



**6TH BIENNIAL DEHCHO REGIONAL
WILDLIFE WORKSHOP
OCTOBER 16-17, 2012**



“One has to appreciate the good work that has been done” Bob Norwegian.



“This is an important venue for our department” Carl Lafferty.

**“You guys do a lot of good work, you need to have First Nations involved.”
“This is the best meeting I’ve been to”
Robert Lamalice.**



**“If we were culturally connected to bison we wouldn’t have a problem”
Priscilla Canadien.**

**DEHCHO REGIONAL WILDLIFE WORKSHOP
16-17 OCTOBER, 2012
FORT SIMPSON RECREATION CENTRE**

2012 Wildlife Workshop Delegates

Ernest Hardisty – Jean Marie River First Nation
Billy Norwegian – Jean Marie River First Nation
Dolphus Jumbo – Sambaa K’e Dene Band
Marilyn Lomen – Sambaa K’e Dene Band
Priscilla Canadien – Deh Gah Gotie Dene Band
Victor Constant – Deh Gah Gotie Dene Band
Fred Lennie – Pehdzeh Ki First Nation
Charlie Tale – Pehdzeh Ki First Nation
Dan Steiner – Pehdzeh Ki First Nation
Peter Sabourin – Katlodeeche First Nation
Robert Lamalice – Katlodeeche First Nation
Edward Cholo – Liidlíi Kue First Nation
Bob Norwegian – Liidlíi Kue First Nation
Peter Marcellais – Nahanni Butte Dene Band

**Environment & Natural Resources (ENR)
Representatives**

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

Nahanni National Park Reserve Representative

Douglas Tate – Conservation Biologist

University of Calgary Representative

Jesika Reimer – MSc Candidate

Dehcho First Nations Representative

Dahti Tsetso – Resource Management Coordinator

Participants

Keyna Norwegian – Liidlíi Kue First Nation
Wilbert Antoine – Liidlíi Kue First Nation
Peter Corneille – Liidlíi Kue First Nation
Jermaine Gargan – Liidlíi Kue First Nation
Jim Antoine – Liidlíi Kue First Nation
Fredrick McLeod – Liidlíi Kue First Nation
Herb Norwegian – Dehcho First Nations
Ernest Tsetso – Liidlíi Kue First Nation
Allen Bouvier – Liidlíi Kue First Nation
Jermaine Gargan – Liidlíi Kue First Nation
Phoebe Allaire-Cazon – Liidlíi Kue First Nation
Edward Deneyoua – Liidlíi Kue First Nation
Kelly Pennycook – ENR Fort Simpson
Floyd Bertrand – Acho Dene Koe Band

Sound provided by MJC Audio (Ronnie Antoine)
Translation provided by Betty Hardisty & Mary-Jane Cazon
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Title page wildlife art www.wpclipart.com

The Department of Environment and Natural Resources (ENR), Dehcho Region held a Regional Wildlife Workshop at the recreation centre in Fort Simpson on 16-17 October, 2010. This was the sixth regional wildlife workshop; the first was held September 2002 with the others occurring in Octobers 2004, 2006, 2008 and 2010. 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 2010 workshop were direction for the various wildlife research programs, the communicating of results, and a list of 16 action items. The goals of the 2012 workshop were to:

- 1) provide an update on the status and results of ongoing wildlife research programs that ENR had been conducting since the 2010 workshop,
- 2) provide an assessment of how well ENR had addressed the 16 action items that had been identified from the 2010 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.

The first winter storm of the season arrived on the travel day which resulted in a juggling of some of the presentation schedule to accommodate both delegates and presenters. It also created a strain on the building heating system which resulted in the need to have outdoor clothing on indoors and frequent short warm drink breaks during the first day. All was cozy for the second day. During Day 1, ENR made a presentation detailing and critiquing how they had addressed each of 16 action items arising from the 2010 workshop. This was followed by presentations on the Dehcho youth ecology camp program (by Danny Allaire and Dahti Tsetso), the Dehcho boreal caribou program (by ENR Fort Simpson), bats of the Northwest Territories (by Jesika Reimer), the Dehcho moose and wood bison programs (by ENR Fort Simpson), and anthrax, bison and humans (by ENR Yellowknife). The walls of the recreation centre were covered 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, DVDs, 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 a presentation by Parks Canada on methods of remotely monitoring wildlife in Nahanni National Park Reserve. Following this presentation 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. Delegates and audience participants had a lot to say about wood bison and current programs. As in previous years the workshop was very well attended despite 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.



Presentation on bats of NWT.



Information sharing.



Workshop advertising.

Day 1 – 16 October, 2012

- 0920 Opening Prayer – Charlie Tale
- 0925 Introduction and welcoming comments - Carl Lafferty, Regional Superintendent, ENR
- 0930 Review of 2010 workshop action items - Nic Larter, ENR
- 1005 Coffee Break
- 1030 Dehcho Youth Ecology Camp - Danny Allaire (ENR) and Dahti Tsetso (DFN)
- 1055 Dehcho Caribou Program - Nic Larter, ENR
- 1150 Lunch catered by TSS
- 1330 Bats of the NWT: Current Status and Potential Concerns - Jesika Reimer, U of Calgary
- 1420 Coffee Break
- 1430 Dehcho Moose Program - Nic Larter, ENR
- 1515 Coffee Break
- 1530 Dehcho Bison Program - Nic Larter, ENR
- 1600 Anthrax, Bison and Humans: the Mackenzie Herd - Brett Elkin, ENR
- 1640 Closing comments – Nic Larter, ENR
- 1645 Closing Prayer – Dolphus Jumbo

Day 2 – 17 October, 2012

- 0915 Opening Comments – Nic Larter, ENR
- 0920 Wildlife when we're not there: Remote Monitoring in Nahanni National Park Reserve - Douglas Tate, PC
- 0950 Coffee Break
- 1000 Round table discussions on bison (management planning groups, allocation of tags, surveys, other issues)
- 1115 Coffee Break
- 1125 Round table discussions on moose research program and sampling to assess contaminant levels 5 years later (kidneys or not, sample reimbursement, surveys)
- 1155 Lunch catered by TSS
- 1325 Round table discussions about boreal caribou program (future collar deployments, new kinds of collars)
- 1400 Coffee Break
- 1410 Round table discussions of ecology camps and other wildlife issues
- 1435 Round table discussion to determine action items/current and future workshop formats and any other final concerns/comments
- 1515 Workshop closing comments
- 1525 Closing Prayer – Robert Lamalice

Day 1

Presentation on 2010 Action Items

There was limited discussion from this presentation largely because the 16 action items had been addressed by the Department of Environment and Natural Resources (ENR) over the past two years. A number of the action items had been directed toward wildlife surveys. There was some discussion about different types of surveys for different species of wildlife and the need to continue with this kind of forum and this kind of presentation to maintain open lines of communication.

Presentation on Dehcho Youth Ecology Camps

The presentation detailed the ecology camps held at Rabbitkettle Lake in 2011 and at Sandy Creek in 2012. It also described: 1) some of the history of the camps which had run annually since 2003, 2) the challenges of acquiring funding, 3) the challenges of scheduling to maximize the number of youth available to attend, 4) fulfilling the goal of having the camp held in different locations of the Dehcho and 5) providing a varied program exposing youth to a variety of traditional and scientifically based activities. The wide range in activities that youth have been exposed to in ecology camps was highlighted. It was noted that the more recent partnership with the Aboriginal Aquatic Resource and Oceans Management (AAROM) program had increased the variety of activities youth were being exposed to and has helped secure more stable funding. Since 2004 camps have been held at different locations in the Dehcho with no camps being held in the same location in consecutive years. Beside Rabbitkettle Lake and Sandy

Creek, camps have also been held at the Trout Lake Fire Base, the mouth of the Trout River, Cli Lake, Paradise Creek, and Ekali Lake.

Delegates praised the success of the camps since 2003 and the program and reiterated the continued need to get youth out and back on to the land and away from portable electronic devices. There was consensus that annual youth ecology camps need to continue. Some participants in ecology camps have gone on to college in environmental programs. Delegates hoped that for future camps high school Career Technology Studies (CTS) credit would be made available for all youth attending the camp like had happened for the 2011 camp, and wanted ENR and Dehcho First Nations (DFN) to explore that possibility. Making these credits available might increase the number of youth involved in camps. Youth from Fort Providence who attended the 2012 camp are currently working toward CTS credits with their school teacher who was one of the staff at the ecology camp.

There was discussion about discipline issues and how to best deal with them at camps. There was discussion about a specific incident at the Sandy Creek camp involving youth that abandoned the camp and tried to make their way back home. Apparently after the first day at camp these youth had decided they did not want to continue on with the camp and were determined to leave. A ride back home was arranged for the youth in question. The remaining youth thoroughly enjoyed the camp and wanted it to go on longer. DFN did receive letters of apology from the youth that abandoned the camp and they said that they would like the chance to participate in another ecology camp. Delegates suggested that ENR/DFN make sure that youth coming to camps wanted to attend, not just that the parents wanted them to go to camp. There was brief discussion on the pros

and cons of having camps run longer. Some youth did not want to leave after a week because they had just got into the swing of things.

Presentation on Dehcho Boreal Caribou Program

The presentation provided an update on the population monitoring work and highlighted some of the key findings about calving that have been determined by a detailed analysis of the movement patterns of individual female caribou in the Dehcho.

Collared caribou have covered an area of some 80,000km² of the Dehcho since the project began. At First Nations request no collars were deployed in 2011; 16 collars were deployed in February 2012 and currently there are 25 active collars with plans to deploy up to a maximum of 10 collars in February 2013. Over the past few years adult female survival and the survival of calves has been relatively stable and somewhat higher than during the earlier years of the study. We can be cautiously optimistic that under the current situation the population is relatively stable. However, a bad year for calf survival and/or adult survival could change things.

Colleagues collared wolves in NE BC this past winter. One pack of wolves spent a lot of time between March and June 2012 in the Dehcho traveling up near Trout, Tetcho and Trainor Lakes. We know wildlife do not respect manmade boundaries and this highlights the importance of talking and sharing with your neighbours. Unfortunately, all of the wolf collars malfunctioned in the summer. They plan to redeploy collars next year.

In April, 2011 a collar that had been on a caribou for 73 months was turned in by a local harvester. He indicated that the caribou was fat and healthy when he butchered it. This collar was put out during our first deployment before release mechanisms became standard on caribou collars.

Based upon the number of females with active collars during the calving periods of 2004-2012, it was determined that there could have been a possible 201 calves born to collared female caribou during this time period. Looking at the movement patterns associated with these 201 possible calving events we determined that 189 calves were born (95% birthing). This percent birthing is similar to the blood pregnancy results. This shows that, even with collars on, females are good at finding males, getting pregnant and having calves and are an integrated component of the boreal caribou population.

