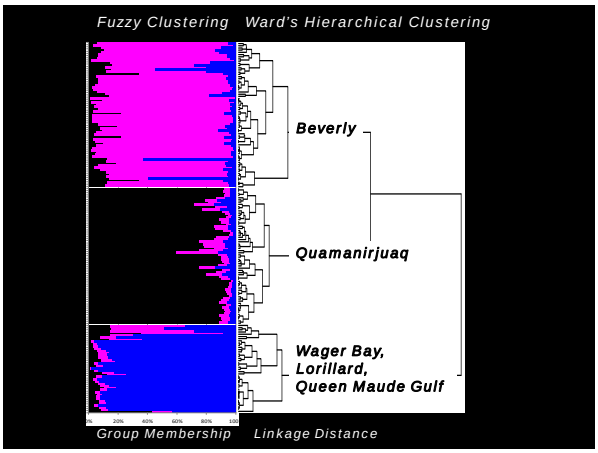
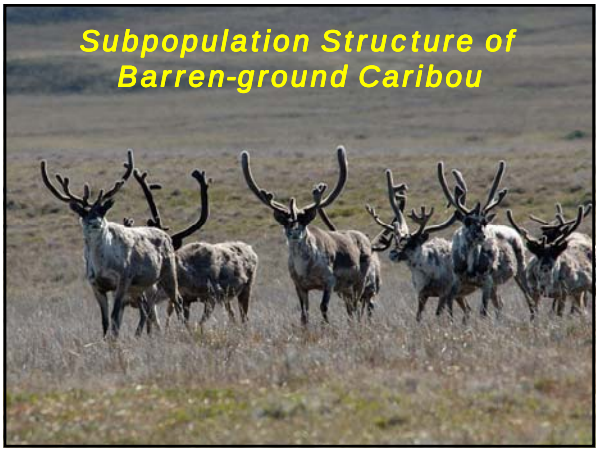
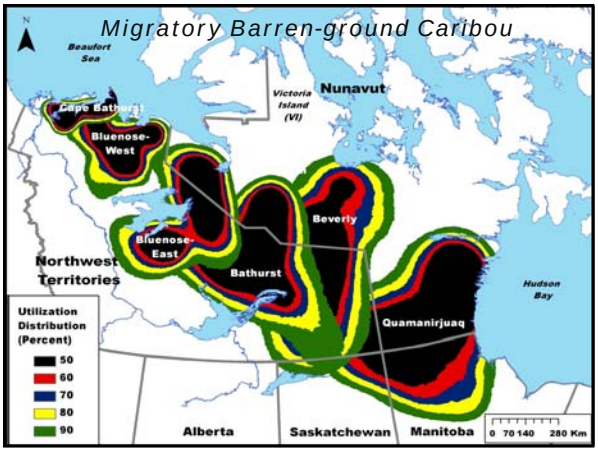
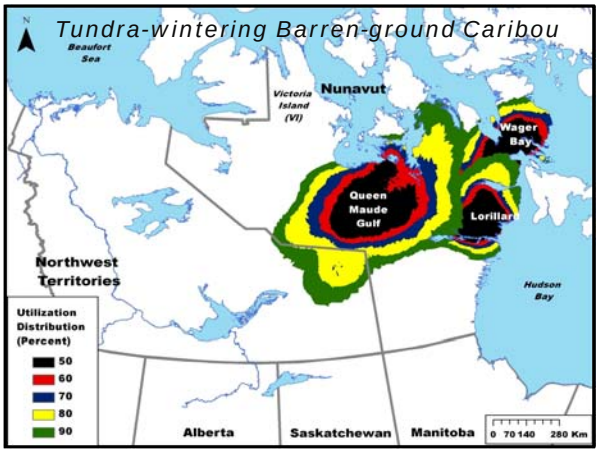
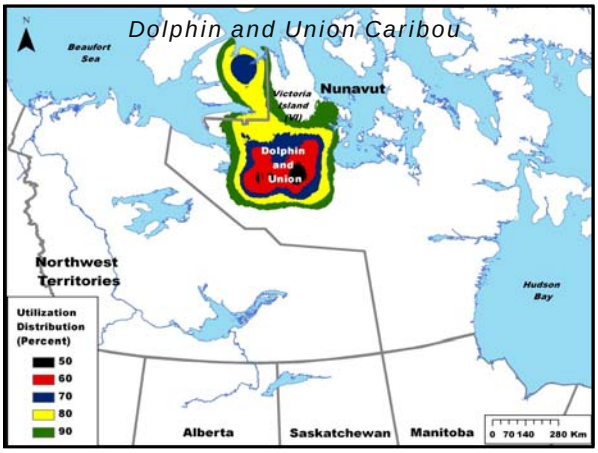
Nunavut
Northwest Territories
Great Slave Lake
Hudson Bay
Calving Sites/Grounds
Boreal caribou
Island caribou
Barren-ground
British Columbia
Alberta
Lake Athabasca
0 95 190 380 Km

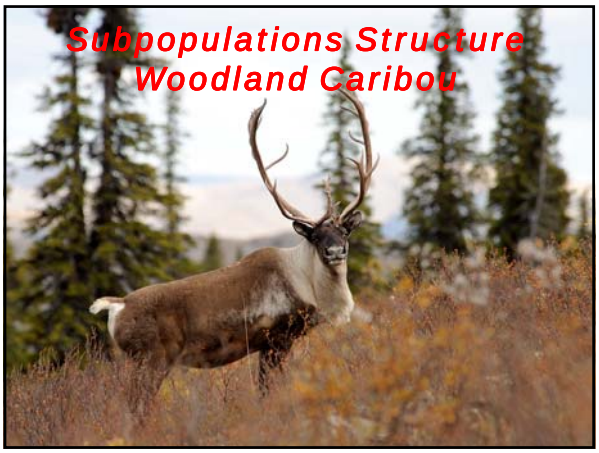

Fuzzy Clustering
Ward's Hierarchical Clustering
Beverly
Quamanirjuaq
Wager Bay, Lorillard, Queen Maude Gulf
Group Membership
Linkage Distance

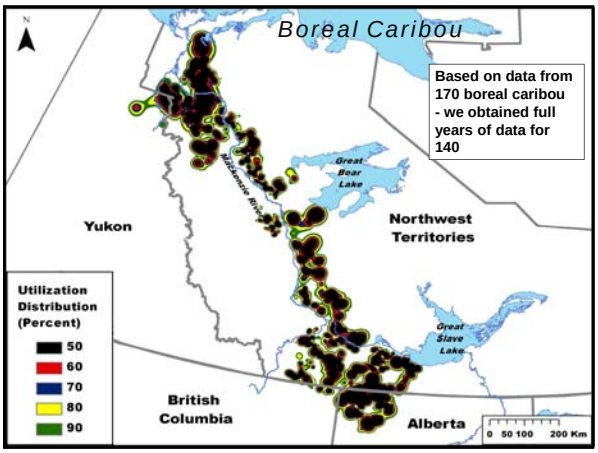

Subpopulation Structure of Barren-ground Caribou

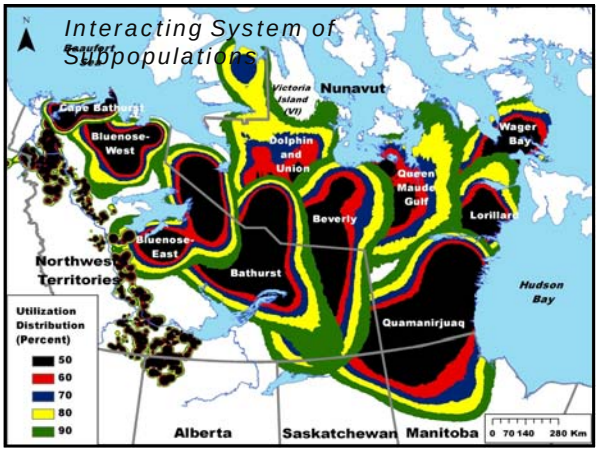

Migratory Barren-ground Caribou
Beaufort Sea
Victoria Island (VI)
Nunavut
Cape Bathurst
Bluenose-West
Bluenose-East
Beverly
Bathurst
Quamanirjuaq
Northwest Territories
Hudson Bay
Utilization Distribution (Percent)
50
60
70
80
90
Alberta
Saskatchewan
Manitoba
0 70 140 280 Km


Tundra-wintering Barren-ground Caribou
Beaufort Sea
Victoria Island (VI)
Nunavut
Wager Bay
Queen Maude Gulf
Lorillard
Northwest Territories
Hudson Bay
Utilization Distribution (Percent)
50
60
70
80
90
Alberta
Saskatchewan
Manitoba
0 70 140 280 Km


Dolphin and Union Caribou
Beaufort Sea
Victoria Island (VI)
Nunavut
Dolphin and Union
Northwest Territories
Hudson Bay
Utilization Distribution (Percent)
50
60
70
80
90
Alberta
Saskatchewan
Manitoba
0 70 140 280 Km

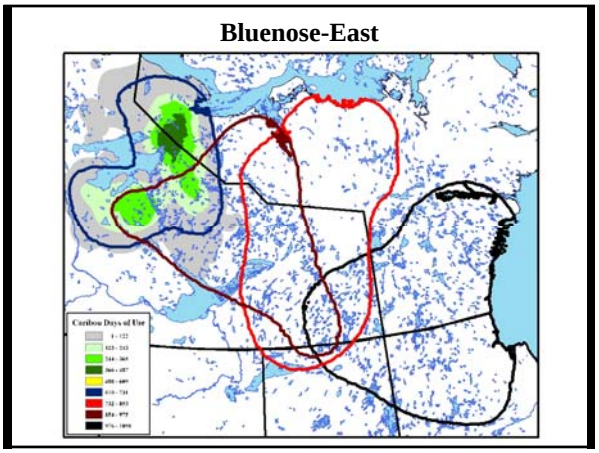


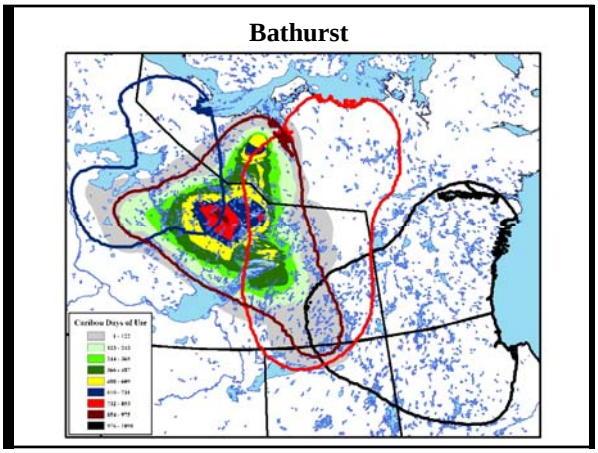




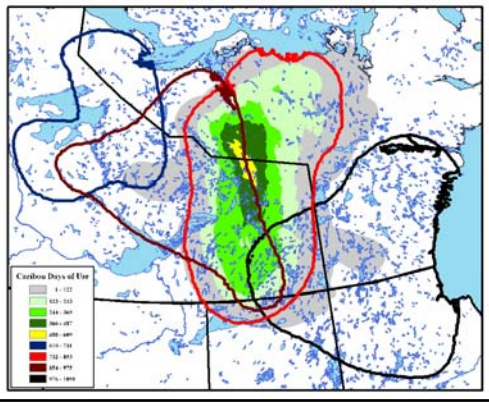
Pattern of Range Use

- overlap in range use

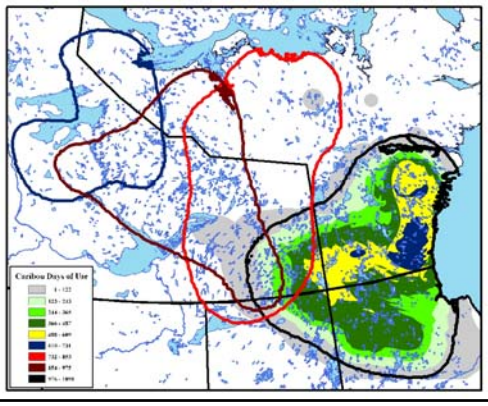




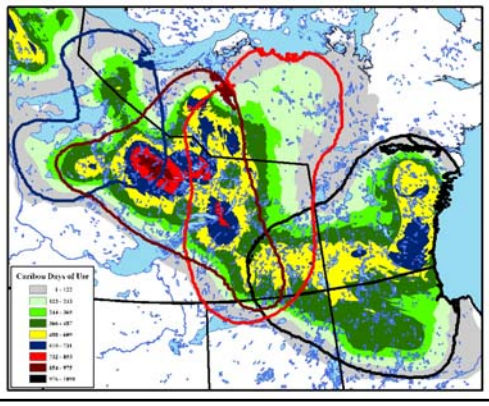
Beverly

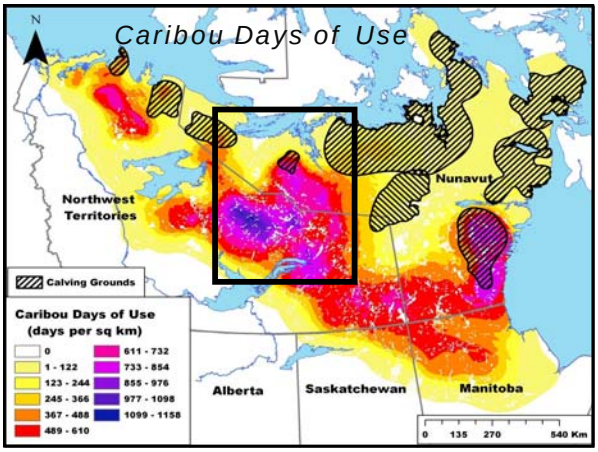


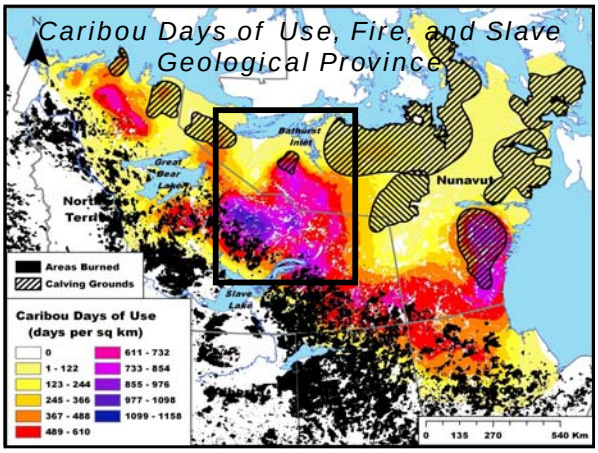
Quamanirjuaq



Central and Eastern Migratory Herds







Based on analysis of GPS data

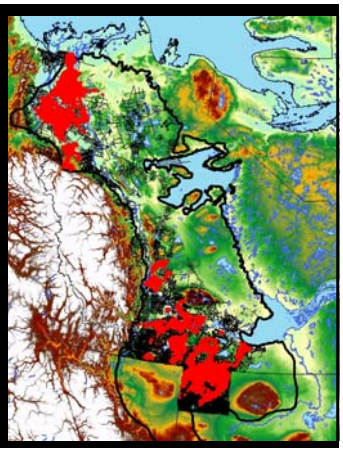
Total number = 118,874

Cameron Hills = 51,957

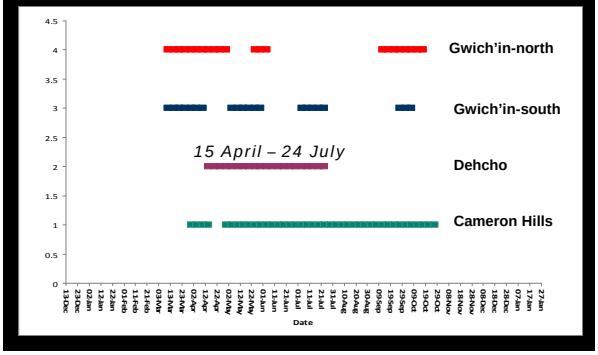
Dehcho/South Slave = 23,966

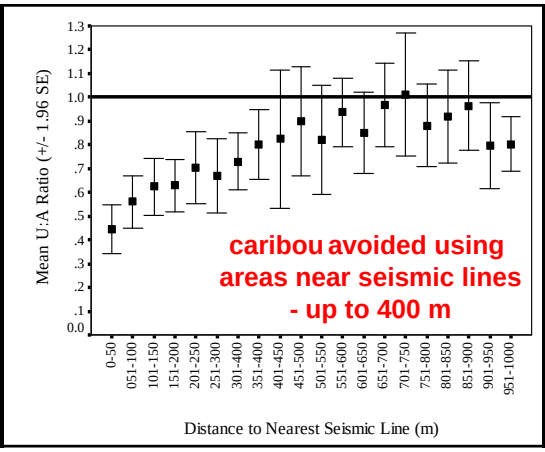
Gwich'in-south = 12,852

Gwich'in-north = 30,099



When do caribou avoid seismic lines?

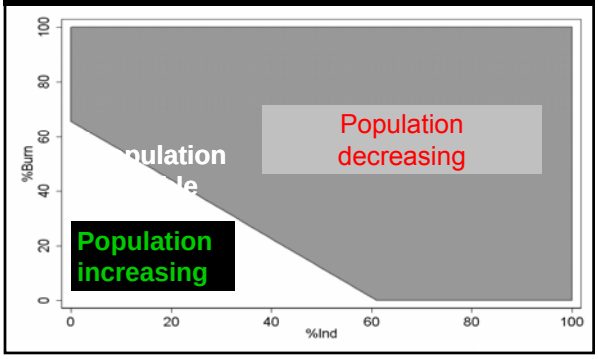




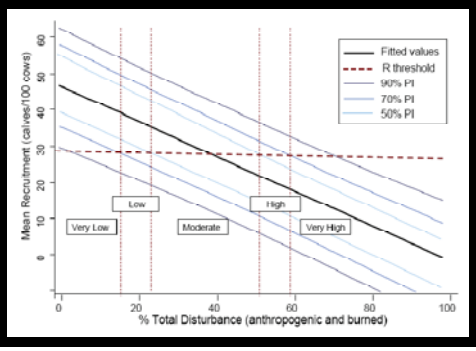
Past Studies

- focused on how much area was affected by development activity and how much was burned by wildfires
- Sorenson's model in Alberta
- - industrial foot print and areas burned in last 50 years (2 separate variables)
- the Environment Canada model
- - total area of industrial foot print and areas burned (one variable)

"Thresholds" for Impacts (Sorensen et al. 2008 or Alberta Model)



Environment Canada Model (2009)



Our focus (1)

- we know that:
  - caribou "space-out" during calving to reduce predation risk
  - caribou "space-away" from seismic lines and other developments to reduce predation risk

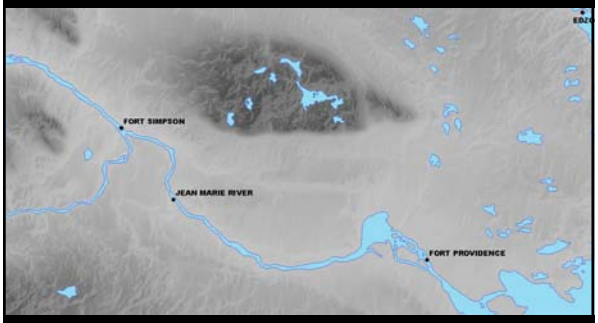
Our focus (2)

- if caribou want to avoid areas where there are more predators then they need "secure habitat" to move into

Our focus (3)

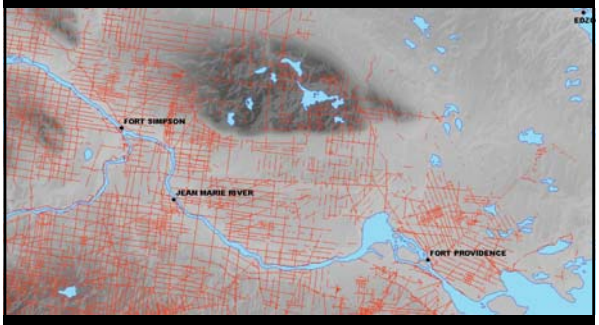
- we focused our work on the areas where caribou wanted to be or the areas that were more than 400 m from seismic lines and other developments or "secure habitats"
- we figured out where these secure habitats were and how large they were (km^2)

Example Area



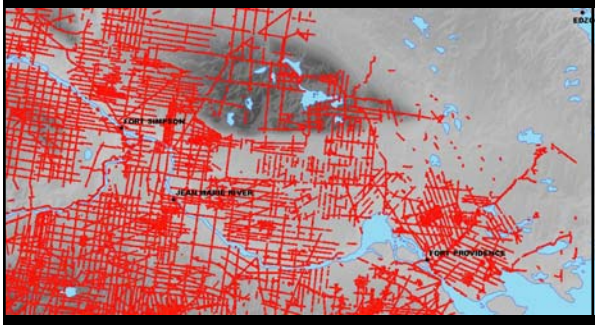
Example Area

+ Seismic Lines



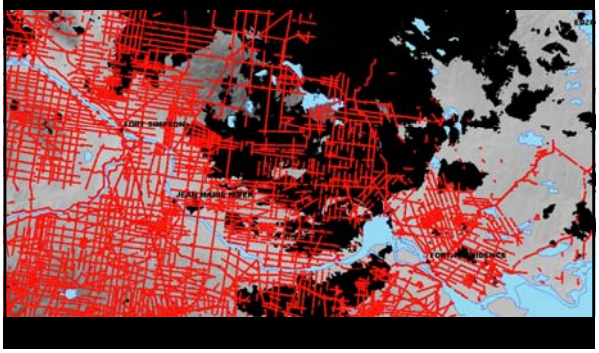
Example Area

+ Seismic Lines+400 m buffer = risk habitat



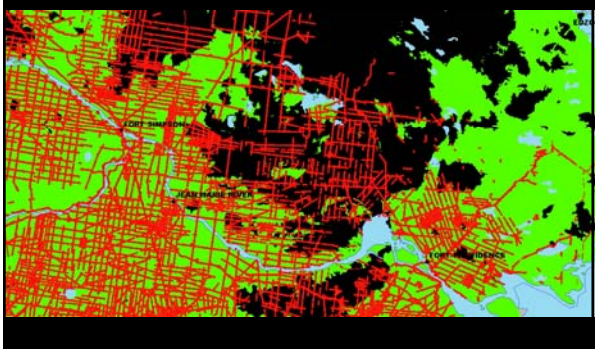
Example Area

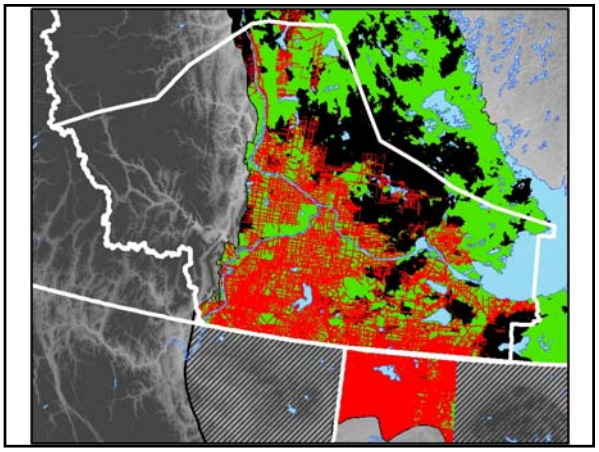
risk habitat + burned secure

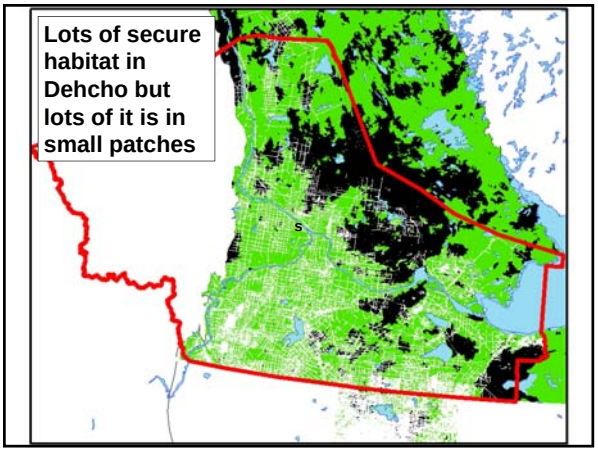


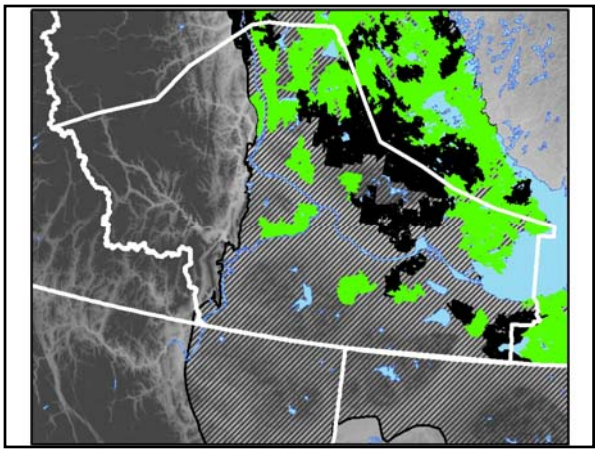
Example Area

risk habitat + burned secure + unburned secure





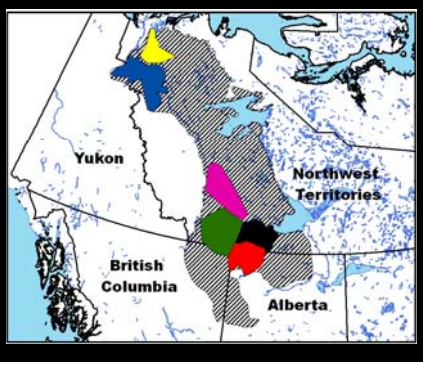




Our Model (1)

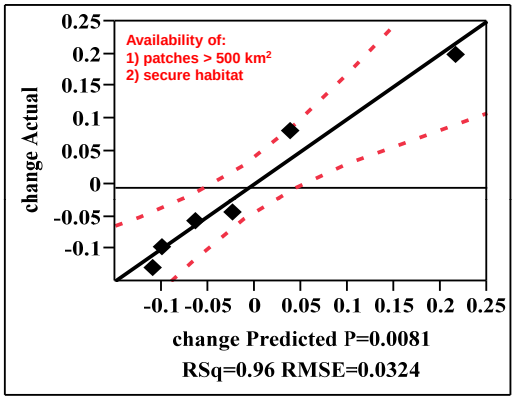
- *We wanted to find out if there was a relationship between the annual rate at which the number of caribou in each study area changed during the study period, and*
  - *the amount of secure habitat that was available*
  - *the size of patches of secure habitat that the caribou used*
- *The model was for the "avoidance" period*

Study Areas for Model



Amount of Secure Habitat Available

Study area	change	Percent use of secure unburned habitat: Use	Patch >500 km2
Cameron Hills	-12.9	23.8	0
South Slave	-5.6	79.9	29.2
Dehcho-south	-9.7	67.4	18.3
Dehcho-north	-4.4	79.3	36.1
Gwich'in-south	8.3	56.2	38.5
Gwich'in-north	20	80.2	79.4



What does the model mean?

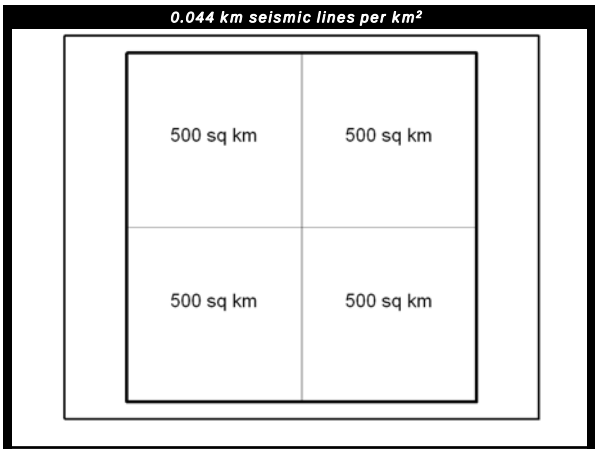
- **caribou did better in areas where there was more secure unburned habitat**
- **caribou did better when secure habitat was in patches that were 500 km² or larger**
- **this model makes biological sense**

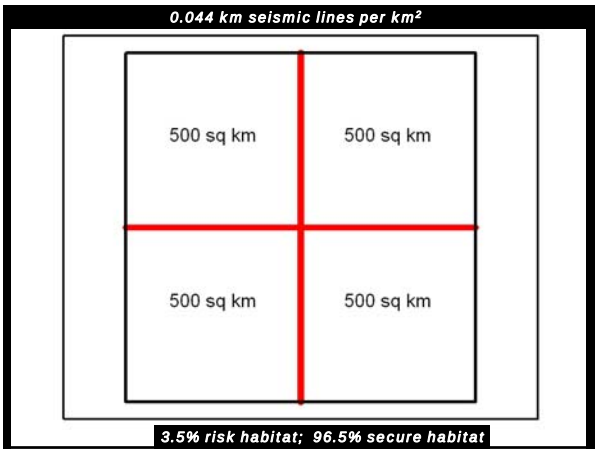
more.....

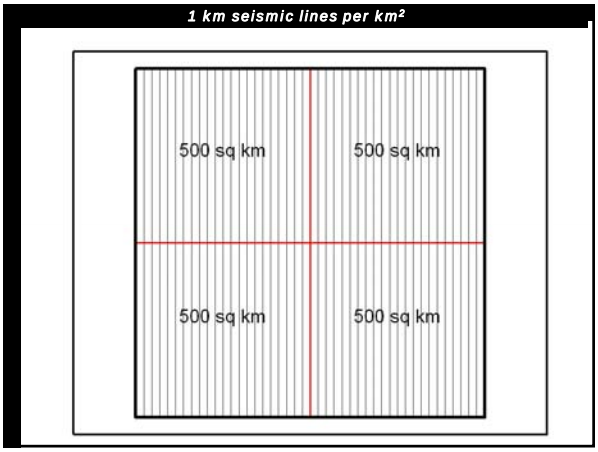
- *if calves survive the first 6 months of life they are more likely to survive to become part of the population*
- *if conditions are favorable for calf survival then they are also favorable for adult female survival*
- *these two things contribute to healthy growing caribou populations*

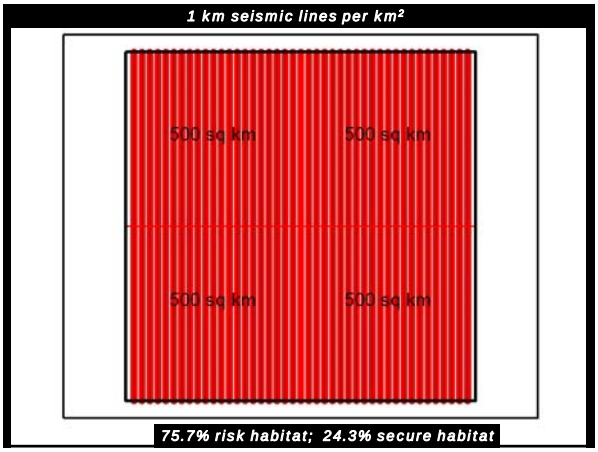
What does this mean for the amount of development activity that can occur on the land???