Individual females have their calves at a very similar time of the year every year. Based on 13 females that had borne calves every year for four consecutive years, two females had three of their four calves born on the same day. One female collared in February 2010 had her calves born on the same day in 2010, 2011, and 2012. Some females have had all of their four calves born in the same small area of their home range every year, while some other females have not. We plan on looking at whether calf survival is different for females who calve in the same small area versus those females calving over wider areas. It was noted that these findings and other collaborative caribou work in the Dehcho have been presented at the past two North American Caribou Workshops.

The Dehcho Boreal Caribou Working Group was created, an action item from the 2010 workshop. The group has met on several occasions, reviewing and making recommendations on boreal caribou collaring and research and making recommendations on areas to protect from forest fires.

For the deployment of collars in 2012, each First Nation partner was provided with one collar and with the opportunity to designate where they would like to deploy it in their traditional areas. If they did not wish to collar

in their area the collar would be available to another First Nation. This approach worked very well and received lots of positive feedback. ENR is planning on using the same approach for the proposed 2013 collar deployment and hopes to spend time discussing this tomorrow.

Delegate comments

Most delegate comments and questions had to do with the collars and collaring. Delegates were curious if ENR had considered using smaller tracking devices for caribou, like small electronic chips that are implanted in dogs. Such devices still require that we handle caribou which seems to be the most sensitive aspect of the work. Also small implanted units would not have the power to meet our information need. We require collecting location information from caribou via satellites for as long a period of time for each caribou as possible so we do not need to collar lots of animals every year – which is not an acceptable practice. The collars we use are the most effective and cost efficient way of gathering this information consistently over a period of years. We have worked on collar design with the company at First Nations request to have the most appropriate units. Delegates wanted to know if there were release mechanisms on collars so that once the collar had expired, it could be released. All collars deployed on boreal caribou in Dehcho have release mechanisms. Delegates wanted to know how we picked a caribou to collar and whether or not we collared bulls. We only collar female caribou so we can collect information on adult female survival and the survival of calves. Females pretty much drive the population. When we collar females we try to choose healthy looking animals that are not too young or too old. Ideally we have collars on breeding females over a range of ages. ENR indicated that they had acquired a new type of collar that could

also provided information on the outside temperature and the activity of a caribou as well as location information. The collar also had a release mechanism. Its potential use could be part of the round table discussion.

Presentation on Bats of the Northwest Territories

Key messages

Bats, as a group of mammals, are extremely diverse. There are more than 1200 different species across the globe. They come in a variety of shapes and sizes, and eat a variety of things. Different species specialize on different food types including fruit, fish, nectar, reptiles and insects. Bats are often thought of as flying mice, because they are small and furry like a rodent. However, their life history traits are much more similar to a flying grizzly bear. Like bears, bats live a long time. The little brown bat can live to be up to 40 years old. Like bears, bats reproduce at a very slow rate. Little brown bats give birth to one offspring (pup) per year; Mice can have many litters of many offspring every year.

There are eight species of bats in the Northwest Territories (NT), all of which are found in the Dehcho region: little brown, big brown, northern, silver-haired, long-eared, hoary, long-legged, and eastern red bats. All of these species eat insects. Residents in the Dehcho are quite aware that bats are present. Although bats have eyes, and are not blind, they use echolocation (clicking noises) to hunt and travel. Echolocation calls are different for each species, allowing us to use recorders to listen for and determine what bat species are present, when, and how active they are.

Hoary, Silver-haired and Red bats migrate to the NT for the summer, and fly south for the winter. Little brown, Big brown, and Northern long-eared bats hibernate in the NT for the winter. The NT is a great winter site

for hibernating species because of the local karst topography. The South Slave region contains the most northern hibernacula (caves) in North America. There are many caves and crevices that provide over-wintering habitat for numerous species. The study of caves and cave-using bat species is important because of the spread of new disease currently spreading across North America, called white nose syndrome (WNS). WNS is caused by the fungus *Geomyces destructans*, and came to North America from Europe in 2006. It arrived in New York and began to spread to caves in the eastern United States by bats and people (on hiking boots). In 2009 it moved into eastern Canada and is currently in caves in Ontario, Quebec, New Brunswick and Prince Edward Island. The fungus grows on bats during winter hibernation in caves, and causes them to ‘wake up’ more frequently throughout the winter. “Waking up” more frequently causes the bats to use their winter fat reserves more rapidly, resulting in the complete depletion of fat stores before winter ends. At this point, bats either leave the cave to find food and die in the snow, or succumb to starvation and die in the cave. For some species over 90% of the bats have died. WNS has not infected caves in western Canada or the NT yet. It is important to develop an understanding of the baseline population levels and health of bats in the NT to help us understand the impact this disease will have when it arrives.

We do know that bats in the NT: hibernate in cooler caves, emerge from hibernation at cooler temperatures, feed for shorter times, give birth later in the summer, and return to the same maternity roosts each summer. Future work will include increased species surveys using echolocation boxes throughout the NT, more specific research on maternity colonies of little brown bats in the South Slave region and continued monitoring for white nose syndrome.

Delegate comments

Delegates thought it would be a good idea to set up bat detectors in the region and suggested areas where there may be bats present and where it might be a good place to install bat detectors. These included Sambaa Deh Park, a cabin on the Liard River, along the Petitot River. Delegates wanted to know what are predators of bats in the NT. It is mainly birds of prey, which is one of the reasons bats come out at night. House cats will also prey on bats when they return to attics, but this is mainly in the south.

Presentation on Dehcho Moose Program

Much of this presentation dealt with describing the planning, consulting with harvesters, preparing, and conducting of the large-scale geospatial moose surveys of the lower Mackenzie and Liard River drainages. The surveys were conducted in November 2011. The last large-scale surveys of those two areas was conducted in winter 2003/04.

First Nation involvement had started from the design of the 2011 survey area and continued with the reclassification of blocks from the 2003/04 survey based upon harvesters' knowledge. First Nations had discussed and agreed to changes in the survey coverage with coverage being increased from that in 2003/04 in the Mackenzie portion at the expense of an acceptable decrease in coverage in the Liard portion. The changes First Nations wanted to the Mackenzie survey were to: extend the survey area eastward along the Mackenzie River, reduce the survey area around Bulmer Lake, increase survey coverage to 8.3%, and reclassify survey blocks west of Jean Marie River and near the Horn Plateau. The changes First Nations wanted to the Liard survey were to: remove survey areas within Nahanni National Park Reserve (NNPR), extend the survey area along the Liard

River south into northeastern British Columbia (BC), decrease survey coverage to 12.8%, and reclassify blocks along the eastern edge of the survey area. ENR incorporated all these changes into the design of the survey.

The survey used two fixed-wing aircraft, flew 188 survey blocks, and took nine days of flying. Many local harvesters were hired as observers. A total of 299 moose were seen both within and outside of survey blocks. Moose were relatively abundant in areas that had burned 15-20 years ago. The estimated moose density for the Mackenzie portion was higher by 0.5 moose/km² from 2003, to 4.9; this was similar to what was estimated in the Liard portion in February 2004. The number of calves in the Mackenzie portion was higher but the proportion of males showed little change since November 2003. Unfortunately, the delayed freeze-up and little snow cover in the Liard portion of the survey greatly affected moose distribution. Moose were observed on higher ground in the mountains with very few moose or tracks in the valley in comparison to what was observed in the February 2004 survey of the Liard portion. ENR believes the November 2011 survey greatly underestimated the moose in the Liard portion and will need to discuss with local First Nations the timing of large-scale surveys in the area.

Now that the large-scale survey had been repeated and the results were out there will be a need to evaluate annual small-scale monitoring surveys. It was proposed that the frequency of small-scale monitoring surveys be changed. It was also suggested that there was a need to start collecting biological samples from harvested moose again. It has already been five years since contaminants in moose had been measured and we should document the levels of various contaminants for comparison with the

previous study. A brief description of the biological samples that would be needed followed.

Delegates wanted to know what contaminants were being tested for. Currently levels of 33 different elements including, cadmium, lead, mercury, arsenic, and zinc to name a few are measured. There is the possibility to look at levels of some persistent organic pollutants and radionuclides as well. Delegates wanted to know if there were certain areas in moose where there were more contaminants. The kidneys and livers are the key filtering organs of the body and generally speaking because they are filters they have higher levels of various contaminants. That is why ENR requests samples of these organs.

There was discussion about the challenge of doing aerial surveys in November. Large-scale surveys need to be conducted and consensus had been that after freeze-up in November was the preferred time to survey. A number of delegates had participated as observers in moose surveys and noted the challenges especially for observers who were the ones counting the moose: aircraft that had windows fogging up, aircraft that had cramped back seats with little adjustment, aircraft that could not keep warm. It was noted that these were certainly not ideal conditions and that by rotating observers and keeping flight duration fairly consistent these distractions were minimized. Delegates also indicated immediately after the end of a snow storm is not a good time to see moose because it takes a day or so before they start to move around again. It was noted that during the 2011 survey, flights were made the day after a storm had ended. Everyone acknowledged that weather can be unpredictable in November and that with such a large survey and limited aircraft it meant that flying had to happen on days when aircraft could fly. However, ENR indicated that they would seriously

consider delaying flights after major storms and maybe extend the length of air charters incorporating more down days for the large-scale surveys in order to do the best survey. Unfortunately there are so few aircraft available in the NT to conduct these surveys that they are hard to get and to keep for extended periods of time.

It was suggested that ENR could supplement information on moose numbers by partnering with Enbridge because they monitor the pipeline right-of-way and potentially harvesters could accompany them to look for moose and GPS where they saw them. ENR indicated that Enbridge already provided them with their wildlife observations when monitoring the pipeline but noted that Enbridge only records wildlife seen on the pipeline right-of-way, not any wildlife they may see adjacent to the pipeline.

Presentation on Nahanni Wood Bison Program

Much of the presentation centered around the results of the Nahanni bison population survey in March 2011 and the information provided by the recently collared animals. These topics related to a number of the action items tabled at the 2010 workshop. All seven collars (four satellite and 3 GPS) had been deployed on bison (six females and one male) prior to the March 2011 survey. ENR used drugs fired from a dart gun to immobilize bison for collaring. The collared animals were used to determine sightability of bison during the survey and provided a more accurate estimate. The 2011 population survey covered 7600km² which was a slightly larger area than had been covered in the only other survey in 2004. More animals were seen spread out over more of the survey area in 2011 than in 2004. However, the population estimate of 431 was similar to the estimate in 2004 of 403 bison. The results of the annual summer classification surveys since 2004 show a

fairly consistent ratio of calves to 100 adult females. Overwinter survival of calves had also been relatively consistent since 2004 but had dropped during the past two years. The findings from both survey types are consistent and point to no great increase or decrease in the Nahanni wood bison population from 2004 to 2011. Since that survey collared animals have increased the range of area used by the Nahanni bison. Animals have gone up the Kotaneelee River drainage to the west and have followed the Liard River and Liard Highway north and east up to Poplar River. The collars on these animals should continue to provide locations through 2012. It was also noted that groups in Nahanni Butte and Fort Liard had been established for Nahanni bison management planning as part of the Northwest Territories Wood Bison Management Strategy.