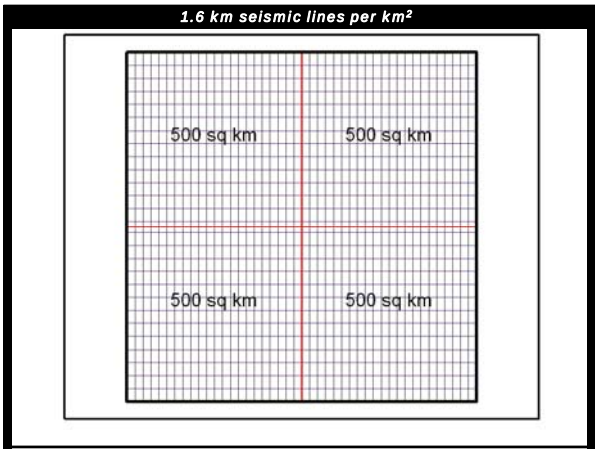
Based on what was know in the late 1990's and early 2000's and our work, how would a caribou respond to different densities of seismic lines???

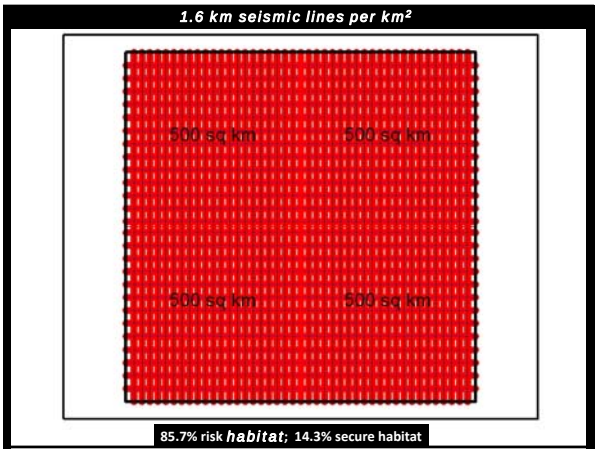

0.044 km seismic lines per km²
500 sq km
500 sq km
500 sq km
500 sq km


0.044 km seismic lines per km²
500 sq km
500 sq km
500 sq km
500 sq km
3.5% risk habitat; 96.5% secure habitat


1 km seismic lines per km²
500 sq km
500 sq km
500 sq km
500 sq km


1 km seismic lines per km²
500 sq km
500 sq km
500 sq km
500 sq km
75.7% risk habitat; 24.3% secure habitat


1.6 km seismic lines per km²
500 sq km
500 sq km
500 sq km
500 sq km


1.6 km seismic lines per km²
500 sq km
500 sq km
500 sq km
500 sq km
85.7% risk habitat; 14.3% secure habitat

Some consultants have recommended even higher densities of seismic lines

Salmo Consulting Inc. 2004. Dehcho cumulative effects study, phase 1: management inidicators and thresholds. Dehcho Land Use Planning Committee, Fort Providence, NT.

- recommended a threshold of 1.8 km per km^2

Two Key Papers (1)

- D.J.H. Sleep and C. Loehle. 2010. Validation of a demographic model for woodland caribou. Journal of Wildlife Management 74(7):1508-1512
- said that Sorensen's model had very low predictive power
- not a good model (used in ALCES)

Two Key Papers

- R.R. Schneider, G. Hauer, W.L. Adamowicz, and S. Boutin. 2010. Triage for conserving populations of threatened species: The case of woodland caribou in Alberta. Biological Conservation 143: 1603-1611.
- all boreal caribou populations in Alberta have declined and unless drastic measures are taken then these populations will become extinct in the near future
- drastic actions needed , i.e., no more development and predator control

Conclusions

We need to change the way we think about boreal caribou and development!!!!

If we want boreal caribou in the NT
50 years from now we need to manage and maintain secure habitat specifically for boreal caribou.

There are no magical threshold levels that can be determined using models like ALCES for boreal caribou.

The big experiment on this has been done in Alberta and it was not successful.

People need to actively manage the land to maintain and manage lands specifically for

1) for boreal caribou and

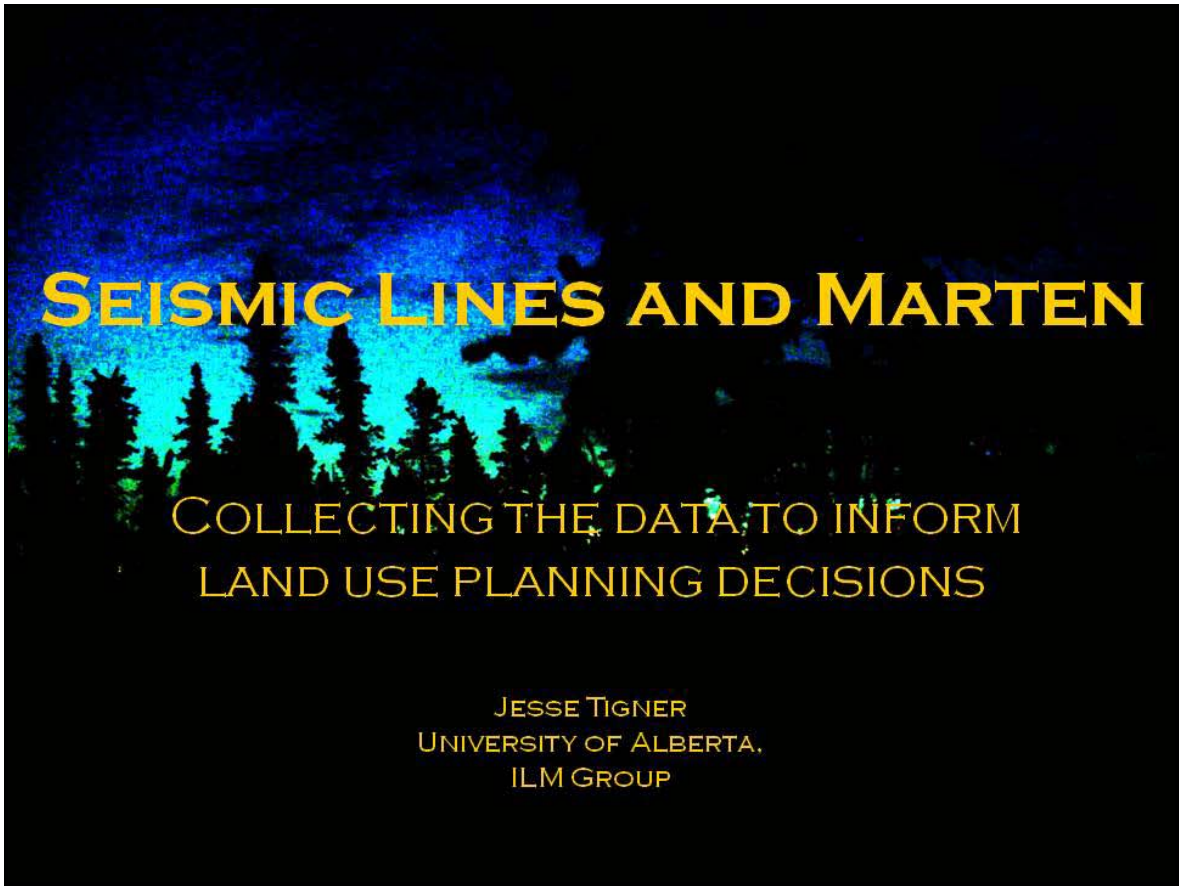
2) areas where development occur

Thank you

Appendix 3.

Seismic Lines and Marten

Presented by Jesse Tigner, University of Alberta

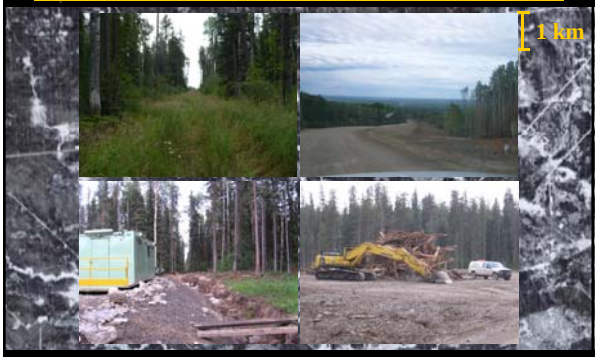


Seismic Lines and Marten

Collecting the data to inform land use planning decisions

Jesse Tigner
University of Alberta,
ILM Group

Northern Development



Northern Development

Land Use Planning

Research Questions

How do marten respond to seismic lines?

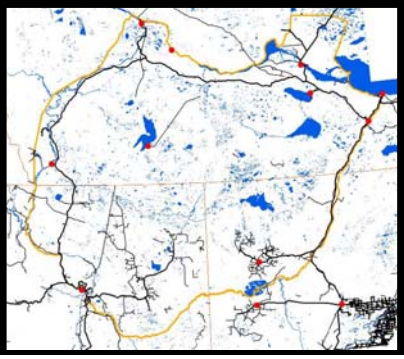
(How) can we use this information to make ecologically relevant decisions or set threshold targets?

Research Questions

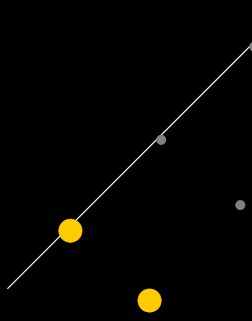
What is the local response?
- Individual lines
- What are marten behavioral response patterns to seismic lines?

What is the landscape response?
- Many lines
- Are marten occupancy rates influenced by line density?

Study Site



Local Response: Methods



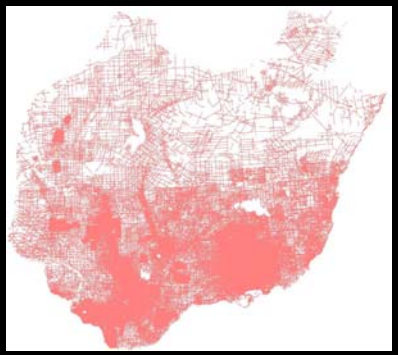
0/1 response

Code interiors as reference

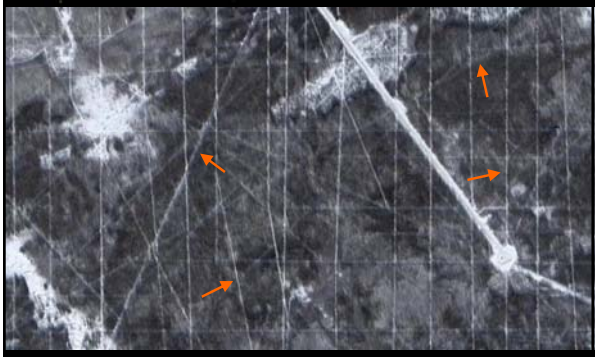
Use - Unused design

n = 518

Line Types



Line Types



Line Treatments

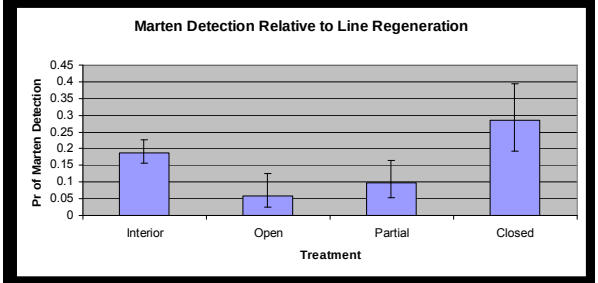
Line Width

No regeneration

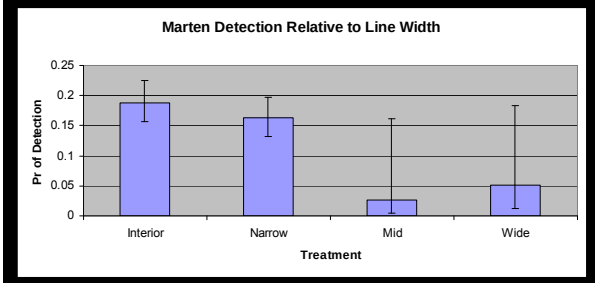
Incomplete regeneration

Total regeneration

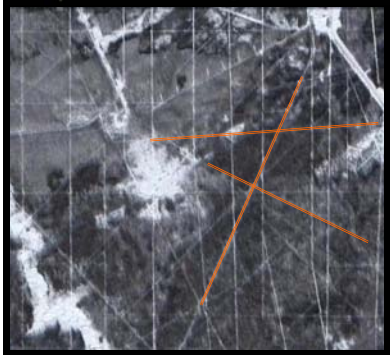
Marten Response



Marten Response



Local Conclusions



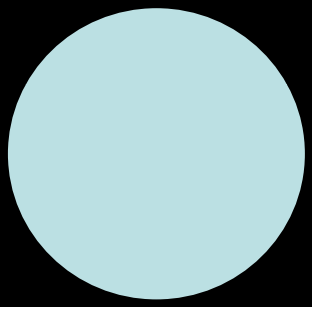
All lines not equal

Recovery

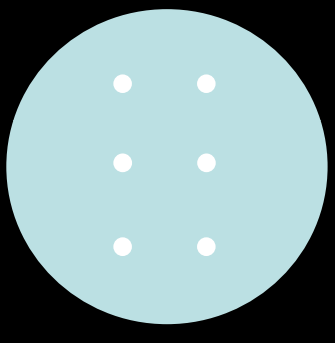
Width

Species Occupancy

A species is detected within a unit of space



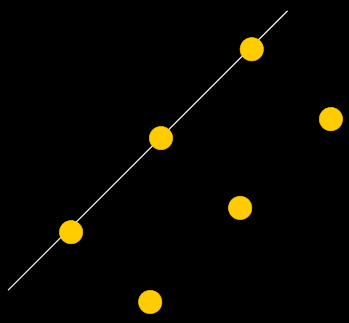
Species Occupancy



Home Range (5km²)

6 Stations / 60 Trap Nights

Landscape Response: Methods



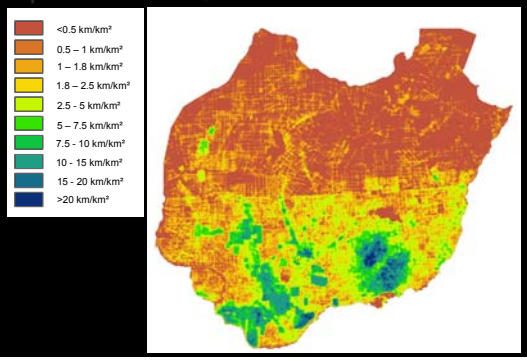
0/1 Response

(1 Detection = Occupied)