Delegate comments had to do with the recent change in harvesting bison from the Nahanni population. The male only quota had increased from two to seven tags; one tag for Nahanni Butte and six tags for Fort Liard. There was some discussion about how other First Nations could get tags to harvest Nahanni bison. Delegates mentioned the need for more education for communities about the use of bison especially as meat resource.

Presentation on Anthrax, bison and humans

Anthrax is a naturally occurring disease that causes periodic outbreaks in northern wood bison populations. During the summer of 2012, an outbreak of anthrax occurred in the Mackenzie bison herd. There were 440 confirmed cases where animals of all different sex and age groups had died. This presentation provided a history and overview of the disease in northern bison and the 2012 outbreak, the largest recorded outbreak of anthrax in northern bison.

Anthrax has been documented in Wood Buffalo National Park (WBNP), the Slave River Lowlands (SRL) and the Mackenzie bison populations. Anthrax has never been documented in the Nahanni wood bison population. Since 1962 there have been 11 documented outbreaks in WBNP, eight in SRL, and three in the Mackenzie population. There were more documented and generally larger outbreaks of anthrax in the 1960's.

Anthrax spores are long-lived and are found in the soil. Bison get the disease by digging and kicking up the dirt, usually when they wallow, and then inhaling the spores or getting spores in open wounds. Once the animal has anthrax it dies quickly and does not transmit the disease to others.

Since the first anthrax outbreak in the Mackenzie population in 1993, the GNWT (ENR) has conducted aerial surveillance flights for bison carcasses annually in the summer as part of its Anthrax Emergency Response Plan. Early detection of an outbreak is important. The Anthrax Emergency Response Plan provides a rapid and effective response to control the impact of the disease on the bison population and to prevent or minimize human exposure. As part of the plan, ENR staff locate and dispose of bison carcasses. The public is asked to report any sick or dead bison but not to approach or touch dead animals. Carcasses are burnt on site to minimize the dispersal of spores associated with the carcass. The response to large outbreaks, like the one this past summer, takes a lot of manpower, time and money.

There were few comments from delegates other than more details on the cost of dealing with the 2012 outbreak. It had been a cool day in the unheated room.

Day 2

Presentation on Remote Monitoring of wildlife in Nahanni National Park Reserve

People often want to know how many animals are out there, are the numbers going up or down or remaining about the same, are there certain areas that certain animals use at certain times of the year, or are new wildlife species coming in to the area? Wildlife surveys are often conducted to answer these questions. However, for a number of reasons like cost, weather, and cultural appropriateness, surveys are not easy to carry out. Different survey approaches may work for some species but may not be able to address the questions being asked. Many wildlife surveys are a snapshot in time but what is happening when we are not there. This presentation highlighted some of the different ways Parks Canada has devised for remotely monitoring wildlife in Nahanni National Park Reserve.

To investigate the movements of bull trout in Prairie Creek, internal acoustic tags were surgically implanted into captured trout. Receivers were placed in the stream in 24 sites in the watershed. When a trout swims past a receiver the unique sound of its transmitter is recorded along with the date and time. The preliminary results showed that trout move up and down Prairie Creek and its tributaries, overwinter in Prairie Creek, and do make long range movements.

Automated sound recorders have been set up in four locations to monitor bird songs and frog calls, mainly to get the first calls of the spring arrival, and peak calling times. The recorders run for five minutes at the top of every hour for 24 hours, so they can record morning, daytime, evening,

and nighttime species. The battery/sound card can last up to six weeks. The recordings can be a useful backup for bird surveys. The preliminary notable results were a spring calling wood frog, a species at risk Yellow Rail song at Yohin Lake and the song of a new bird species for NNPR – Le Conte's Sparrow.

Remote cameras have been installed in five sites. Cameras are small, inconspicuous and are motion-sensitive. They can be attached to trees and rocks, can be set to take pictures at a certain time of day and record date, time and ambient temperature with each picture frame. The cameras have successfully photographed a variety of wildlife species during both day and night and are being tested for usefulness in recording the time of lake ice-out and snow level monitoring by using the timing photograph function. Preliminary results have shown areas and timing of high use by grizzly bears in the Glacier Lake area, the presence and timing of wildlife on the Prairie Creek access road, and the seasonal use of the Howard's Pass road by caribou.

It was reiterated that none of these techniques can replace knowledge from having people out on the land but they can supplement it and play a valuable role in research and monitoring.

Round Table Discussions on Bison Issues and the Nahanni Wood Bison Program

Delegates made up for their lack of comments about bison during the day one presentations with a lengthy and quite animated discussion on bison issues during the round table. Much of the discussion was led by delegates from communities that do not have resident bison issues and was based upon second- or third-hand information. Many delegates had heard bad things

about bison: that they were a nuisance, especially in communities; that once bison came into an area moose, and to a lesser extent caribou are harder to find; and bison are big and dirty and make a mess of the environment. There was also a real concern that bison numbers will rapidly increase, like moose in Newfoundland, and take over. Some delegates were concerned that because they were an endangered species we were babysitting and protecting them too much. Unfortunately, there still seems to be the mistaken belief that bison are not a native species to the area and the government put them where they never were before.

There is no question that bison in communities can be a nuisance to property owners because they are big, heavy and like to rub on things. Being big, heavy, and living in groups also means leaving a larger mark on the environment with their trails, wallows (dust bathing areas), and horn rubbing of trees. Moose in Newfoundland were introduced where there were no predators, an overabundance of habitat, and moose females often have twins when they have good habitat. Contrastingly, bison in the NT are preyed upon by wolves and bears, females can have only one calf, and bison habitat is restricted so the likelihood of a huge population increase is remote. The fairly rapid increase in the Mackenzie population occurred in the 1980's before their prime habitat was flooded. Numbers now are substantially lower than at its peak. Wood bison remain a threatened species and ENR is responsible for protecting them and promoting their recovery in a manner consistent with the National Recovery Strategy.

Although there was initially some dispute about whether bison were historically part of the large mammal community of the Dehcho, comments from delegates about trails through the muskeg that were big gouges made by bison and bison trampled areas around mineral licks and trails in the

Birch River and Fort Providence areas indicated a historical presence. Bison numbers may not have been as high or locally concentrated historically but they were one of the large mammals in the area and were hunted only a few generations ago.

Delegates indicated that there is a real need to get the cultural connection with bison back. Bison were part of the large mammal community a few generations ago, and bison are certainly present now. Their meat is very good and there is a lot from one bison. The government needs to educate people better to show the benefits of being able to harvest bison. They could provide workshops and training related to tanning hides and making robes, as well as the different methods of meat processing. Local artists have used bison horn for carvings. Delegates felt that people should not need to have a tag to harvest them if they have a General Hunting License (GHL). Bison harvesting throughout the NT had been liberalized in recent years. The 2012 anthrax outbreak will likely affect harvesting of the Mackenzie population but not the Nahanni wood bison population. Delegates wondered if big game hunting of bison had been considered as an option for the Nahanni population that could provide a financial incentive as well.

Delegates asked if ENR had considered different measures to reduce the number of bison killed on the highway system, in particular in winter by snow ploughing lines in the highway right-of-way that were adjacent to the highway. This had worked well on the Alaska Highway in northeastern BC. ENR acknowledged this as a potential mitigative measure however as in BC it was a very costly measure and could only be used in small sections of highway. Currently the road system where bison are encountered in the NT has nowhere near the volume of traffic as that of the Alaska Highway. Also

the insurance company of BC (ICBC) put a lot of money into this and other projects because they are the only vehicle insurer in BC and were paying out millions of dollars for wildlife-vehicle collisions. Our situation is not like this. The use of salt on NT roads was brought up as an example of the need for ENR and Department of Transportation to work together. The salt will bring bison to the roads; this is not a good situation. These are all issues that can be addressed with bison management plans.

There were contrasting opinions about the need to have collars on bison. Some thought it was important to get location and movement information on bison like ENR does with caribou because then we would know all of the areas they are in and how far they move. Some believed we knew enough about bison already and collars were a waste of time. It did not take much discussion to realize that there are lots of questions people have about bison that cannot be addressed without having some collared animals.

Delegates wanted to know if at least some money was being spent to have animals hazed out of communities. ENR continues to spend money on hazing animals out of Nahanni Butte, Fort Liard and Fort Providence.

There was a lengthy discussion about bison patties, as not only a dangerous hazard to trappers on snowmobiles, but as a potential source of income for local crafts people. Bison do leave large patties and the more bison the more patties. In the winter, patties freeze and are often hidden under snow along trails, and trap lines. A snowmobile traveling at a high rate of speed can flip over and be damaged if it hits one of these patties. Trappers could get injured and their machinery could get damaged. Delegates were curious as to whether ENR had any incentive programs that would cover this. ENR has no programs but Industry, Tourism, and Investment (ITI) has a program to deal with trapping related injuries but not for damaged

machinery. It was indicated elsewhere clocks mounted within a lacquered bison patty had been marketed.

There was an extended discussion about the prohibitive cost of the anthrax outbreak. ENR spent some \$4 million on the 2012 outbreak. Initially reaction was that all this money had been wasted and on bison. Anthrax outbreaks are a huge public safety concern. Since the first outbreak in 1993 the GNWT established an Anthrax Emergency Response Plan which was to be followed in case of future outbreaks. Critical to the plan is the location and disposal of all carcasses. This year with some 440 carcasses located and needing to be disposed it is no wonder the cost was high. But this money actually provided a huge economic stimulus to the local economy in Fort Providence. There was a huge need to hire manpower for extended periods of time during the summer as well as local goods and services. Delegates also wanted to know if carcasses floating in the river could spread anthrax. Technically anthrax could spread in water. However, because so few animals dying of anthrax fall into the river, and the huge dilution of spores by the river water would result in spore concentrations so low that it is highly unlikely anthrax would spread.

However, by the end of the long discussion delegates did indicate that there had been good work done as part of the Nahanni wood bison program. They still felt that too much money was being spent on bison but that if money was going to be spent by ENR on the Nahanni wood bison program that it should be used for a population estimate sooner than later to see if the population was increasing so then the issue of population control could be addressed. Delegates felt that this survey should be conducted before the 4-5 year interval proposed by ENR and that a limited number of collars should be deployed before the survey to make sure the survey covered the area

properly. ENR would need to discuss collar deployment with local First Nations.

Round Table Discussions on the Dehcho Moose Program

Some discussion centered around the need for small-scale surveys in between the large-scale surveys. There was the realization that large-scale surveys are costly and cannot be done every few years because there are other wildlife surveys needed in the Dehcho and elsewhere in the NT. Unless there has been a fairly substantial change in number or distribution of moose, small-scale surveys would not be able to detect a change. Some delegates suggested that the number of small-scale surveys be reduced to once every two or three years, with the large-scale surveys being conducted at least once every six years. Further consultation with First Nations would be needed to decide on a schedule for small-scale surveys and whether or not First Nations wanted to modify the areas used by previous annual small-scale surveys. Much of the discussion focused on the need to collect biological samples from moose again to document current levels of various contaminants so they could be compared to what was found in the mid-2000's. Delegates wanted to know what each sample would be used for and why they were needed. Delegates felt that the reimbursement for samples should increase from what had been offered during the previous sample collection because the costs of going out on the land had increased over the years. Delegates suggested that if a full kit of biological samples was provided the harvester should receive \$75.00. A kit with everything included **except** the kidney would receive \$50.00. ENR agreed to this reimbursement and reminded delegates that sample kits had been provided to all band offices and that extra kits were available at the ENR office in Fort Simpson.

It was reiterated that moose meat from moose harvested in the Dehcho remains a very healthy food choice.

Round Table Discussions on the Boreal Caribou Program

Delegates expressed the need to continue monitoring the boreal caribou population which meant the need to maintain an adequate number of collars on females. We need to keep enough collars on caribou. During the last collar deployment ENR had provided each First Nation partner with a collar which they could decide to have deployed (or not) on caribou in an area they wanted. Delegates indicated that this had worked very well with the previous deployment and they would like ENR to do the same this time. ENR indicated that they would do so for this year's deployment. There are potentially 10 collars available. ENR also indicated that permits to approve the proposed collaring had recently been forwarded to each First Nation partner.

Delegates were in agreement that collaring a smaller number of caribou every year to ensure 30 collared females at calving time was much better than waiting and having to collar a large number of females in any year. There would be less stress to both animals and the capture crew. Also smaller amounts of funding are easier to get and keep; larger amounts of funding can get cut and this would have a bigger impact on the program.

The newly acquired collar and its additional capabilities created a lot of discussion. Delegates thought that being able to monitor the outside temperature and animal activity at the same time as the location of the caribou was very useful. With all of the wide temperature changes we are starting to see in winter it is important to see how the caribou respond to the extreme changes of temperature during winter. Also when it gets cold in

winter caribou start to use the forest more. We would know the temperature when caribou did this. It was noted that ENR had always deployed collars on caribou in the Dehcho that were tried and true because they wanted to avoid additional collaring to replace malfunctioning units and wanted to know that once a collar was deployed it would function for its projected lifespan. ENR was not promoting field testing new collar designs as part of the caribou project, but wanted to hear from the delegates whether or not this collar they had acquired should be deployed, because they would have to get busy working with the manufacturer to ensure having a unit available for February 2013. There was overwhelming support from the delegates to deploy this new collar particularly because of its capacity to monitor temperature as well as location. ENR indicated that they would proceed with the manufacture of the unit so it would be available for the February 2013 deployment.

Round Table Discussions on the Ecology Camp Program

Delegates voiced the need to have personal electronic equipment, especially iPods, banned from the camp. Surely youth can go without these devices for a week. These devices are a distraction and show disrespect to elders and instructors alike. Delegates were also concerned about the need to deal with other more illicit items at ecology camps. It was stressed that camp policies/rules be tailor made for each camp once the camp had been awarded. It was also stressed that camp policies/rules should be established well in advance of the camps. Camp policies/rules could include a list of items that were not allowed at camp or would have restricted use. The camp schedule could include a “free time” component when it may be deemed appropriate for youth to use some personal electronic devices. Once youth

sign up for the camp they are aware of all camp policies/rules and have to abide by them or there will be consequences. With camp policies tailored to each camp and made well in advance all staff and participants would be aware of them before camp started and there would be less chance for conflict.

Delegates again raised the issue of the timing of ecology camps especially when different communities have different school timetables. This is especially true of Fort Providence where the dates of the school year differ from other communities. DFN/ENR stressed that they have continued to try their best to have the camp when there are the fewest conflicts with school and community gatherings but that those awarded to host the camp have time limitations as well and that it is almost impossible to accommodate everyone. It was noted that the past two or three camps have been held at different times of the year and there have been youth from Fort Providence attending camps.

It was noted that for the 2011 camp high school CTS credits had been made available. Parks Canada and Nahanni Butte had hosted that camp and had arranged a staff that included high school teachers. This had made things a little easier to provide the credit but it has still taken a lot of extra time and paperwork. It was suggested that if the camp was held in June, before the end of the school term, that it might be easier to provide CTS credits. At that time of year short programs providing CTS credits are often part of the school ciricula. Perhaps the youth ecology camp could be one of those programs, but it would mean changing the camp timing substantially. June camps might make it easier for Fort Providence youth to attend. DFN/ENR committed to pursuing this as a possible option for future camps. The advertising for proposals to host a camp and the awarding of the camp would

need to be done much sooner in the fiscal year in order to have a June camp but that could be done.

General Comments made at the Workshop

Delegates were happy that this type of meeting was happening every two years and wanted to continue on having them. People learn a lot from these meetings and share a lot; they all care about wildlife. This is a good meeting, there are lots of materials available to take back home. Government people need to continue to talk together with people from the communities and to listen to their concerns. There is a lot of good work being done on wildlife and everybody at this meeting is concerned about wildlife. It is important to have delegates from all First Nations at this meeting. It was suggested that a copy of the action items from this workshop be made available to DFN before their winter leadership meeting which was the following week in Yellowknife.

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 2012 workshop; 12 action items were agreed upon and follow:

Action Items from October 2012 Workshop

1. ENR to ensure the Final Report of this workshop is distributed to all First Nations on a timely basis.
2. ENR to secure funding to host another Regional Wildlife Workshop at about the same time of year in 2 years; the format and the arrangement of covering the costs for 2 delegates per First Nation to attend the workshop should remain the same.
3. ENR should work with DFN to seek funds to ensure future summer youth ecology camps, exploring all options to offer CTS credits for youth attending the camps. Camp policies should continue to be “tailor” made for each camp and reviewed prior to each camp to minimize difficulties for facilitators.
4. Delegates were unanimous in supporting the development of a Nahanni bison management plan and want ENR to proceed in this direction.
5. ENR should ensure a wide distribution of the Final Report of this workshop, including having it posted on the ENR website.
6. ENR should provide the Dehcho First Nations Leadership with the list of the workshop action items in time for their winter leadership meeting.
7. ENR should conduct another large-scale geospatial moose survey along the Mackenzie and Liard River Valleys no later than November 2017.
8. ENR should reduce the frequency of small-scale moose monitoring surveys to one every two or three years; additional consultation with

- First Nations is necessary to determine a schedule for the next small-scale survey.
9. ENR should actively seek to collect biological samples from harvested moose in order to reassess the level of contaminants in moose; harvesters will be reimbursed at \$75 per complete set of samples.
 10. ENR should schedule another Nahanni Bison population survey in the next 2-3 years and consult with local First Nations regarding collaring bison prior to the survey.
 11. ENR should deploy up to 10 collars on boreal caribou in the Dehcho in February 2013. Each First Nation partner will have one collar made available to them so they can advise ENR on where to deploy that collar in their traditional areas.
 12. ENR should try to deploy the one “high tech” collar they acquired on a female boreal caribou in February, 2013.

A listing of action items from previous wildlife workshops.

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°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.

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.

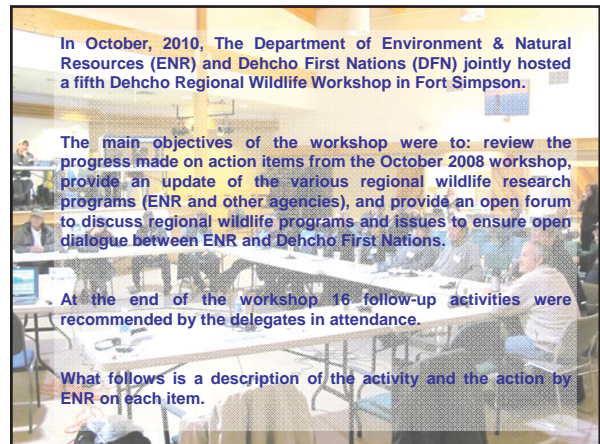
9. ENR to identify ways that monitoring the harvest of wildlife in the Dehcho could be enhanced.
10. ENR to identify appropriate indicators for monitoring and assessing environmental and landscape change (including those resulting from climate change) that could be established in the Dehcho.
11. ENR 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 2010 Dehcho Regional Wildlife Workshop Action Items

Presented by Nic Larter, ENR Fort Simpson





Item #1

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

Action:
 On 13 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.

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

Item #2

Secure funding to host another Regional Wildlife Workshop in 2012. The current timing of the workshop is good.

Action: Secured funding to conduct 6th 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

Work with DFN seeking funds to continue providing summer youth ecology camps (if possible extend the length of camps) and tailor camp policies for each camp; policies should be reviewed before each camp.

Action: Funding was acquired for the 2011 camp at Rabbitkettle Lake, and the 2012 camp at Sandy Creek. DFN is pursuing avenues of funding for longer camps. Camp policies were tailor made for camps and reviewed prior to camps.

Park becomes open-air classroom

Item #4

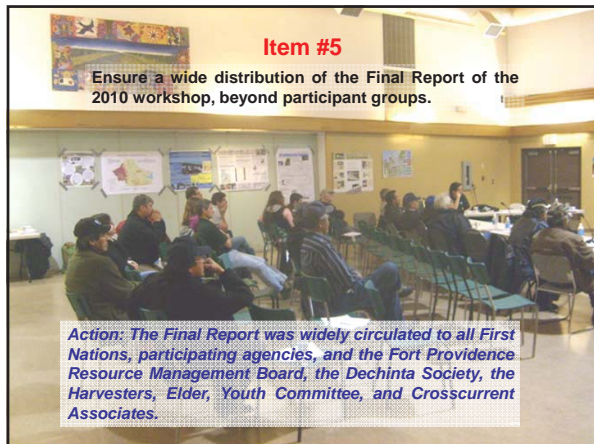
Try to communicate with the schools to see if students at the ecology camp could receive Career Technology Studies (CTS) credits. This may encourage increased student participation.

Action: Open dialogue with TSS resulted in students receiving CTS credits for the 2011 camp. We were unable to arrange for CTS credits in 2012.

Rabbitkettle Lake Ecology Camp 2011

Item #5

Ensure a wide distribution of the Final Report of the 2010 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 post 2010 Final Report on the ENR website and try to post digital copies of Final Reports from previous workshops.




Action: The 2010 Final Report was posted on the ENR website. We also posted the final reports for 2004, 2006, and 2008. We continue to work on getting the 2002 Final Report digitized for posting.

http://www.enr.gov.nt.ca/_live/pages/wpPages/Western_NWT_Biophysical_Study.aspx

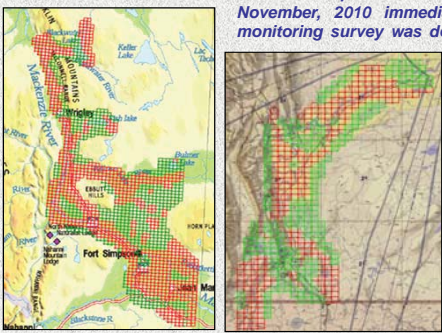
Item #7

Provide hard copies of the 2010 Final Report to DFN leadership in time for the winter leadership meeting and make posters available as well.