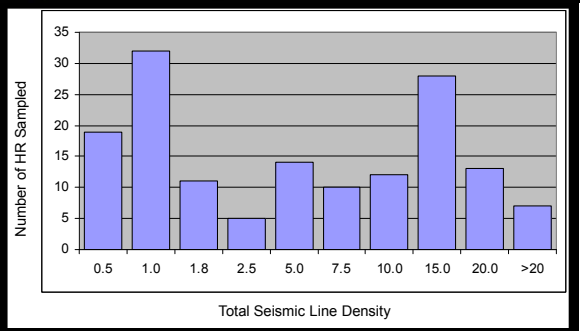
Use – unused design

n = 151

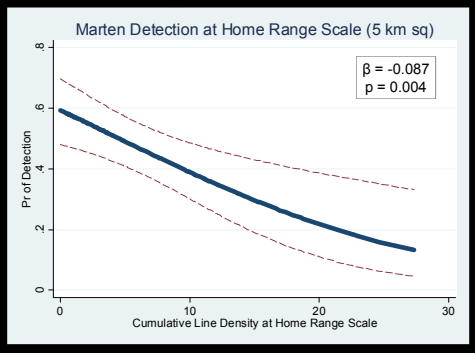
Line Densities



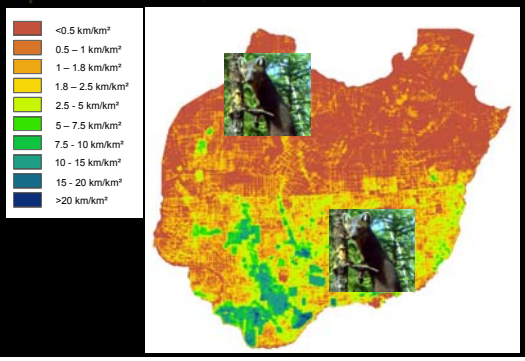
Survey Effort



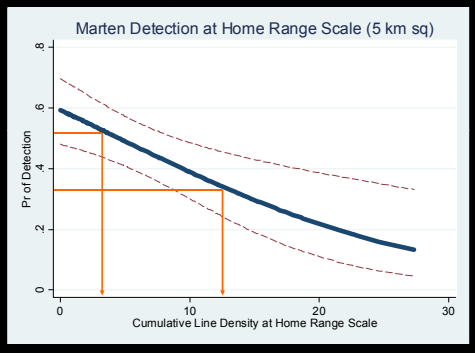
Marten Response



Landscape Conclusions

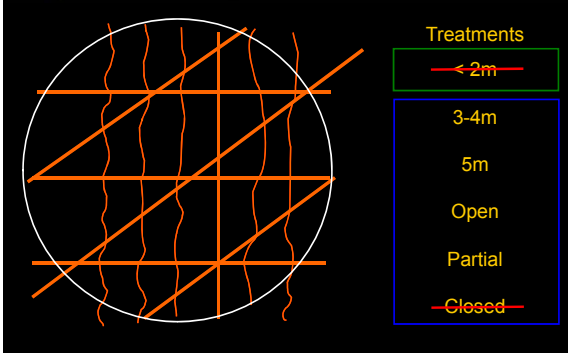


Landscape Conclusions

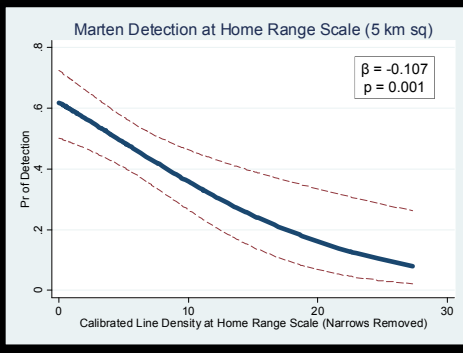


Putting it together

Calibrated Density



Calibrated Response



Many Thanks

Appendix 4.

Dehcho Caribou Program

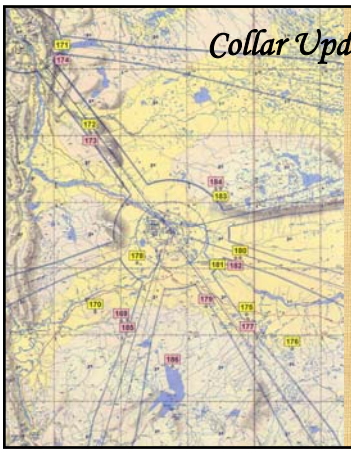
Presented by Nic Larter, ENR Fort Simpson

Boreal Caribou Program

A healthy boreal forest will sustain a healthy boreal caribou population

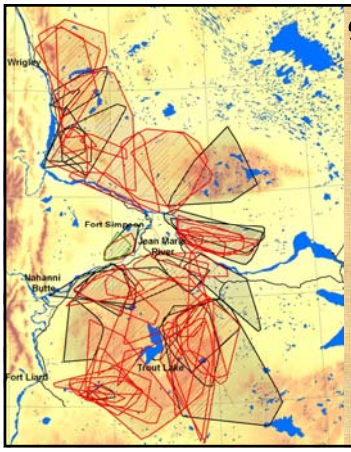
Dehcho Wildlife Workshop
October 19, 2010

Collar Update



- Nine collars released as programmed from caribou during 2009.
- 15 collars were retrieved and refurbished so they could be deployed.
- A total of 18 collars (nine satellite, nine GPS) were deployed during February 2010 to ensure that there are at least 30 active collars on female caribou for 2010 calving (see map).
- Three collars released just recently leaving 27 active collars.

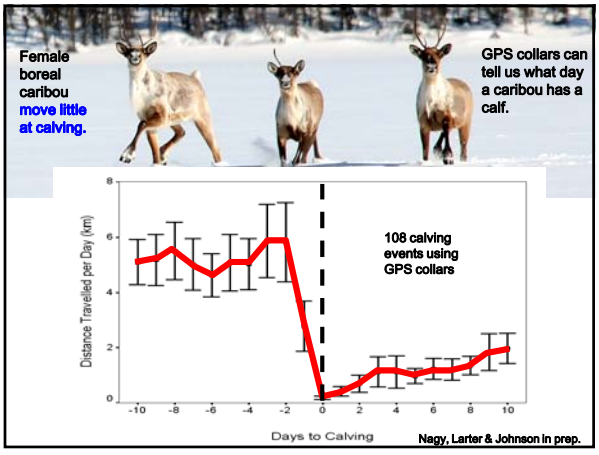
Estimated Ranges of 50 Caribou

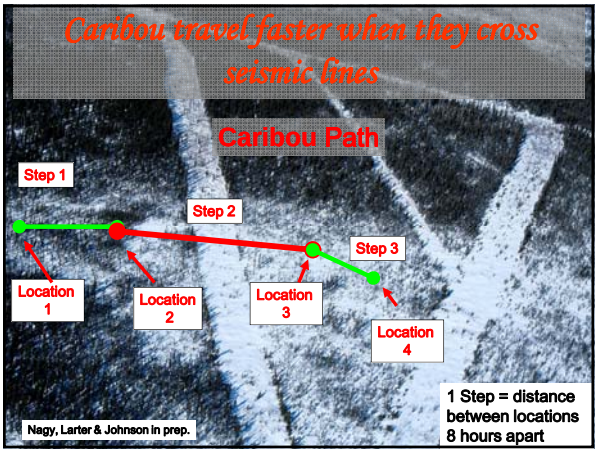


- Based on locations from at least 1 year average ~2825km^2.
- Larger than those reported from southern studies.
- Being able to space out, especially during calving, is very important for female boreal caribou.

Critical information from collars..1

- Movement information from GPS collars lets us know when and where a female boreal caribou has calved.
- This means we do not need to do a May calf survey to assess calf production. So reduced harassment of caribou and cost savings.
- Now we can program all satellite collars (not just GPS collars) to tell us when females have calved. More information at reduced cost.
- Peak calving period in the Dehcho is 7-24 May.
- At certain times of the year caribou avoid seismic lines. They **cross lines much less** than if just walking around. When they do cross they **move faster** (3-7 times). They have a **negative response** to seismic lines.



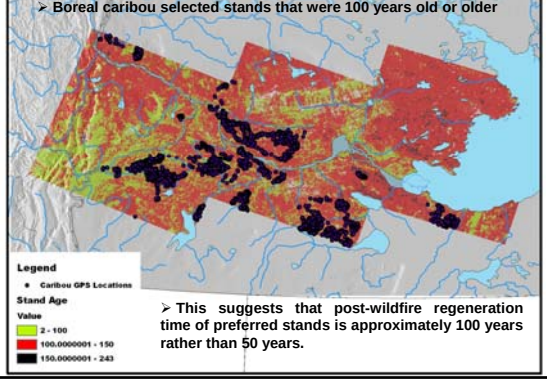


Critical information from collars..2

- Caribou prefer to use forest stand ages of 100 years or older in Dehcho.
- Throughout the year caribou use all vegetation types in the Dehcho but **prefer** to use areas of **open conifer** in all seasons.
- Throughout the year caribou use all different ages of burns in the Dehcho but **prefer** to use areas that have **not burned** in all seasons.

Forest Inventory Study Area

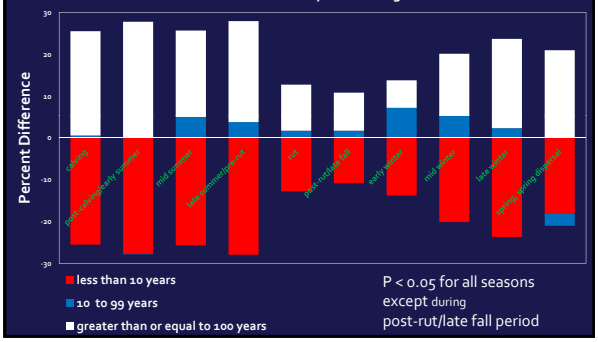
- Boreal caribou selected stands that were 100 years old or older



- This suggests that post-wildfire regeneration time of preferred stands is approximately 100 years rather than 50 years.

Use of Forests by Stand Age and Season
Boreal Caribou: Forestry Inventory Study Area

Use Minus Availabiltiy of Stand Ages

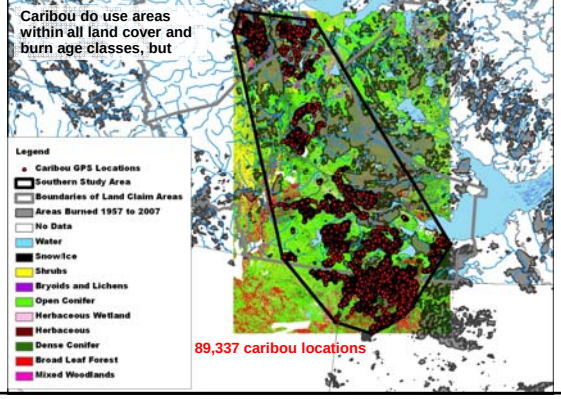


less than 10 years
10 to 99 years
greater than or equal to 100 years

$P < 0.05$ for all seasons except during post-rut/late fall period

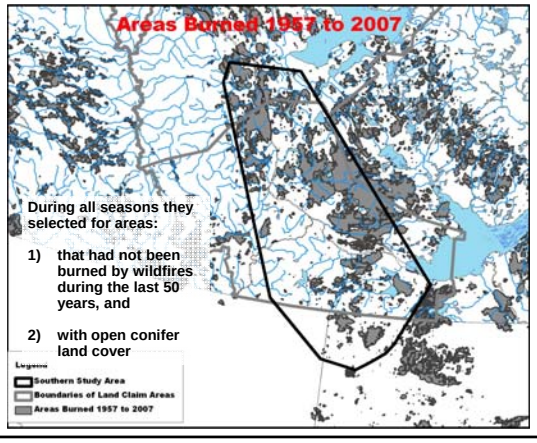
Caribou GPS Locations

Caribou do use areas within all land cover and burn age classes, but



89,337 caribou locations

Areas Burned 1957 to 2007



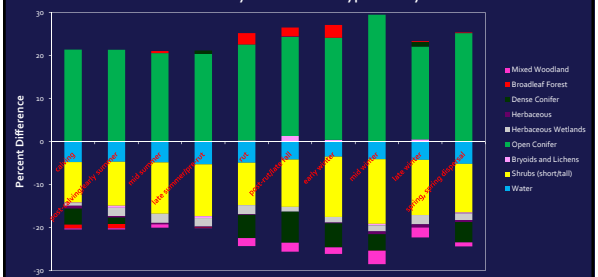
During all seasons they selected for areas:

1) that had not been burned by wildfires during the last 50 years, and
2) with open conifer land cover

Use of Land Cover Classes by Season
Boreal Caribou: Study Area Scale

Values greater than zero indicate use was greater than expected if use was random
Values less than zero indicate use was less than expected if use was random

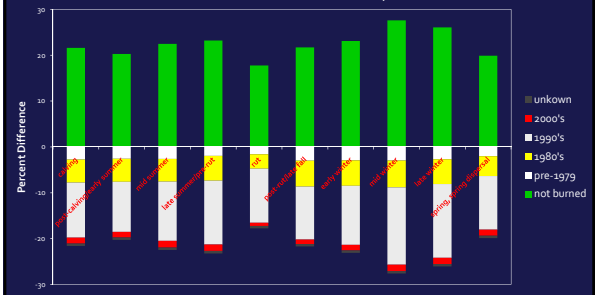
Use Minus Availability of Land Cover Types: Study Area Scale



Chi-square Goodness –of-Fitness test indicate use was significantly different from random during all seasons ($P < 0.05$)

Use of Areas Burned 1957 – 2007 by Season Boreal Caribou: Study Area Scale

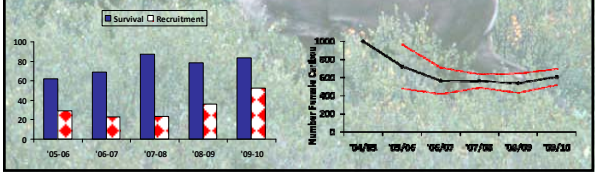
Values greater than zero indicate use was greater than expected if use was random
Values less than zero indicate use was less than expected if use was random



Chi-square Goodness –of-Fitness tests indicate use was significantly different from random during all seasons (P < 0.05)

How are Dehcho boreal caribou doing?

- Recent results from blood and poop analysis for caribou in this and the South Slave study show no brucella and only minor infestations of common parasites; pretty healthy.
- Recently there have been more calves in late-winter, and adult female survival has been fairly constant resulting in an annual increase in population; this is encouraging.
- However when we look at the last 5 years the overall rate of population increase is negative; cautious optimism.



What next?

- Continued monitoring of collared boreal caribou.
- Forgoing any collar deployment in 2011.
- Most collars have at least 30 months of lifespan remaining.
- When to deploy to maintain 25-30 collars?
- The creation of a Boreal Caribou Working Group for the Dehcho would be an asset.

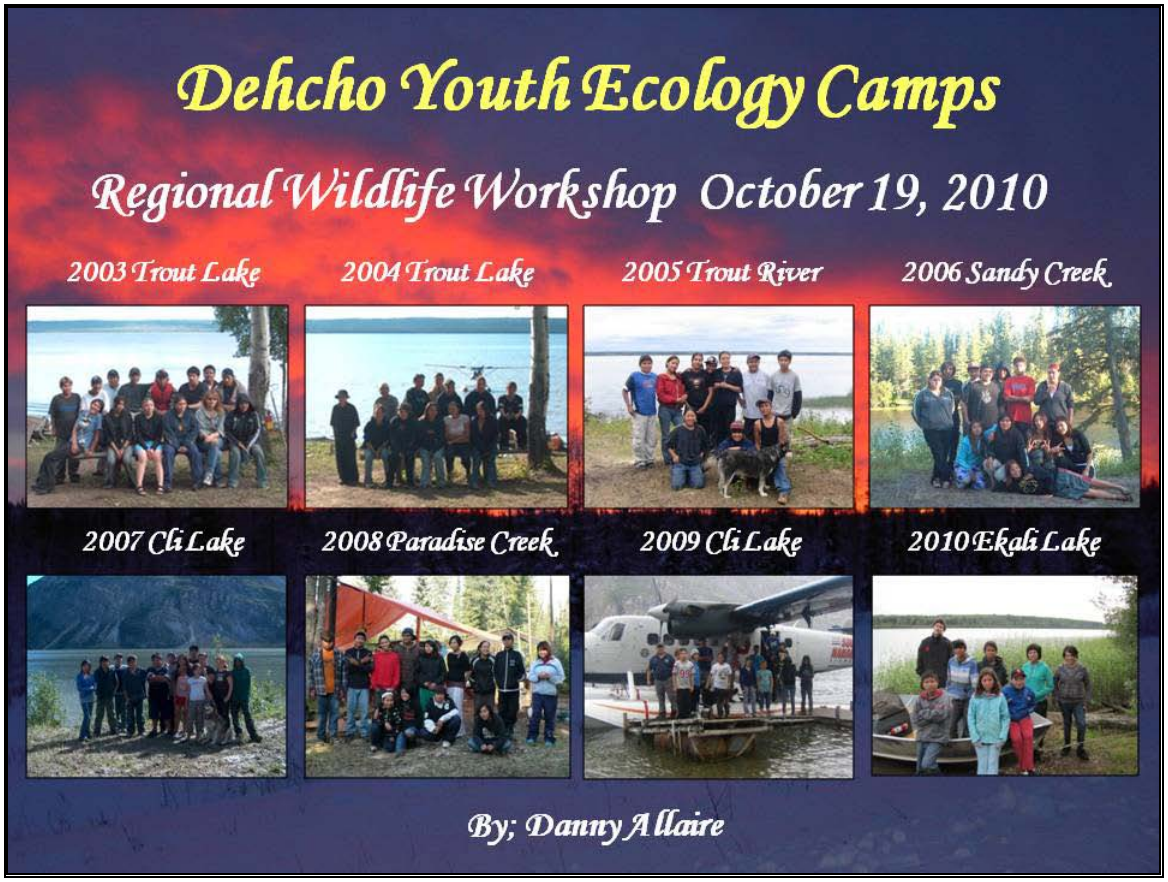
Questions?
…. and Mahsi

Dennis Deneron (Sambaa K'e Dene Band) has been an avid proponent of this program since its inception. As the program expanded support from other leaders has included Lloyd Chicot, Dolphus Jumbo, Keyna Norwegian, Jim Antoine, Fred Tesou, Darcy Moses, Tim Lennie, Stanley Sanguez, Isidore Simon, Steve Kotchea, and Marie Lafferty. We thank Jonas Antoine, Edward Cholo, Steven Cli, Peter Corneille, David Jumbo, Edward Jumbo, Fred Jumbo, Jessica Jumbo, Tony Jumbo, Victor Jumbo, Ronnie Kotchea, Jonas Lafferty, Andrew Lomen, Raymond Minoza, and Jonas Sanguez for their assistance with various aspects of the program.