Action: Digitized copies were provided to DFN leadership two weeks before their winter leadership meeting. There was no request for posters.

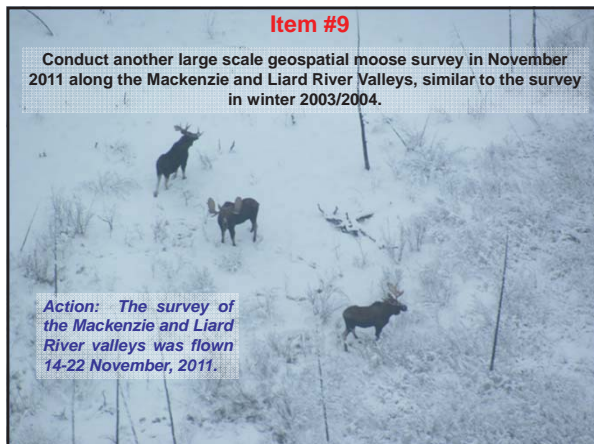
Item #8 Distribute large scale geospatial moose survey maps to First Nation partners so local harvesters can update survey blocks and modify the survey area for a more accurate moose survey.



Action: Maps were forwarded in November, 2010 immediately after the monitoring survey was done. Comments and suggestions were incorporated into the survey design for 2011.

Item #9

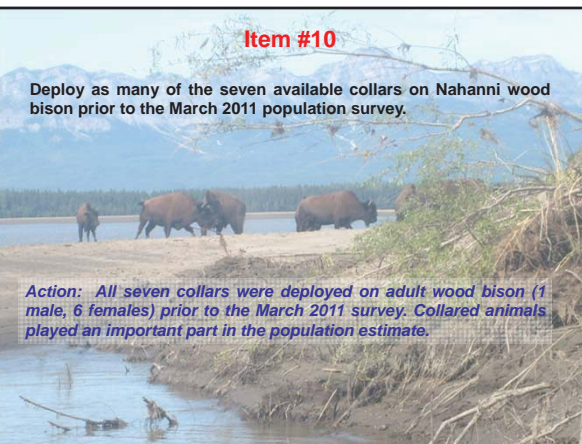
Conduct another large scale geospatial moose survey in November 2011 along the Mackenzie and Liard River Valleys, similar to the survey in winter 2003/2004.




Action: The survey of the Mackenzie and Liard River valleys was flown 14-22 November, 2011.

Item #10

Deploy as many of the seven available collars on Nahanni wood bison prior to the March 2011 population survey.



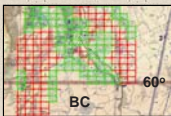
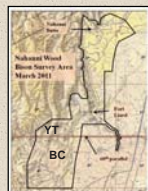
Action: All seven collars were deployed on adult wood bison (1 male, 6 females) prior to the March 2011 survey. Collared animals played an important part in the population estimate.



Item #11

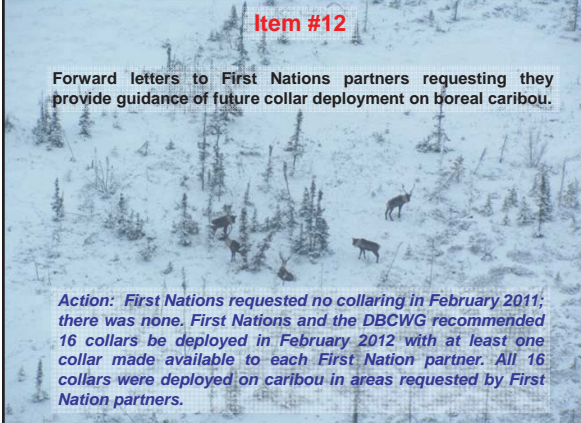
Extend the current moose and bison survey areas south of 60°N to include traditional moose harvesting areas of Acho Dene Koe Band in northeastern British Columbia.

Action: Contacted the Government of British Columbia and the Yukon Territorial Government and received approval to extend the bison survey into YT and BC and the moose survey into BC.

Item #12

Forward letters to First Nations partners requesting they provide guidance of future collar deployment on boreal caribou.



Action: First Nations requested no collaring in February 2011; there was none. First Nations and the DBCWG recommended 16 collars be deployed in February 2012 with at least one collar made available to each First Nation partner. All 16 collars were deployed on caribou in areas requested by First Nation partners.

Item #13

Follow up with Dehcho First Nations Grand Chief on the formation of a working group for boreal caribou.



Action: Started discussion in November 2010. The Dehcho Boreal Caribou Working Group was established and had its first meeting on 10 February, 2011. The group has met quarterly since.

Item #14

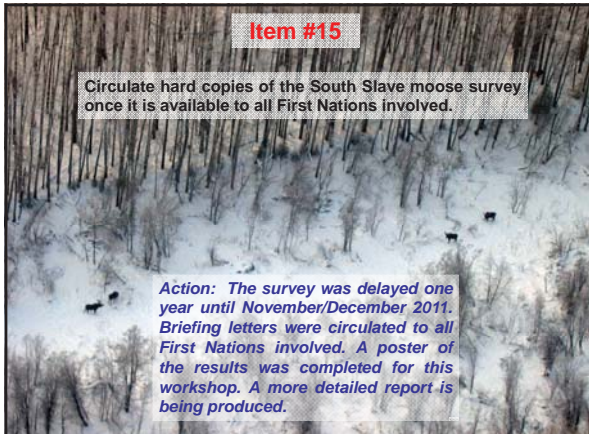
ENR requests that Dehcho First Nations submit names for membership on the Nahanni Bison Management Plan committee.



Action: Meetings were held in May 2011 in Nahanni Butte and Fort Liard and names for the committee were submitted by Nahanni Butte Dene Band and Acho Dene Koe Band. There have been two committee meetings in Nahanni Butte since (December 2011 & June 2012).

Item #15

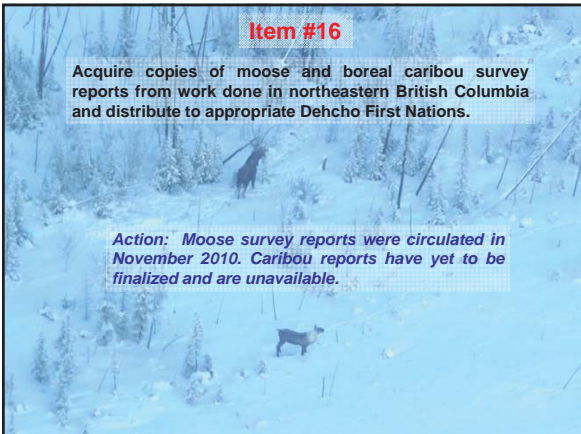
Circulate hard copies of the South Slave moose survey once it is available to all First Nations involved.



Action: The survey was delayed one year until November/December 2011. Briefing letters were circulated to all First Nations involved. A poster of the results was completed for this workshop. A more detailed report is being produced.

Item #16

Acquire copies of moose and boreal caribou survey reports from work done in northeastern British Columbia and distribute to appropriate Dehcho First Nations.



Action: Moose survey reports were circulated in November 2010. Caribou reports have yet to be finalized and are unavailable.

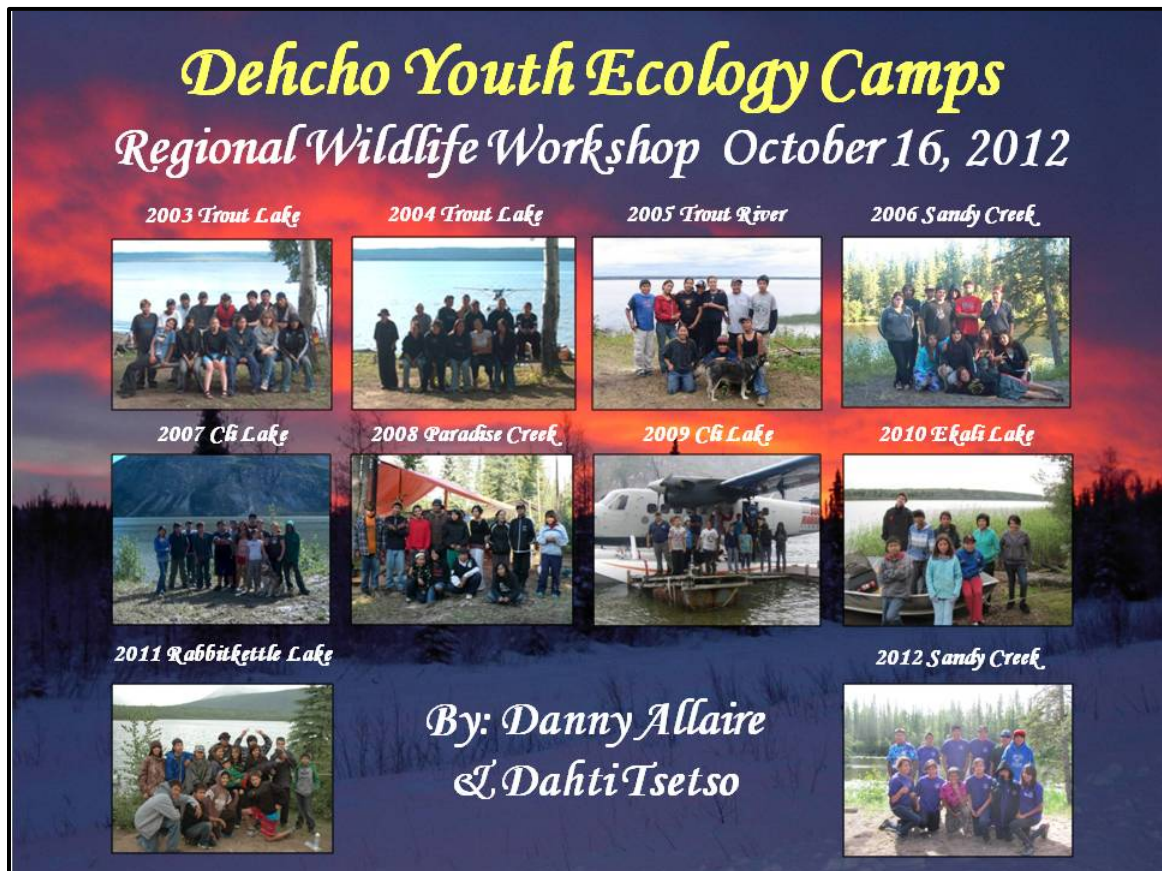
Programs/Projects Dehcho ENR Undertook/Participated in Since 2002