Appendix 5.

Dehcho Youth Ecology Camps

Presented by Danny Allaire, ENR Fort Simpson



Dehcho Youth Ecology Camps

Regional Wildlife Workshop October 19, 2010

2003 Trout Lake | 2004 Trout Lake | 2005 Trout River | 2006 Sandy Creek

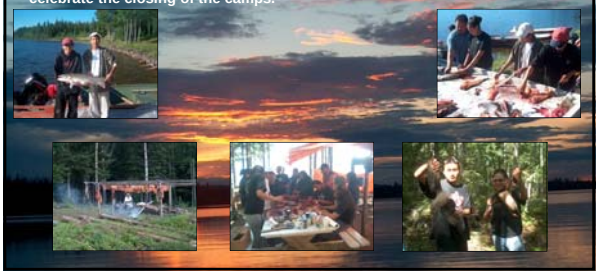
2007 Cli Lake | 2008 Paradise Creek | 2009 Cli Lake | 2010 Ekali Lake

By; Danny Allaire

- During the first Wildlife Workshop held in 2002, First Nations (FN's) expressed interest in getting the youth to attend science camps out on the land.
- RWED had fire ecology camps in 2000 near Wrigley and in 2001 at the Trout Lake Fire Base.
- In 2003 and 2004 RWED/DCFN successfully applied for funding through CIMP to assist in providing Ecology Camps.
- Trout Lake Fire Base was chosen to host the 2003 and 2004 ecology camps since it had the infrastructure, personnel, location and had hosted a similar camp in 2001.
- RWED, DCFN representatives were at the camp for the duration of the camp, the courses covered both traditional (TK) and scientific knowledge.

Traditional Knowledge

- The youth learned how to traditionally prepare country foods. They learned how to live off the land. Youth picked berries and the dry fish they made they brought home with them.
- Elders shared stories about the area and how their ancestors survived off the land.
- At the end of the camps there was a community drum dance and feast to celebrate the closing of the camps.



Scientific Knowledge

- The youth learned how to navigate with a compass and a GPS. There were obstacle courses set up so they could use their newly acquired knowledge.
- Youth learned how to use fire fighting equipment, they flew to fires near the camp and mapped them with a GPS.
- They also learned how to use forestry equipment, having to measure tree heights, tree diameter, and then to age a tree.

2009 Cli Lake Ecology Camp

- The North Nahanni Naturalist Lodge Ltd. from the Fort Simpson hosted the 2009 Ecology Camp. Staff from Fort Simpson were hired.
- The Ecology Camp was held at Cli Lake. The theme of the camp was to commemorate the Nahanni Park Expansion.
- AAROM provided the majority of the funding and taught the scientific portion of the camp.

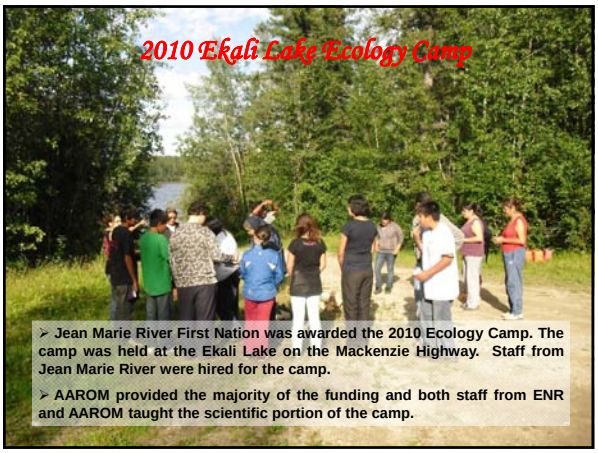
Traditional Knowledge

- Youth learned how to make a signal fire, in case of emergency.
- They learned how to flip a canoe right-side up using another in the water.
- The students took turns checking the fish net.
- Virginia Tsetso showed the students how to stretch a beaver hide, prepare fish and how to feed the lake with an offering.
- Ria Letcher taught the student about medicinal plants.

Scientific Knowledge

- Bruce from AAROM taught 8 modules on water ecology to the students.
- Freshwater zooplankton, the water cycle, dissecting fish, contaminants and food web dynamics were some of topics taught to the students.
- Students went out on field trips and used scientific equipment to do experiments. The zooplankton were viewed under a microscope by the students.

2010 Ekali Lake Ecology Camp



- Jean Marie River First Nation was awarded the 2010 Ecology Camp. The camp was held at the Ekali Lake on the Mackenzie Highway. Staff from Jean Marie River were hired for the camp.
- AAROM provided the majority of the funding and both staff from ENR and AAROM taught the scientific portion of the camp.

Traditional Knowledge

- The youth learned how to set a fish net, which was checked daily and Rufus taught them how to set rabbit snares.
- Ernest Hardisty taught the students about medicinal plants, he showed them how to pick Rat root from Ekali Lake.
- Sarah Hardisty and Marylouise Sanguez taught how to feed the fire and how to set up a proper camp.

Scientific Knowledge

- Bruce and Mike from AAROM taught 8 modules on water ecology to the students.
- Freshwater zooplankton, the water cycle, dissecting fish, contaminants and food web dynamics were some of topics taught to the students.
- Students went out on boating trips and used scientific equipment to do experiments. The zooplankton were viewed under a microscope by the students.

2005 - Trout River

During the 2004 Wildlife Workshop, First Nations requested that Ecology Camps should be moved to different locations to ensure TEK and experiences from different communities throughout the Dehcho Region were available for Dehcho youth.

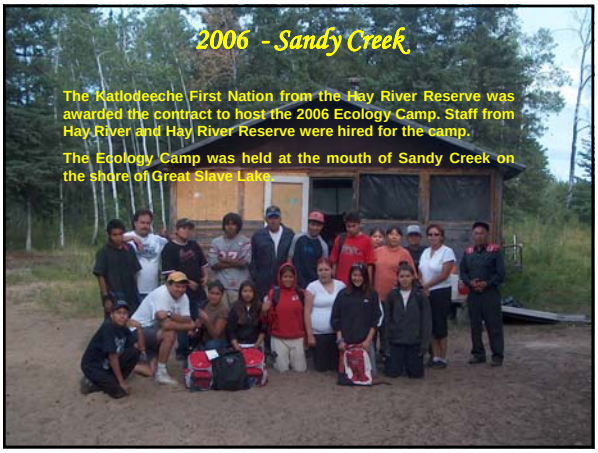
Land is Life was awarded the 2005 Ecology Camp held at the mouth of Trout River on the Mackenzie River. Staff from Fort Simpson and Jean Marie River were hired for the camp.

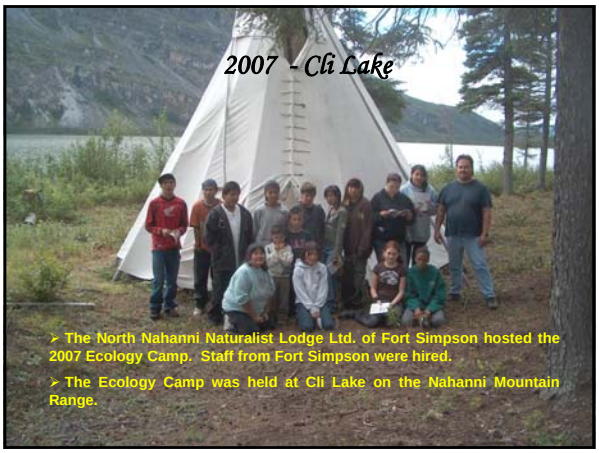
Youth questionnaires that were collected from past camps had a clear majority of them wanting more TEK during the ecology camps.

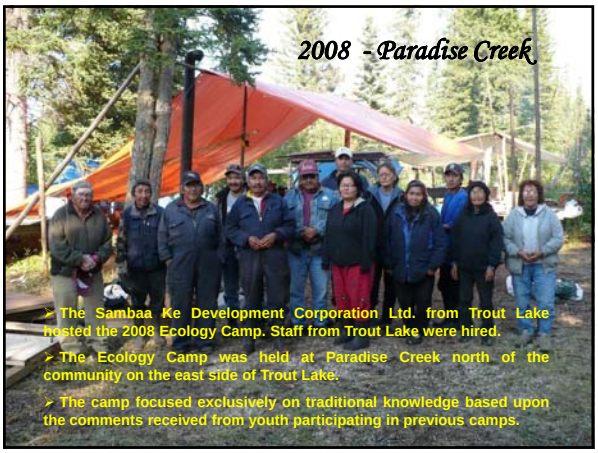
2006 - Sandy Creek

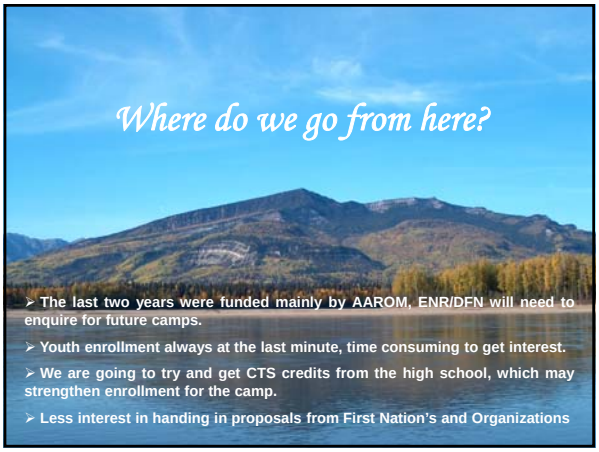
The Katlodeeche First Nation from the Hay River Reserve was awarded the contract to host the 2006 Ecology Camp. Staff from Hay River and Hay River Reserve were hired for the camp.

The Ecology Camp was held at the mouth of Sandy Creek on the shore of Great Slave Lake.




2007 - Cli Lake
➢ The North Nahanni Naturalist Lodge Ltd. of Fort Simpson hosted the 2007 Ecology Camp. Staff from Fort Simpson were hired.
➢ The Ecology Camp was held at Cli Lake on the Nahanni Mountain Range.

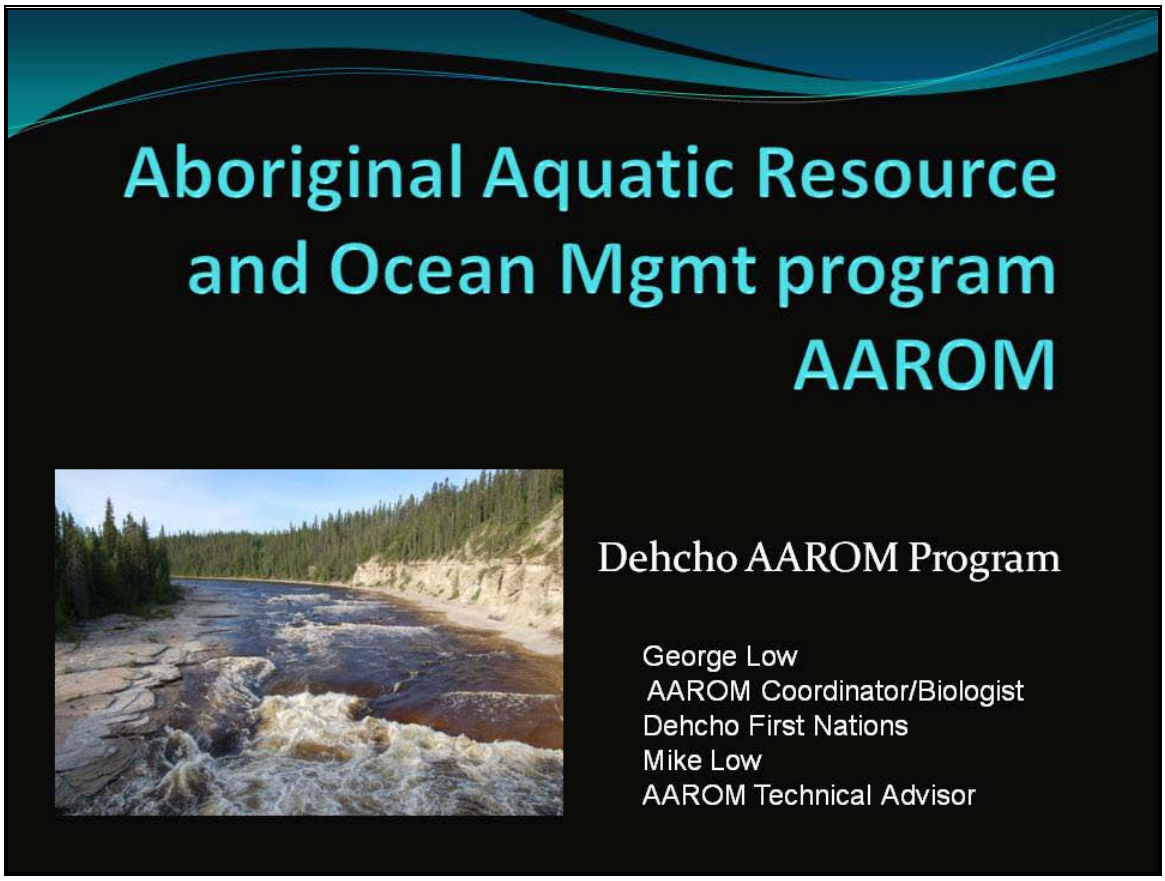

2008 - Paradise Creek
➢ The Sambaa Ke Development Corporation Ltd. from Trout Lake hosted the 2008 Ecology Camp. Staff from Trout Lake were hired.
➢ The Ecology Camp was held at Paradise Creek north of the community on the east side of Trout Lake.
➢ The camp focused exclusively on traditional knowledge based upon the comments received from youth participating in previous camps.


Where do we go from here?
➢ The last two years were funded mainly by AAROM, ENR/DFN will need to enquire for future camps.
➢ Youth enrollment always at the last minute, time consuming to get interest.
➢ We are going to try and get CTS credits from the high school, which may strengthen enrollment for the camp.
➢ Less interest in handing in proposals from First Nation's and Organizations

Appendix 6.