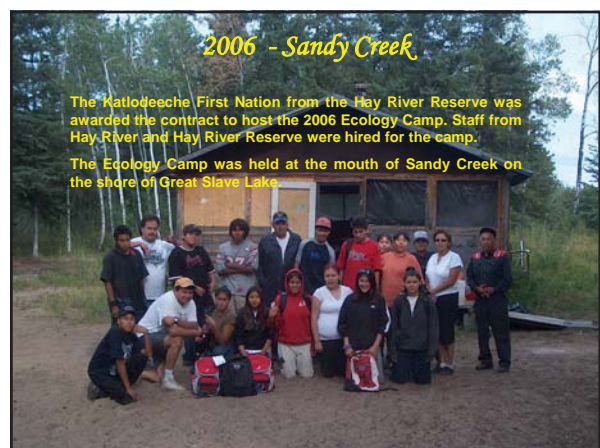
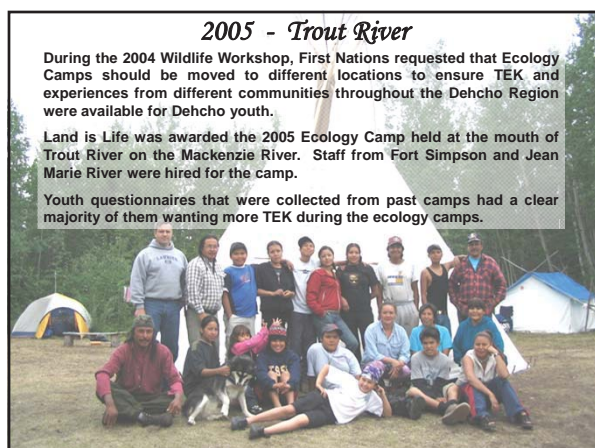
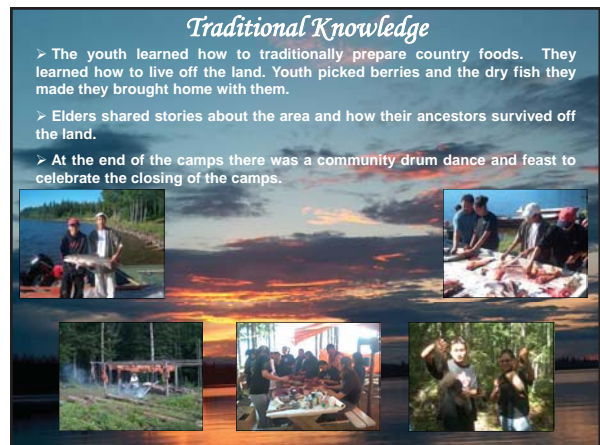
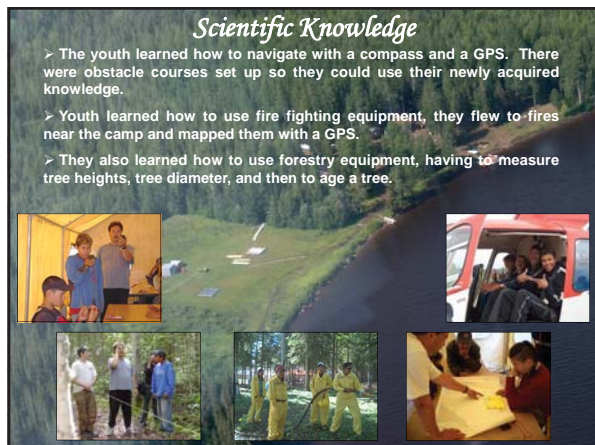
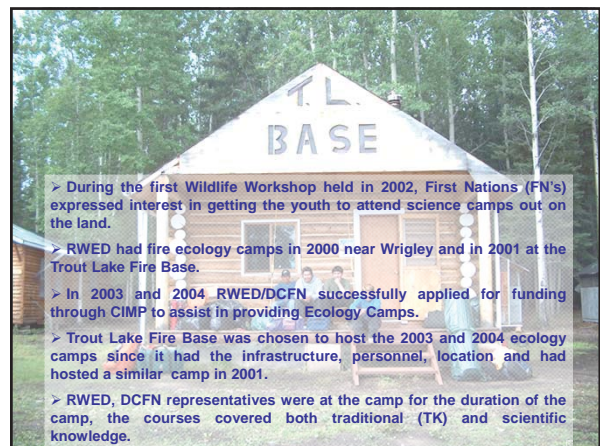
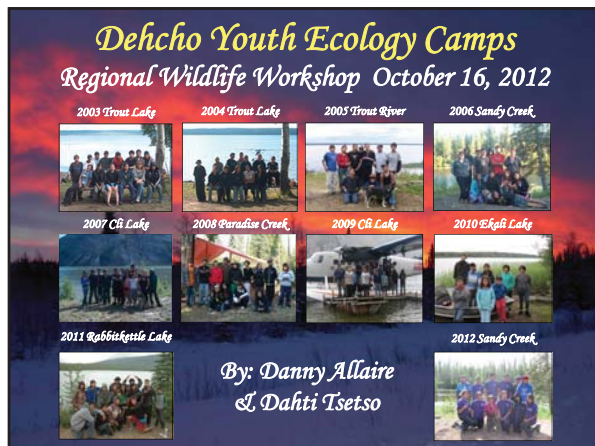
- Problem Bear Disease/Parasites Monitoring
- Diseased/Parasitized/Injured Wildlife Sampling
- Wolf Carcass/Stomach Collection and Disease Monitoring
- Small Mammal Trapping and Hare Turd Counts
- Beaver and Moose Heavy Metal and Contaminant Level
- Tourist and Staff Wildlife Observation
- Edehzhie and area Wildlife Survey
- Samba K'a Candidate Protected Area Wildlife Survey
- Boreal Caribou Survey/Satellite, GPS, VHS Collar Deployment
- Boreal Caribou Disease and Parasite 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
- Dall's Sheep, Mountain Goat, Mountain Caribou Heavy Metal and Contaminant Level
- Non-Resident Hunter Harvest Monitoring/Sampling
- Mountain Goat Surveys Flat River, Ragged Range
- Monitoring Erlicata Grouse Survey
- Monitoring Wildlife Observations from Camtong and Enbridge
- 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

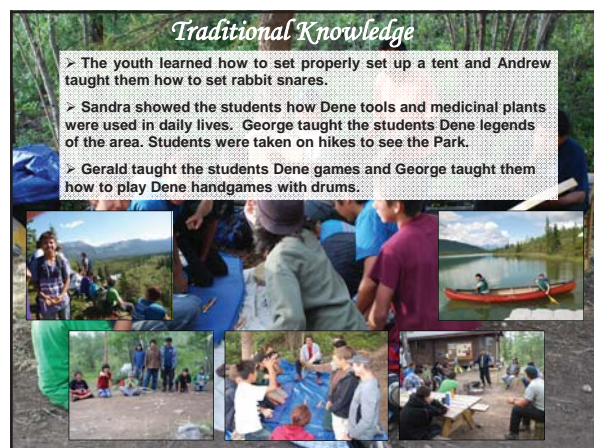
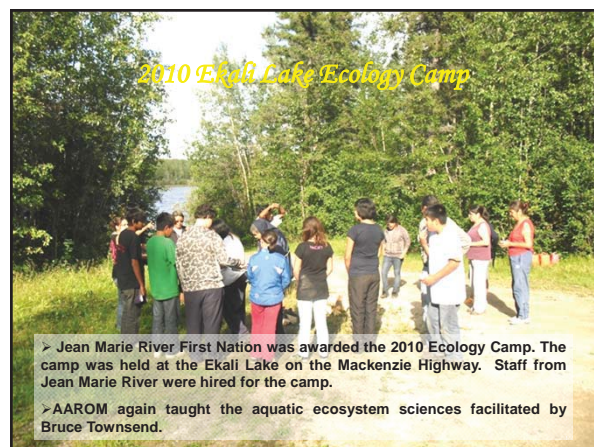
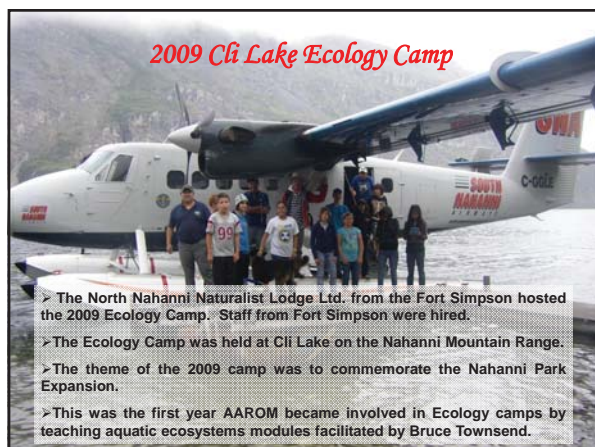
Appendix 2.

Dehcho Youth Ecology Camps

Presented by Danny Allaire, ENR Fort Simpson and Dahti Tsetso, DFN








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 the lake and used scientific equipment to do experiments.
- Parks taught the youth how to reduce their footprint on the environment.




2012 - Sandy Creek

- The Katlodeeche First Nation from the Hay River Reserve was awarded the contract to host the 2012 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.




Traditional Knowledge

- Youth learned how to make a signal fire, in case of emergency.
- They learned how to paddle a canoe.
- The students took turns checking the fish net.
- Clara Lafferty and Fred Tambour showed the students how to prepare fish and how to feed the lake with an offering.
- Georgina Fabian taught the student about medicinal plants.



Scientific Knowledge

- Bruce and Mike from AAROM taught 8 modules on water ecology to the students. Mercury was added to the modules.
- 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.



Species At Risk




- Stephanie Yuill came from Yellowknife to facilitate a learning module on Species at Risk.
- She used bats to teach the youth about how Species at Risk legislation works.
- She had the youth put baby powder on their noses to demonstrate and teach how 'white-nose syndrome' is affecting bat populations.





Where do we go from here?

Questions?
Comments?



Appendix 3.