Dehcho AAROM Programs

Presented by George Low, DFN Fort Simpson



Aboriginal Aquatic Resource and Ocean Mgmt program AAROM

Dehcho AAROM Program

George Low
AAROM Coordinator/Biologist
Dehcho First Nations
Mike Low
AAROM Technical Advisor

Background

Based on meetings in 2005-06, the *Dehcho Watershed Ecosystem Advisory Committee* was formally established by Dehcho First Nations leadership in 2006, with the following mission:

More Aboriginal control of fish and water resources under the Dehcho First Nation's 'One House' system of governance -- involving local resource users and enhancing employment and educational opportunities for Dene youth.

This was the beginning of the AAROM program in the Dehcho. Basically it's an Aquatic Resource Mgmt. program for the Dene and Métis of the Dehcho.

2

The Advisory Committee

The Committee's mandate is to *"...protect and preserve the rights of all Aboriginal peoples to healthy waters, fish stocks and aquatic environments in the Dehcho."*

3

Overview

- As we build capacity in the communities, we can begin expanding our involvement in resource mgmt.
- Dehcho Leadership backs the AAROM program and has appointed members to the Dehcho watershed Committee.
- The Dehcho First Nations is fully capable of administering the program
- The communities see the need for the program to address their many water and fishery resource issues & concerns.
- Potential development such as the MVGP increases the urgency in establishing collaborative management.
- Upstream development on the watershed such as the tar sands; forestry and pulp mills; hydro dams; etc are worrisome.

Goals

- Dehcho Declaration (in part)
  - *"We were put here by the Creator as keepers of the waters and lands."*
- A major goal is the sustainable mgmt. of the aquatic resources of the Dehcho Watersheds.
- A major goal is to maintain uncontaminated, clean water and healthy aquatic ecosystems in the Dehcho.
- A major goal is more Aboriginal control of fish and water resources in the Dehcho

Goals

- Other goals include;
  - Involvement of Elders and their traditional knowledge in decision making
  - Involvement and mentoring of youth in the AAROM program
    - First Nation Culture
    - Science
  - Involvement of communities in AAROM projects and the creation of employment at the community level
  - Providing training and encouraging education in the Dehcho communities

We can achieve our goals by

- Developing a community based watershed mgmt. program
- Providing training at the community level to enhance the level of community participation in AAROM activities.
- Increasing the power of the AAROM program by partnering
- Collaborating in scientific studies
- Undertaking research activities with a focus on *Traditional Ecological Knowledge*

We can achieve our goals by

- Developing community-based Research & monitoring programs
- Collaborating with government, universities and NGO' s to conduct aquatic research.
- Running Youth and Elder Science and Culture camps and other related activities.
- Establishing a communication and networking system to keep all partners well informed
- Creating local, national and international awareness of major aquatic ecosystem issues and dangers

Progress to Date, Training

- Med III and SVOPC courses
  - In Nahanni Butte
  - Fort Simpson
  - Pleasure Craft course
- CABiN course (Stream Health Assessment)
  - Kakisa in August
- Env. Monitoring Cert.
  - Sambaa Ke
  - Funding partners (ITI, DFN –ASEP)
- On the job training

9

Partnering; Collaborative Mgmt.

- DFO; Aboriginal Fisheries Strategy(AFS)
- ENR/ITI – Ecology Camp/Training $$
- Environment Canada (EC)
  - Contaminant studies
  - CABiN program
  - Water Quality
- INAC
  - CIMP
  - NCP
- NGO's
  - CIER – Water & Climate Change
  - Pembina Institute
  - Ecology North
  - Waterlutions

10

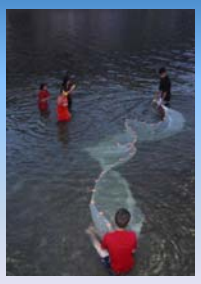
Partnering with DFO - AFS;

- AFS Projects (DFN Admin.)
  - Sambaa Ke fishery monitoring
  - FPRMB – fishery monitoring
  - KFN – Netting study
  - Liidlii Kue – monitoring
  - Ka'a'gee tu – Tathlina Lake
- Equipment Funding
  - Boats, skidoos, trailers
  - Storage
  - Fishing gear and nets

11

Youth & Elder Activities;

- Youth and Elders
  - Ekali Lake Regional Ecology Camp
  - Sandy Creek Youth and Elder Camp
  - Rivers and Oceans Days
    Hay River - 250 students
  - Jean Marie River winter youth trapping & fishing camp
  - Waterlutions –Mike
  - This winter!



12

Equipment & Infrastructure;

- Fully Equipped 18 foot Lunds are our standard working boat (Harbourcraft in Trout Lake)
- A Harbourcraft and two Skandic skidoos & sleighs available for specific project work
- Scientific gear (sampling kits, meters for reading DO, ph, TDS, clarity, etc)
- fishing equipment (nets, jiggers, tubs, chisels, etc)
- Garage packages
- On the land R&M support cabins

13

Community Updates:

- KFN and WPFN
  - Domestic Area baseline research
  - Netting Study – Connie mgmt.
- Ka'a'gee Tu
  - Sports fishery survey – Kakisa River
  - Tathlina Lake stock assessment
  - Hosted CABiN training course
- Fort Providence Resource Mgmt Bd.
  - Sports fishery survey on the Mackenzie River

14

Community Updates:

- Sambaa Ke
  - Monitoring the Sports and Subsistence fisheries
  - Temperature loggers, DO, pH, Conductivity.
  - Winter NCP mercury sampling
- Jean Marie River, Liidlii Kue & Nahanni Butte
  - Monitoring activity on the Mackenzie River
  - Temperature, DO, pH, conductivity
  - Traditional Knowledge info
  - Next season! Contaminant baseline study, E.C. Dorothy Lindeman

15

Community Updates:

- Pehdzeh Ki
  - Boat Patrol Monitoring
  - NCP winter mercury sampling
  - Garage package

16

Community-based Research & Monitoring Strategy Workshops

- CIMP Funding & AAROM $$
  - Meeting in each of the participating communities to discuss where we go from her
  - Customized program in each community based on needs.
  - How do you want your AAROM program to develop for your community?
  - Discussion of NCP mercury sampling starting this winter in some communities.
  - Applied for funding for Wrigley, Simpson, Trout Lake & Jean Marie River

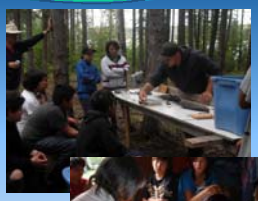
17

Closing Prayer

Mahsi

Thank You.

Photos: The Future of the Dehcho



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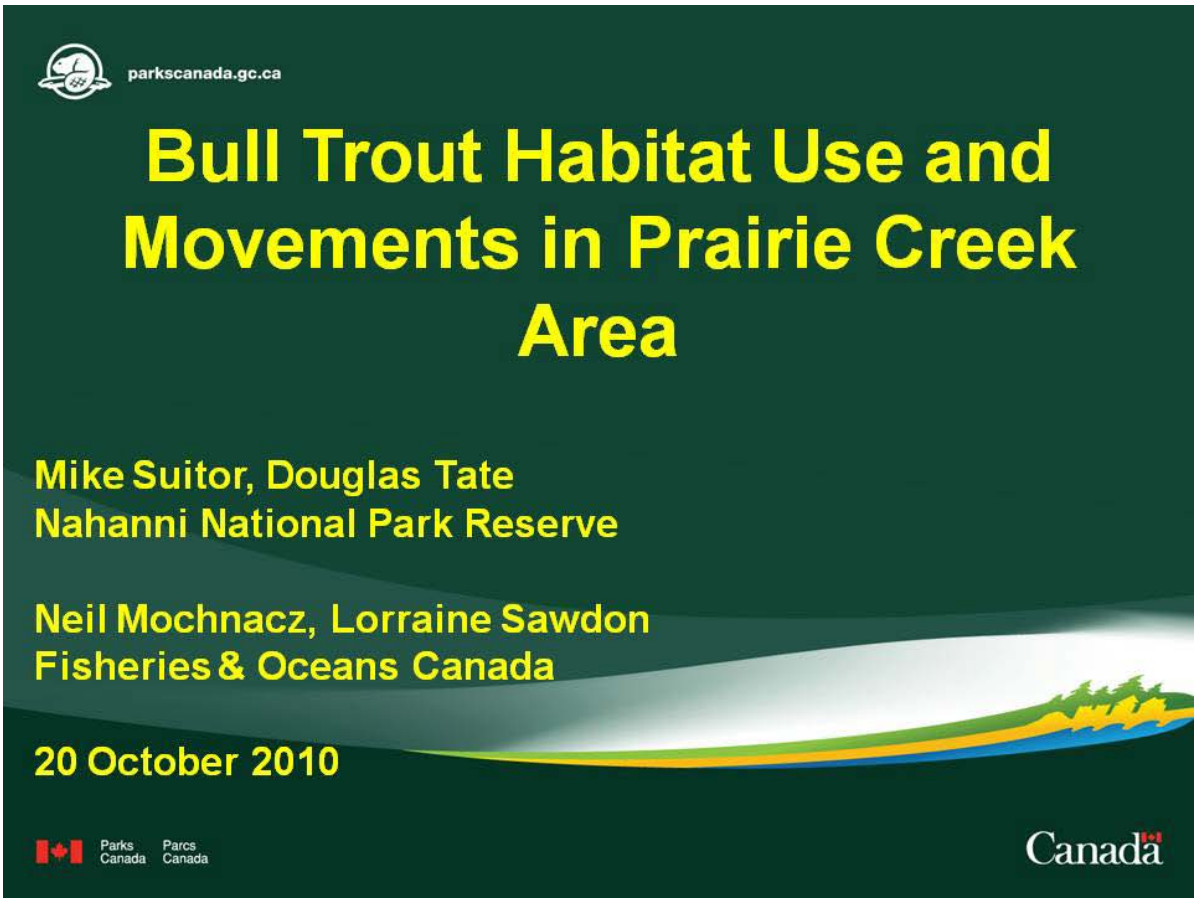
Appendix 7.

Bull Trout Research in Prairie Creek Area

Presented by Doug Tate and Mike Suitor, Parks Canada Fort Simpson



Bull Trout Habitat Use and Movements in Prairie Creek Area

Mike Suitor, Douglas Tate
Nahanni National Park Reserve

Neil Mochnacz, Lorraine Sawdon
Fisheries & Oceans Canada

20 October 2010

Parks Canada Mandate

- Protect & present representative examples of all of Canada's Natural Regions
  - Protect ecological integrity
  - Present natural & cultural heritage
  - Provide public outreach education

Fisheries & Oceans Canada Mandate

- On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters.

Why Study Bull Trout? Why Prairie Creek Area?

1. Bull Trout are listed as May be at Risk in the Northwest Territories (GNWT 2006); scheduled for national (COSEWIC) assessment in 2011
2. Species is sensitive to impacts (e.g. industrial development)
3. Known spawning area in Funeral Creek, a tributary to Prairie Creek; proposed mine development includes access road along Funeral & Prairie creeks
4. Fish populations in Funeral & Prairie creeks may travel in & out of Nahanni National Park Reserve and the South Nahanni River
5. First Nation partners concerned about potential impacts on fish and water quality

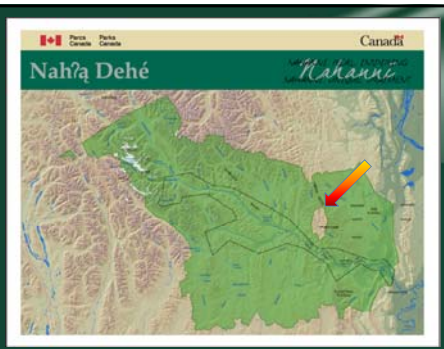
Bull Trout

- Part of the char family (Salvelinus), which includes Lake Trout, Arctic Char & Dolly Varden

- Formerly considered the same species as Dolly Varden; now known to be a distinct species
- Bull Trout (not Dolly Varden) occur in South Nahanni River watershed below Virginia Falls / Nailicho; Lake Trout occur in the river above the falls

Study Objectives

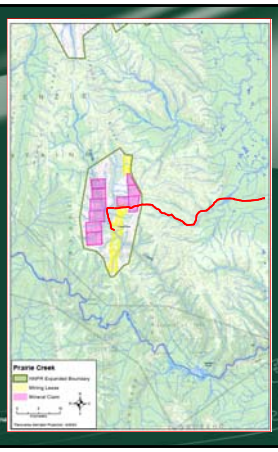
1. Document Bull Trout spawning and winter habitat availability and use
2. Document baseline habitat reference conditions which can be used to monitor change over time, and
3. Investigate the connectivity between trout populations found in Funeral Creek and Prairie Creek



Nahanni Expansion: 2008 = 4,765 km²
2009 = ~30,055 km²

Study Area:

- Prairie Creek
- Fast Creek
- Funeral Creek



parkscanada.gc.ca

Methods

- Meeting with Nahanni Butte Chief & Council in February 2010 to present proposed work & get local input
- Winter habitat was assessed in March 2010, including:
  - identifying open water & groundwater influence
  - aerial photographs of open water areas;
  - on-site measurements of extent of open water reaches and water flow;
  - on-site assessment of substrates;
  - water sample collection;
  - underwater video-camera
- Leon Konisenta participated as community representative

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Methods

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Methods

- Second meeting with Nahanni Butte Chief & Council in June 2010 to provide update, present proposed direction to community, receive feedback
- Initiated movement research program in Funeral and Prairie creeks, using acoustic tags and receivers
- Peter Marcellais participated as community representative during August and October 2010 field work

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Methods

- August 2010 - angling and electro-fishing used to capture Bull Trout in Funeral Creek, Prairie Creek, and lower South Nahanni River
- A total of 27 Bull Trout had internal acoustic tags implanted, released back into streams

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Methods

- Some additional trout had external 'floy tags' inserted as a visual marker in case they were recaptured
- Most fish were from Funeral and Prairie creeks

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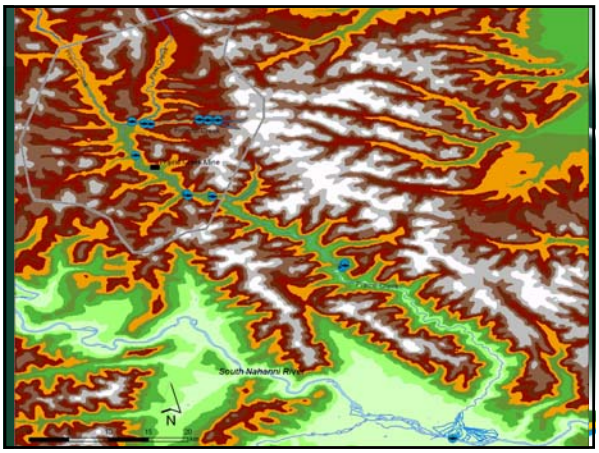
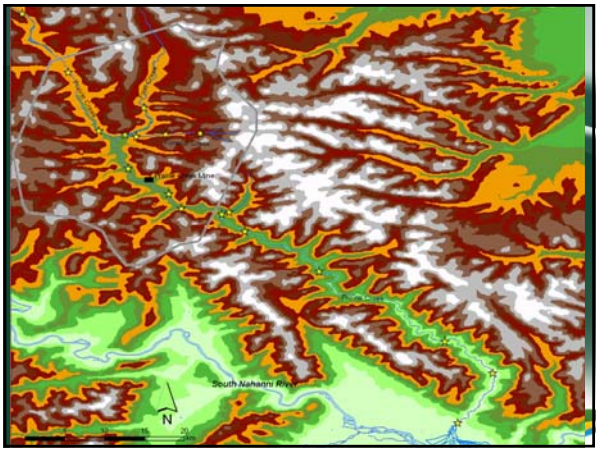
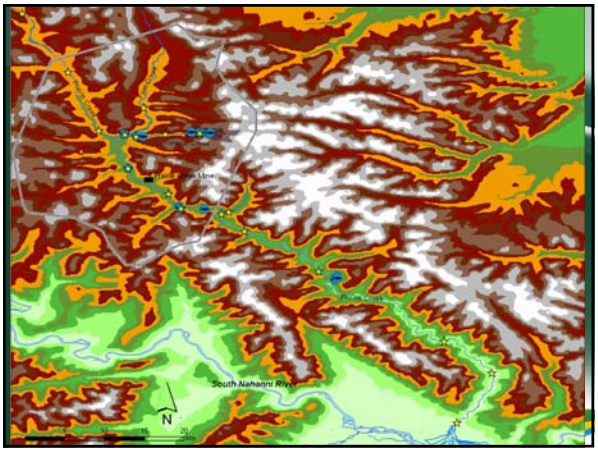