Dehcho Caribou Program

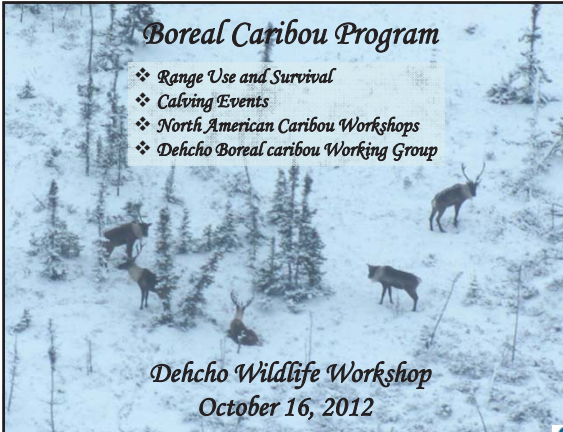
Presented by Nic Larter, ENR Fort Simpson



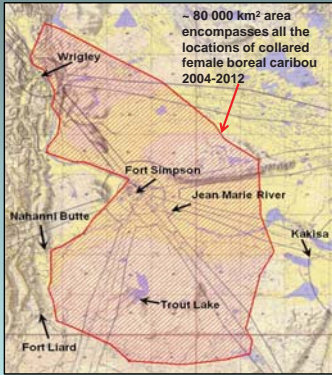
Boreal Caribou Program

- ❖ Range Use and Survival
- ❖ Calving Events
- ❖ North American Caribou Workshops
- ❖ Dehcho Boreal caribou Working Group

*Dehcho Wildlife Workshop
October 16, 2012*



Collars in the Dehcho

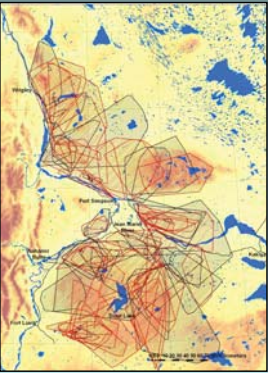


~80 000 km² area encompasses all the locations of collared female boreal caribou 2004-2012

- ❖ At First Nations request no collars were deployed on caribou in February 2011; 16 collars were deployed on caribou in February 2012 to ensure ≥30 collared females for the calving season.
- ❖ 8 collars have released and 7 females died leaving 25 currently active collars.
- ❖ In April 2011, a caribou collared in March 2005 with no release mechanism was shot by a Wrigley harvester; he said that it was fat and healthy.
- ❖ The collar had been on the caribou for 73 months.
- ❖ We retrieved 5 collars and purchased 5 additional GPS collars.


Home Ranges

- ❖ We now have annual ranges of 62 female boreal caribou.
- ❖ Some females have larger and some females have smaller home ranges.
- ❖ The average size of range is 3294km².
- ❖ Female caribou need a lot of space; they space out during the calving season to avoid predators.
- ❖ Red ranges are females with satellite collars.
- ❖ Black ranges are females with GPS collars.



Survival of Boreal Caribou

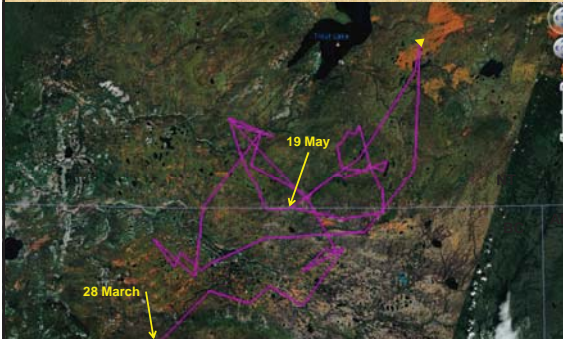
- ❖ We estimate adult female survival by comparing how many collared females we have at the start of the year with how many of those same females we have at the end of the year.
- ❖ We can tell how many collared females have calves by looking at the female movement patterns. In March we fly a survey to see how many collared females have calves with them.
- ❖ Adult female survival has remained fairly constant over the past 5 years; the survival of calves has been higher over the past 3-4 years.
- ❖ However, this was not the case before then, and we remain cautiously optimistic that the Dehcho caribou population is relatively stable.



Year	Survival (%)	Recruitment (%)
'05-06	~75	~25
'06-07	~75	~25
'07-08	~85	~25
'08-09	~85	~25
'09-10	~85	~25
'10-11	~85	~75
'11-12	~85	~75

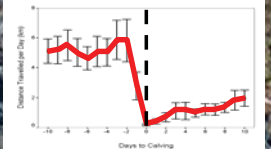
Wolf collared in NE British Columbia

- ❖ 28 March, 2012 to 19 May, 2012 movements of wolf pack.
- ❖ Spent a lot of time and did lots of travelling north of 60°.
- ❖ Approximately 150km between the two 's'; cover a lot of ground.




Caribou calving events

- ❖ We can look how a female caribou moves during the calving period and tell when and where she had a calf or if she did not have a calf.
- ❖ Daily movement rates drop dramatically from 6 km/day prior to calving to 0.2km/day on the day of calving and remain <1 km/day for about a week post-calving.
- ❖ We looked at movements of all of the collared caribou during the calving period from 2004 to 2012 and found some very interesting things.



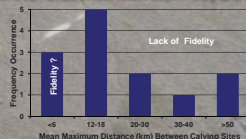
Timing of Calving Events



- ❖ From 2004-2012 collared caribou gave birth to 189 calves.
- ❖ Only 12 times were calves not born.
- ❖ Individuals had remarkable individual consistency in calving dates.
- ❖ There were 13 females that calved every year for 4 straight years.
 - ❖ Two of 13 had all of their calves born within a 3 day period.
 - ❖ Two of 13 had 3 of their 4 calves born on the same date.
- ❖ One female collared in February 2010 has had her calf born on the same day in 2010, 2011, and 2012.
- ❖ Wearing a collar does not seem to have stopped females from getting pregnant and bearing calves.

Do caribou calve in the same place all the time?

- ❖ Boreal caribou in the Dehcho can live to 17 years and can have a calf at 16 years and the longest time we have with collared animals is four consecutive years.
- ❖ We measured the distance between successive calving events and all calving events for the 13 females who have calved every year for 4 years.
- ❖ Some females liked the same place for calving over 4 years while others did not.
- ❖ Six females had successive calving locations <1300m away, with 1 <300m away.
- ❖ The average distance between four calving locations was <6km for three females.
- ❖ Contrastingly the mean distance for 3 other females was >30km.
- ❖ Individual fidelity over a 3-4 year period may have implications for disturbance mitigation.



Mean Maximum Distance (km) Between Calving Sites	Frequency Occurrence
<6	1
12-18	5
20-30	2
30-40	1
>50	2

North American Caribou Workshops

ENR attended the 13th NACW (2010) in Winnipeg presenting work with Sambaa K'e titled "Combining Traditional and Scientific knowledge: a Mbedzih (woodland caribou) field study by the Sambaa K'e Dene Band" and also on "Alternate prey, predators, linear development and wildfires: a complex system for boreal caribou in the Dehcho, NWT".

ENR attended the 14th NACW (2012) Fort St. John where we presented the Dehcho calving events story.


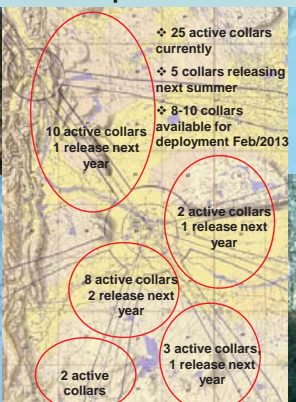
When at these workshops we are constantly reminded of how fortunate we are in the NT to have relatively thriving caribou populations, the opportunity to maintain them and learn from the mistakes elsewhere.

A healthy boreal forest will sustain a healthy boreal caribou population.

Dehcho Boreal Caribou Working Group

- ❖ Created in February 2011 the group has met 5 times either via teleconference or in person.
- ❖ Has reviewed and advised on current boreal caribou research in the Dehcho.
- ❖ Has made recommendations to Forest Management Division about areas of important boreal caribou habitat that should be considered for fire suppression.
- ❖ Has made recommendations to ENR Wildlife on how boreal caribou should be handled and the types of collars to be deployed for continue monitoring of the Dehcho boreal caribou population.

Continued Population Monitoring

- ❖ 25 active collars currently
- ❖ 5 collars releasing next summer
- ❖ 8-10 collars available for deployment Feb/2013

10 active collars 1 release next year


2 active collars 1 release next year

8 active collars 2 release next year

3 active collars 1 release next year

2 active collars

Again, 1 collar available per First Nation partner for 2013 deployment



Acknowledgements

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, Eric Betsaka, Fred Tesou, Darcy Moses, Tim Lennie, Stanley Sanguet, Isidore Simon, Steve Kotchea, Marie Lafferty, Ernie McLeod, and Harry Deneron. We thank Jonas Antoine, Edward Cholo, Steven Cui, Peter Corneille, David Jumbo, Edward Jumbo, Fred Jumbo, Jessica Jumbo, Tony Jumbo, Victor Jumbo, Ronnie Kotchea, Jonas Lafferty, Andrew Lomen, Raymond Minoza, and Jonas Sanguet for their assistance with various aspects of the program.

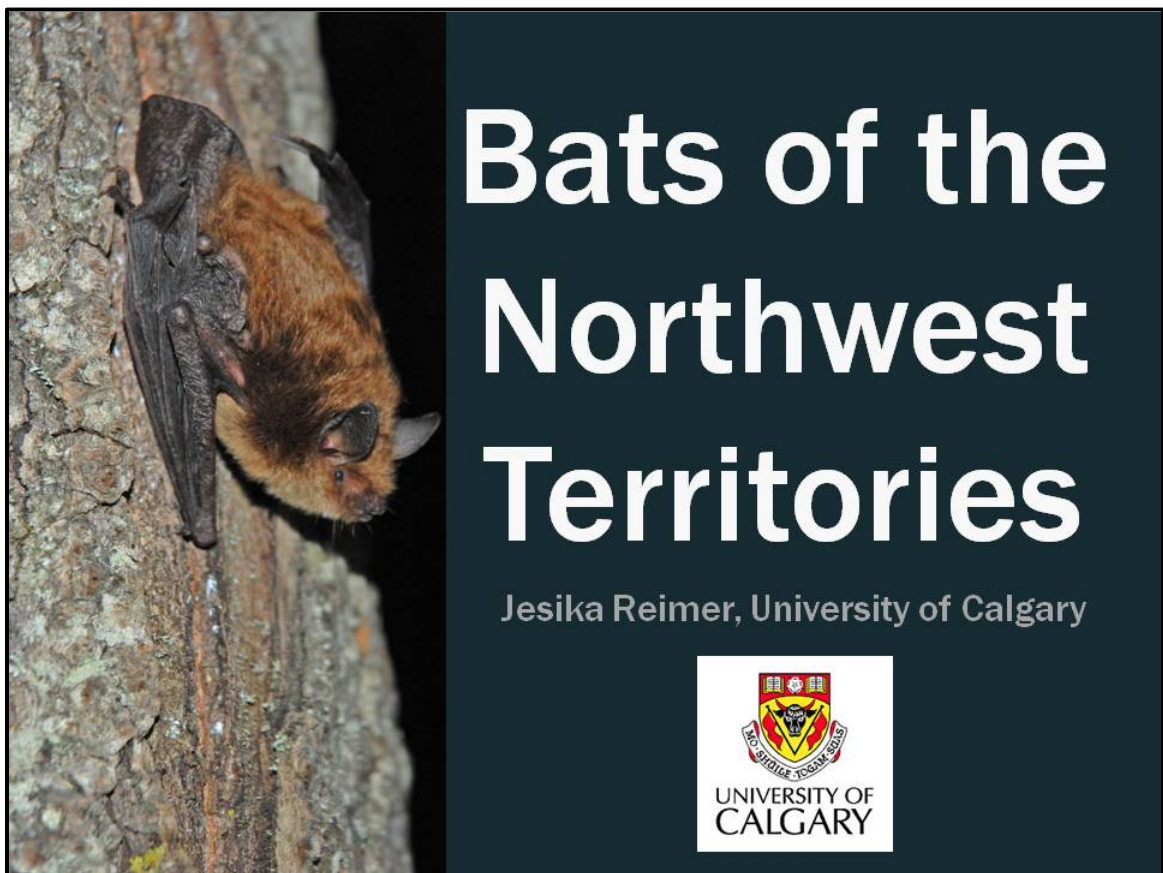
Additional funds came from Environment Canada, and the Cumulative Impacts Monitoring Program (AANDC).