Methods

- A total of 18 receivers were placed in-stream along Funeral and Prairie creeks

- Data downloaded from receivers October 14-16, 2010
- Movements and habitat use will continue to be monitored until the fall of 2011





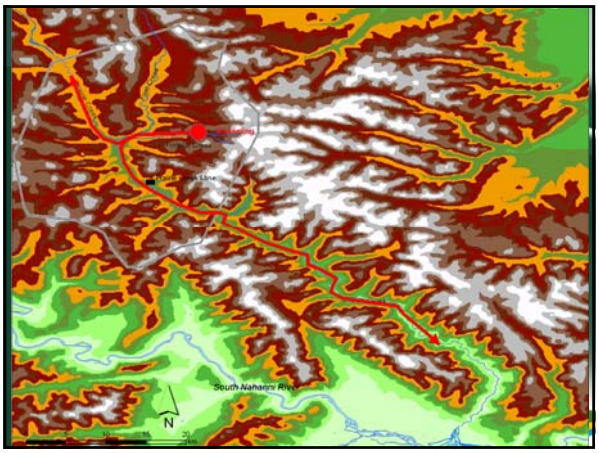
Preliminary Results

- Spawning Bull Trout were captured in both Funeral and Prairie creeks
- Local movements were observed in Funeral Creek

- One Bull Trout moved upstream in Prairie Creek, past the confluence of Fast & Funeral creeks

Preliminary Results

- At least two Bull Trout moved from Funeral Creek into Prairie Creek, well downstream of the Canadian Zinc proposed mine site & into Nahanni National Park Reserve



Preliminary Results: Health

- Recaptured several fish during initial sampling
  - Sutures healing
  - Fish vigorous
  - Spawning pairs remained on beds before moving
- October visit
  - Visually spotted several individuals
  - Close viewing appeared in good health

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Future Direction

- Analysing data to determine success of method
- Looking to develop a strong link with NBDB and DFN to conduct further work
- Would like to use tagged fish to determine winter habitat this spring and spawning next year
- Understanding of movement timing and ecology

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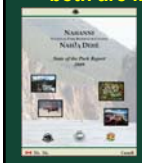
Final Words

- Scientific research plays an important role in management of Nahanni National Park Reserve, Nah'ą Dehé
- Traditional knowledge from our Dehcho First Nations partners complements the scientific approach, and both are included in the *State of the Park Report 2009*.



Copies of the *State of the Park Report 2009* and the *Nahanni National Park Nah'ą Dehé Management Plan* are available at the park office in Fort Simpson

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Mahsi Cho

- Government of the Northwest Territories, Environment & Natural Resources
- Dehcho First Nations
- Thank you for the opportunity to talk with you today
- Questions?

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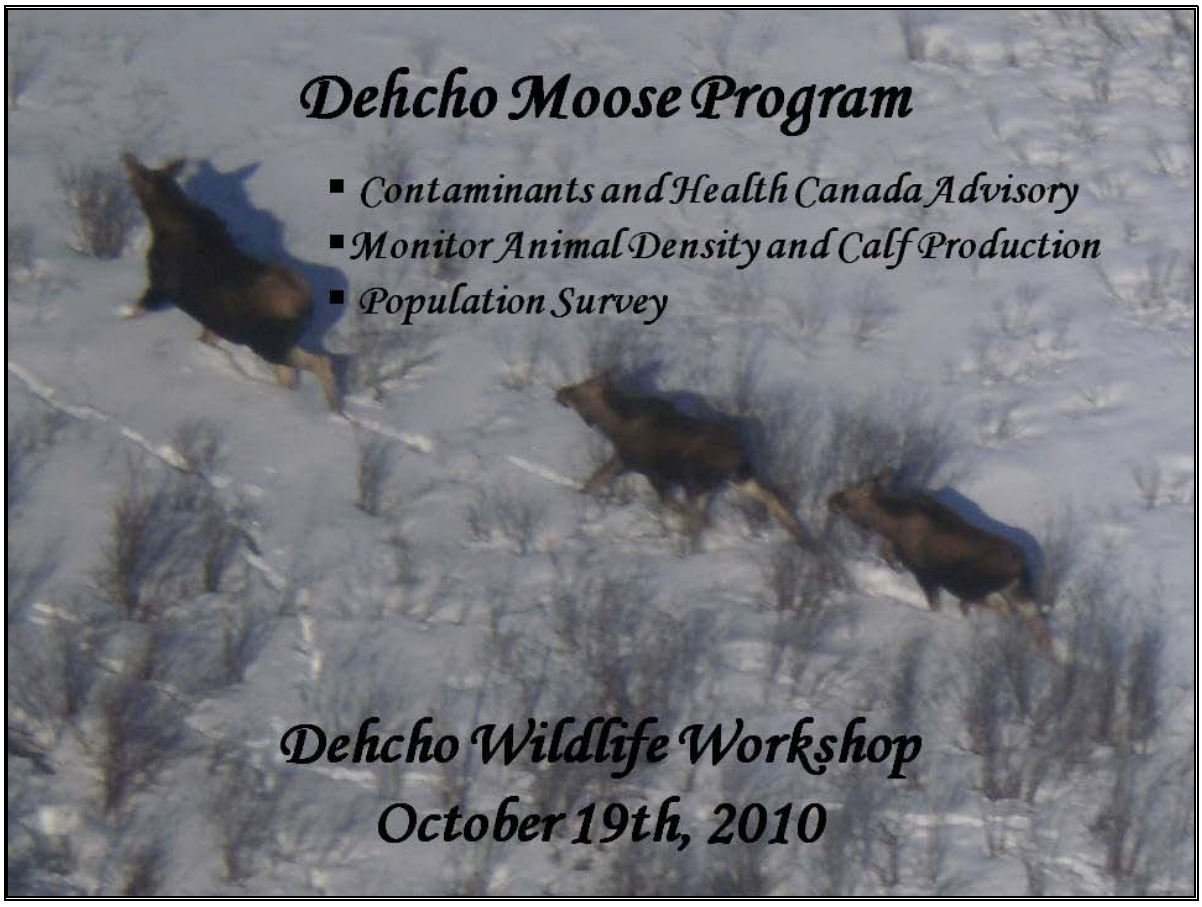
Appendix 8.

Dehcho Moose Program

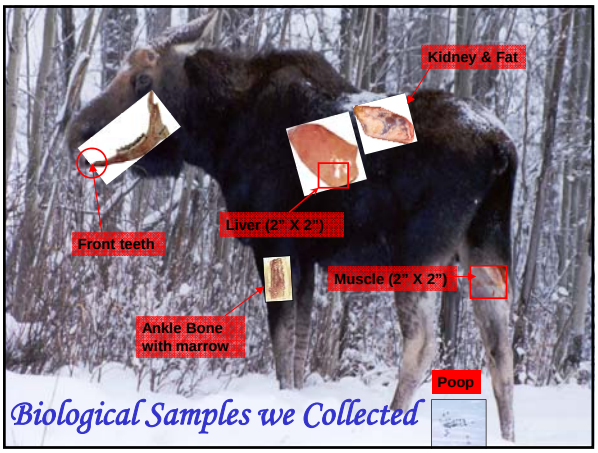
Presented by Nic Larter, ENR Fort Simpson



Dehcho Moose Program

- *Contaminants and Health Canada Advisory*
- *Monitor Animal Density and Calf Production*
- *Population Survey*

Dehcho Wildlife Workshop
October 19th, 2010



Biological Samples we Collected

- Cadmium occurs naturally in the environment (soil).
- Plants, especially willows, accumulate cadmium.
- Moose eat these plants.
- The older the moose the more cadmium is accumulated.
- Cadmium accumulates more in the organs like kidneys.

- Health Canada used the results of the cadmium levels we reported for kidney, liver, and muscle samples for a risk assessment. No other contaminants represented a human health issue.
- In February 2009 Health Canada released a public health advisory on the consumption of moose organs.
- ENR worked with GNWT Health to produce a plain language poster of the findings.


COUNTRY FOODS ARE HEALTHY TO EAT

Cadmium in Moose kidneys vs inhaling cigarettes

At the request of Dehcho First Nations, ENR collected moose organs and meat to determine levels of cadmium and other contaminants present. Mackenzie Valley harvesters provided samples from 43 moose. Samples from 18 moose from the Mackenzie Mountains were also collected.

Cadmium naturally occurs in the environment. Moose accumulate cadmium in their organs as they get older. Cadmium levels in organs from moose in the Valley were similar to those found in Scandinavia and other regions in North America. Moose meat from both the Valley and Mountains contains very low levels of cadmium and REMAINS A VERY HEALTHY FOOD CHOICE.

Amount of cadmium absorbed from eating a whole Valley moose kidney is much LESS than the amount of cadmium absorbed from smoking one PACK of cigarettes.

Amount of cadmium absorbed from eating a whole Mountain moose kidney is SIMILAR to the amount of cadmium absorbed from smoking five and a half packs of cigarettes.

2 µg = 0.000002 gram

Smoking 1 pack of cigarettes = 2 µg of cadmium absorbed by the lungs

Tolerable daily intake of cadmium according to the World Health Organization is 60 µg/day for adult women and 70 µg/day for adult men

Public Health Advisory

- Valley moose recommend maximum one serving of kidney every two months and one serving of liver a week.
- Mountain moose recommend maximum one serving of liver every three months and advise not to consume kidney as a precaution.

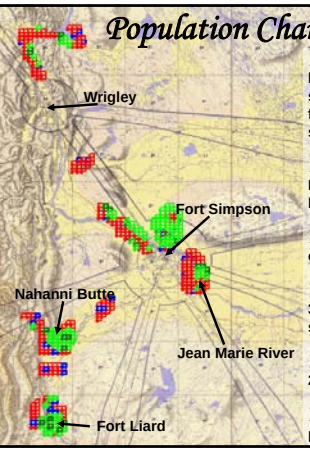
The Bottom Line on Cadmium findings

- For moose harvested in the Liard/Mackenzie drainages of the Dehcho the level of cadmium in an entire kidney is less than that from 1 pack of cigarettes.
- Muscle tissue has very low levels of cadmium and moose meat remains a very healthy food choice.

Further to the healthy food choice

- Recently liver samples were tested for the presence of pesticides.
- Preliminary results show low pesticide levels in the livers of Dehcho moose, with levels in moose being about half the levels found in livers for barren-ground caribou.
- Hunters continue to find most harvested moose in good condition, have not reported abnormalities and samples sent to the lab continue to indicate a low incidence of disease and parasites.
- We would like to continue receiving voluntary samples of harvested moose so we can continue monitoring moose health.

Population Characteristics



- Small scale air surveys have been conducted in mid-November since 2004, using the same blocks from the large scale geospatial surveys in winter 2003/4.
- We survey 34-43 blocks from the Mackenzie River Valley and 20-28 blocks from the Liard River Valley.
- We have observed 60-111 moose on these annual surveys.
- Consistently estimated at least 35 calf moose/100 cow moose, and see at least one set of twin calves.
- Plan on surveying at least 40 and 27 blocks in November 2010.
- Will need local observers to participate.

Stable Moose Populations?

- In 2003/04 density estimates for moose in the Dehcho were 4.4 in the Mackenzie Valley and 4.9 moose/100km^2 in the Liard Valley.
- Density estimates based upon smaller sampling areas ranged from 1.0 to 8.0 moose/100km^2 .
- In November 2003 we estimated the calf:cow ratio's of 32.1.
- Estimated cow:calf ratios for subsequent November's based upon the smaller sampling areas have been 35.0 – 59.0.
- Surveys occur after major fall moose harvest which reduces local density and may inflate cow:calf ratios. Accurate harvest data would be required to assess this.
- The total number of females seen in the smaller surveys has been lower which could inflate cow:calf ratios. We continue to see females with twins.
- Local harvesters continue to have success harvesting moose.

Harvest Information?

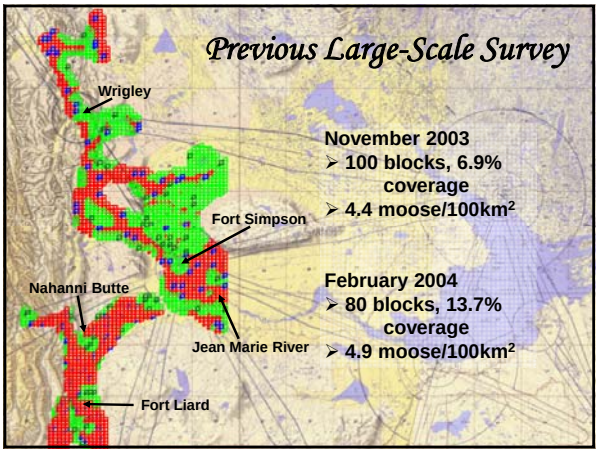
Not knowing how many moose are harvested each year remains a key piece of the sustainable population puzzle.

We would like to thank all harvesters who have participated in our harvest sampling program thus far

The need for another large-scale population survey

- First Nations have been requesting a large-scale survey
- It is 7 years since the last large-scale survey
- ENR is setting funds aside for next fiscal year

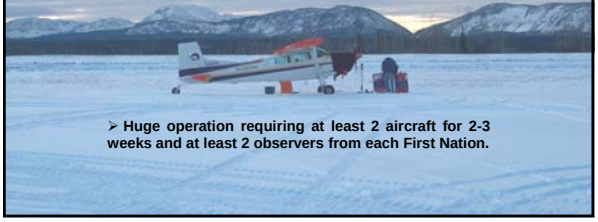
Previous Large-Scale Survey



November 2003
- 100 blocks, 6.9% coverage
- 4.4 moose/100km^2

February 2004
- 80 blocks, 13.7% coverage
- 4.9 moose/100km^2

- Survey would cover both areas and would be conducted November 2011.
- Community meetings to determine number of blocks to fly and confirm high/low areas.
- Will likely need to survey at least 100 blocks (6.9% of total area) in the Mackenzie and likely reduce the number of blocks from 80 (13.7% of total area) in the Liard.



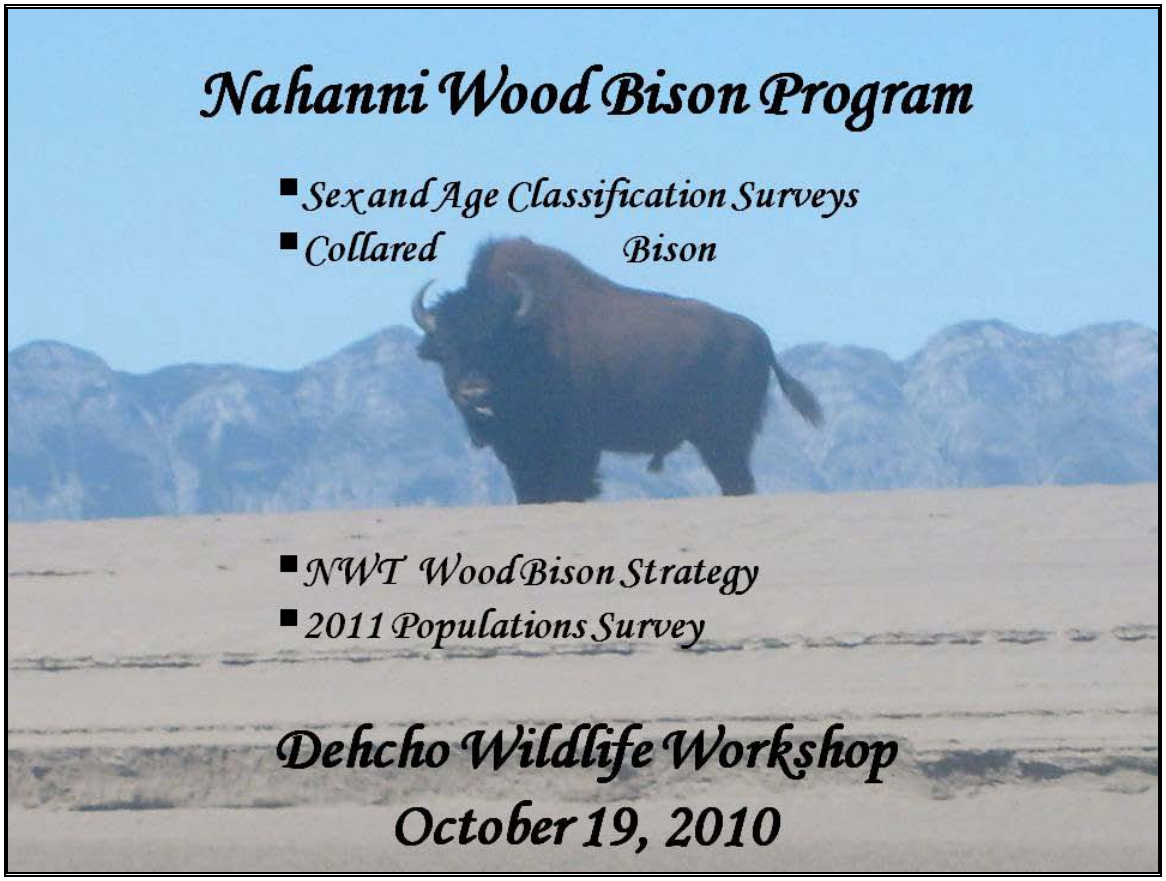
- Huge operation requiring at least 2 aircraft for 2-3 weeks and at least 2 observers from each First Nation.


Mahsi
The following have been active participants in the moose program: Gabe Hardisty, Henry Hardisty, David Horesay, George Moses, Leo Moses, Wes Pellissey, Jonas Antoine, Peter Cazon Jr., Peter Cazon Sr., Edward Cholo, Steven Cli, Peter Corneillie, Steve Isaiah, Loyal Letcher, James Mouse, Roy Mouse, Troy Ruttle, Ernest Tsetso, Frank Tsetso, George Tsetso, Jonas Lafferty, Ernest Hardisty, Angus Sanguez, Stanley Sanguez, Isidore Simon, Darrel Betsaka , Francis Betsaka, Peter Marcellais, Morris Vital, Raymond Vital, Steven Vital, Floyd Bertrand, Angus Capot-Blanc, Elvis Lomen , Arthur Nande, Ernest Timbre, and Ernie Timbre.

Appendix 9.

Dehcho Bison Program

Presented by Nic Larter, ENR Fort Simpson

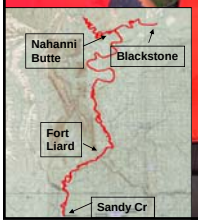


Nahanni Wood Bison Program

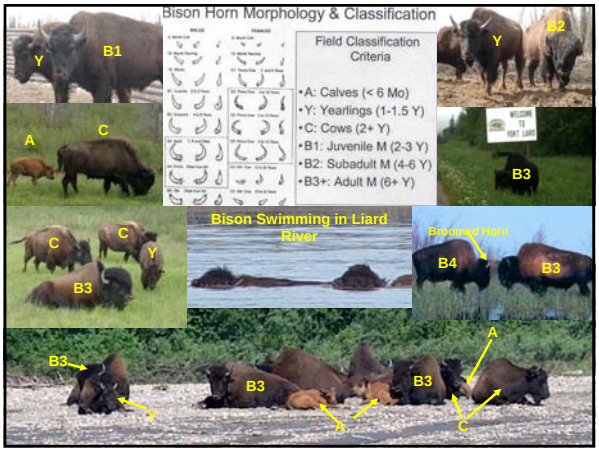
- Sex and Age Classification Surveys
- Collared Bison
- NWT Wood Bison Strategy
- 2011 Populations Survey

Dehcho Wildlife Workshop
October 19, 2010

Sex and Age Classification Surveys



- Annual starting in 2002. Past 2 years with biologists from BC.
- Cover the Liard and South Nahanni Rivers, usually north from Sandy Creek to Nahanni Park and Blackstone River; 2-3 days long.
- Conducted in mid-July when bison frequent sandbars and the shoreline avoiding heat and insects.
- Survey tracked by GPS, with waypoints recorded for all observations.

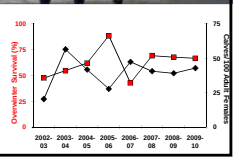


Classification Survey Results

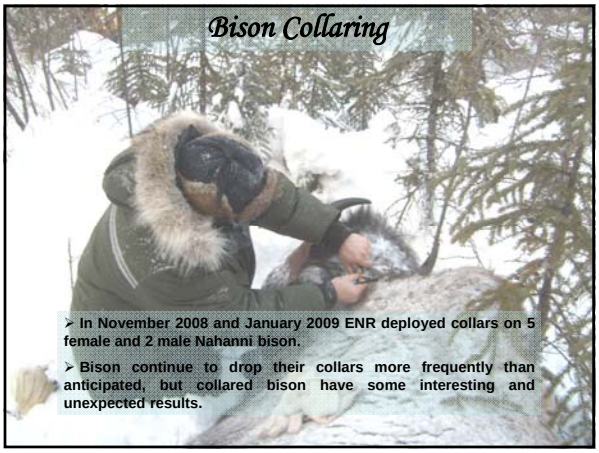
	2002	2003	2004	2005	2006	2007	2008	2009	2010
# bison classified	131*	154	137	138	167	164	161	125	153
# calves/100 females	20	56	42	28	47	41	39	43	36
# yearlings/100 females	17	10	31	26	25	20	28	27	29
# mature males/100 females	48	50	40	50	72	52	56	51	52

* Included group of 42 classified at Beaver Camp prior to survey

- On average 146 bison are observed each survey.
- Calf production and overwinter survival have been relatively stable over the past 3-4 years.
- Population appears relatively stable.



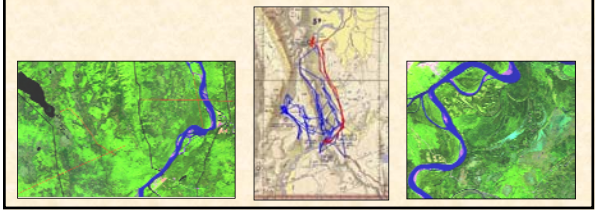
Bison Collaring



- In November 2008 and January 2009 ENR deployed collars on 5 female and 2 male Nahanni bison.
- Bison continue to drop their collars more frequently than anticipated, but collared bison have some interesting and unexpected results.

Moving Around the Range

- Collared females moved around the range much more than expected, especially in the summer.
- Females traveled into NE British Columbia and SE Yukon.
- Collared animals used linear features a lot when moving around the range. In the Fort Liard area they used the Liard Highway, K29 road, and cutlines. In the Nahanni Butte area they have a network of trails between the cutblocks and extensive oxbow lakes of the Liard River.



Bison Collars Update

- Currently there is 1 female with an active collar.
- Six collars are being refurbished without the breakaway mechanism.
- The refurbished collars will only have a lifetime of 22-24 months but they will provide 2-6 locations every day.
- This will provide detailed movement information.
- We will be able to locate collared animals during aerial surveys even when they are in heavy forest which is very important because it will improve population estimates.

NWT Bison Strategy

- Meetings held in Fort Liard and Nahanni Butte May 2009.
- Moving forward to establishing a bison management committee by soliciting representatives from communities.
- Funding is available for establishing the committees.
- ENR continues to respond to community concerns.
- Bison have not been frequenting communities as much recently likely because of a drop in river water levels; we have continued hazing animals out of Fort Liard.

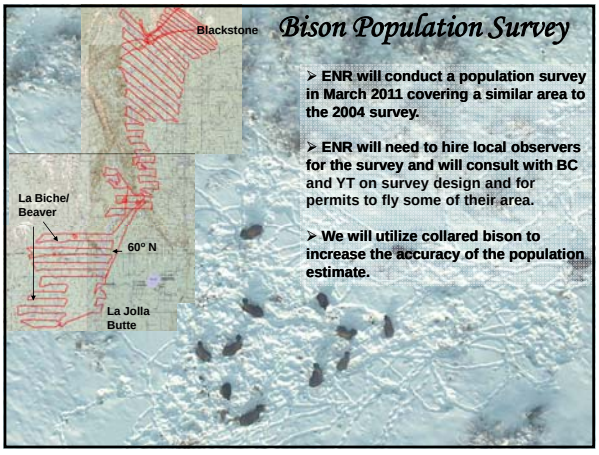
New Initiatives

- Expanded the hazing program to include Nahanni Butte.
- Electric fence experiment at Nahanni Butte airstrip.
- Part time wildlife monitor hired in Nahanni Butte
  - collecting samples
  - moving dung as a hazard
  - removal of excess salt from outfitting operation to new fire break

Based in part on the results of ENR experiments with electric fences in deterring bison DoT is putting up an electric fence around the Fort Liard airport and may put one up around possibly the Nahanni Butte airstrip this year.

Bison Population Survey

- Last survey in March 2004 with YTG estimated 399 non-calf bison.
- Recently overwinter calf survival has been stable.
- Recently more bison being observed further north (expanding range?).
- Major drowning (minimum 13 animals) in spring 2009, and we know 26 animals have been removed or died in vehicle collisions since last survey.
- There is still a concern that the population will rapidly increase like Mackenzie population and a need to determine a more current population estimate.



Bison Population Survey

- ENR will conduct a population survey in March 2011 covering a similar area to the 2004 survey.
- ENR will need to hire local observers for the survey and will consult with BC and YT on survey design and for permits to fly some of their area.
- We will utilize collared bison to increase the accuracy of the population estimate.

Biological Sampling

- ENR continues to try and collect a variety of biological samples from harvested and/or dead animals depending upon the condition of the carcass. That included a reported floater in the Mackenzie River reported in June 2010.
- Blood and lymph nodes are important for disease screening. We have not had a positive test for brucellosis or tuberculosis from any Nahanni bison samples and anthrax has never been detected in the Nahanni bison range.
- We also collect whenever possible teeth for aging, stomach contents and/or poop for diet, disease, and parasites, and long bones for measuring marrow fat content.


Mahsi
We thank the following for their active participation in the Nahanni bison program: Francis Betsaka, Floyd Bertrand, Peter Bertrand, Gilbert Capot-Blanc, Bruce Dauphinee, Jimmy Deneron, David Duntra, Sam Ekotla, Earl Hope, Ernie Isaiah, Brian Kotchea, Isidore Lomen, Michael Sassie, Ernest Timbre, Jimmy Tonka, George Tsetso, Steve and Raymond Vital.

Appendix 10.

Wildlife Diseases and Parasites

Presented by Brett Elkin, ENR Yellowknife

Wildlife Health Monitoring in the Northwest Territories

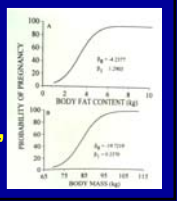
Brett Elkin, Wildlife Veterinarian
GNWT Environment & Natural Resources

Monitoring "Wildlife Health"

- Impacts on the health of animals
  - interaction - other stressors
  - reduced health status
  - vulnerability to predation
  - mortality
- Implications for people
  - zoonotic diseases
  - effects on meat quality
  - impacts on harvesting

Monitoring "Animal Condition"

- Reflects nutritional status
- Influenced by environmental conditions & other factors
- Can affect health & survival
- Can affect reproduction
- Compare between years, seasons, sex & age classes, populations



GNWT Wildlife Health Program

- *Disease Surveillance**
- Information
  - Public
  - Decision Makers
- Education & Training
- Wildlife Disease Response & Management

Wildlife Disease Surveillance

- Types & Levels of Diseases & Parasites
- Wildlife Species Affected
- Geographical Distribution
- Trends Over Time

Hunter Reports & Samples

Provides important information on types & distribution of disease

Community-Based Monitoring Projects

- **Hunter-based Sampling**
- **Standardized protocols**
- **Tiered sampling based on information needs**
- **Help detect changes in wildlife health**
- **May trigger more detailed investigation**

CARMA Level II Sampling

CARMA
CircumArctic Rangifer Monitoring & Assessment Network

Targeted Wildlife Health Research

Boreal Caribou Health Assessment

Disease Surveillance: Existing Diseases & Parasites

Brucellosis

Tissue Parasites

Anthrax

Rabies

Tuberculosis & Brucellosis in Wood Bison

Brucellosis & Tuberculosis in Bison

Johne's Disease

Previously Unrecognized Diseases

- Chytrid Fungus
- Ranavirus

Surveillance for Zoonotic Diseases & Parasites

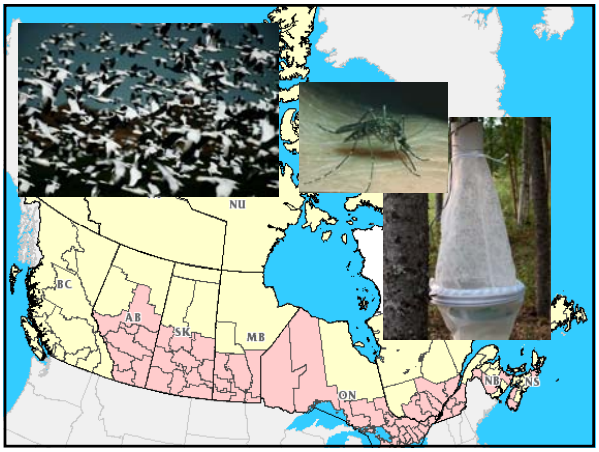
eg. *Trichinella*

Others including rabies, toxoplasma, tularemia, etc.

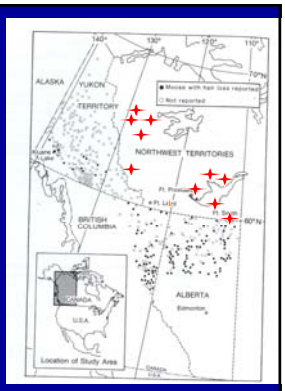
Surveillance for New & Emerging Diseases

Canadian Cooperative Wildlife Health Centre | Centre Canadien Coopératif de la Santé de la Faune

WNV & Avian Influenza



Winter tick

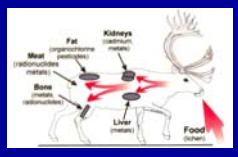


Range & host expansion?

Range Expansion of Wildlife Species: New Diseases & Parasites?

Domestic Animals & Imported Species

Environmental Contaminants



GNWT Wildlife Care Committee

- Established 2004
- Advisory Body on Animal Care & Handling
- Reviews &Provides Recommendations on Research Projects with Wildlife Handling
- Address Public & Stakeholder Concerns
- Ensure Best Practices
  - Research, Protocols, SOP's