Appendix 4.

Bats of the Northwest Territories: Current Status and Potential Concerns


Presented by Jesika Reimer, University of Calgary








Bats of the Northwest Territories

Jesika Reimer, University of Calgary



BATS

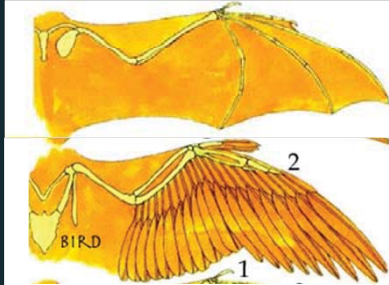
Diversity of species General Biology	Bats in the Dehcho	Potential Risks
		

What are bats?



Credit: Joe and Mary Ann McDonald

Chiropterans



"Chiro"=Hand "Ptera"=Wing



thumb

4 fingers

Flying Rodents?

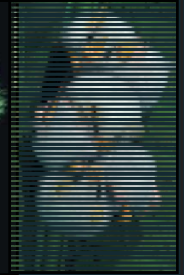
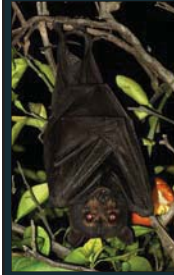



Flying Grizzly Bears!



How many bat species?

OVER 1200!!



Diversity of species



Diversity of Foraging Styles

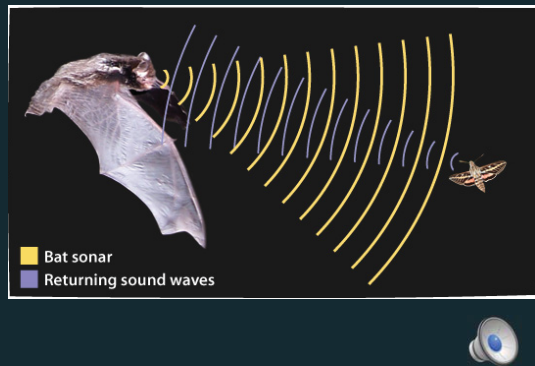


Diversity of Foraging Styles



common
latrodectus
pallidus

Echolocation



Anabat Detectors



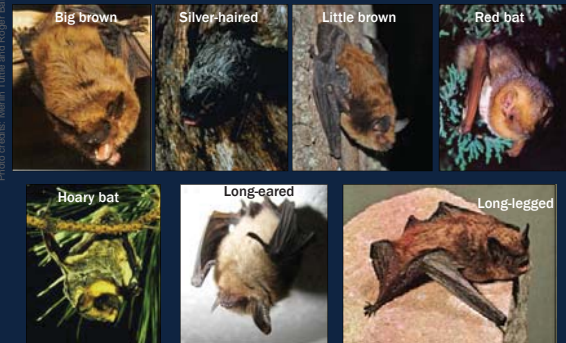
Bats of the Northwest Territories

Photo credits: Merin Tuttle and Roger Barbour



Bats of the Dehcho Region

Photo credits: Merin Tuttle and Roger Barbour

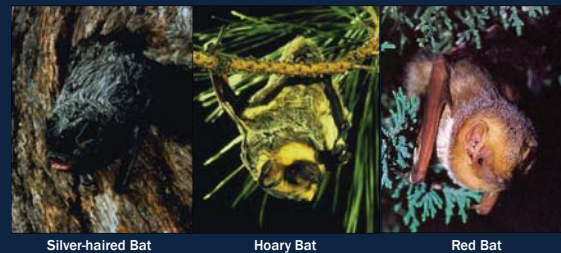


THE BAT TEAM



Cori Lausen, a bat biologist from the University of Calgary, led the bat survey. She was helped by John Waitthaka, a **Conservation** Biologist with Parks Canada, Kim Schlosser and Jarrett Hardisty, Parks Canada field staff.

Migratory species



Resident Hibernators



Little Brown Bat

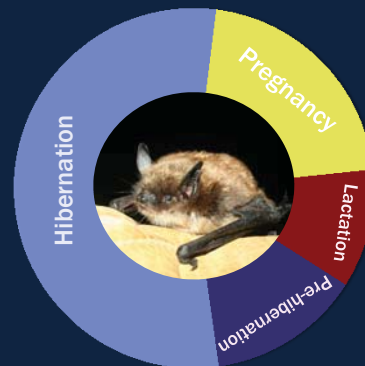


Big Brown Bat

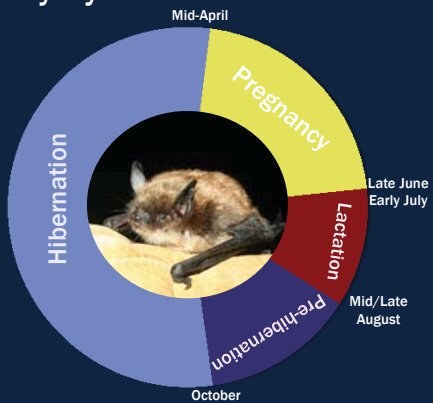


Northern long-eared Bat

Yearly Cycle – Little Brown Bat



Yearly Cycle – Little Brown Bat



Diversity of roost selection



Bats in trees



Bats in Cabins



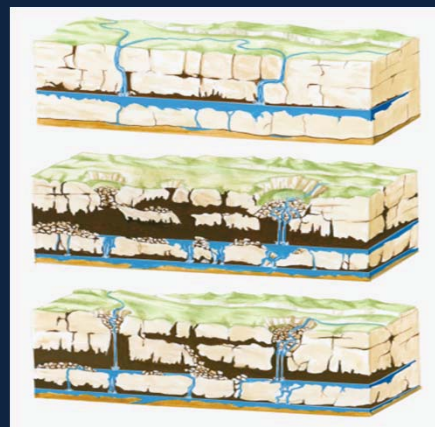
Large bat house structures



Rocks and Caves



Bats in Caves

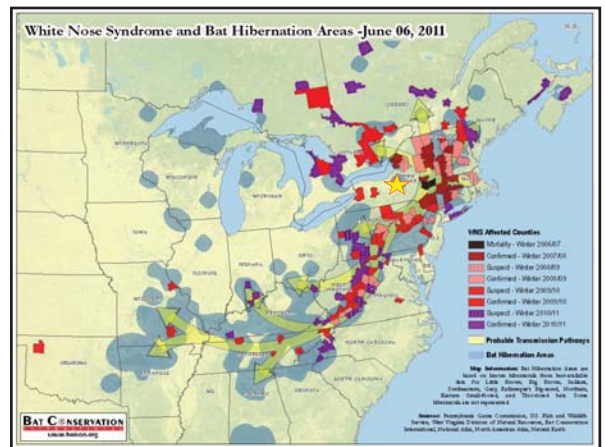
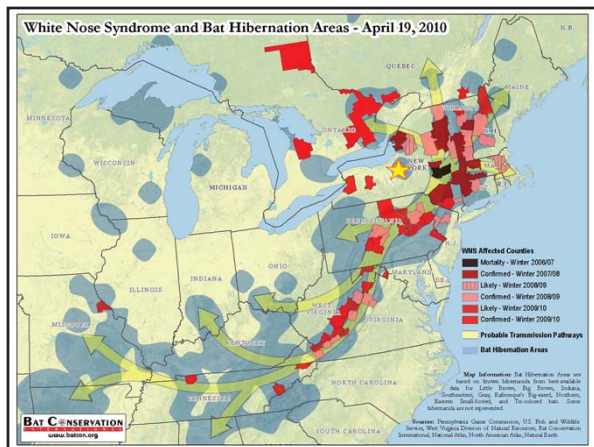
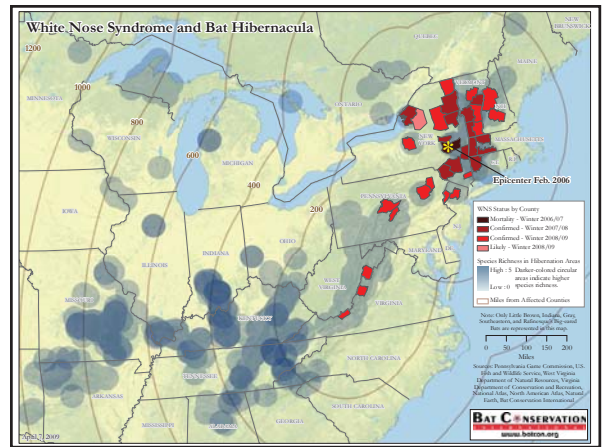
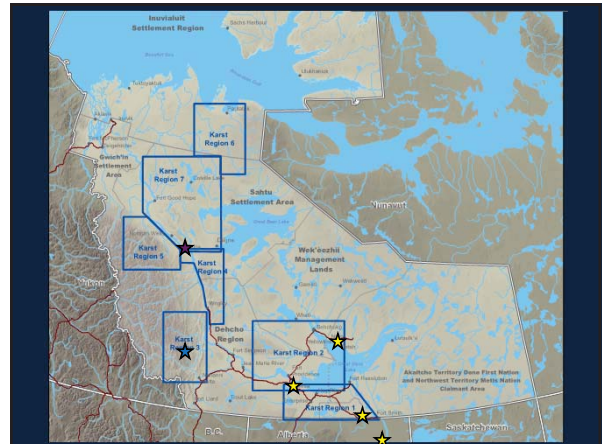
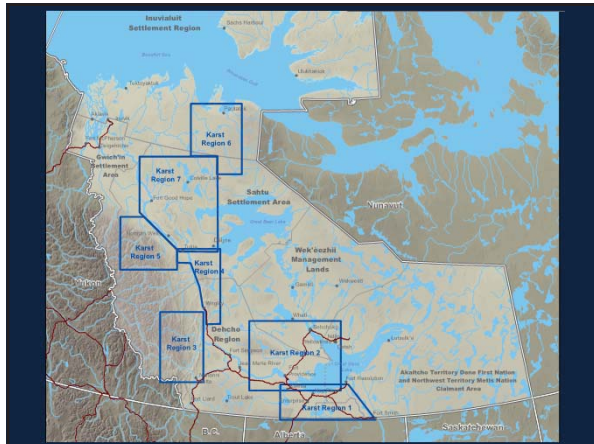


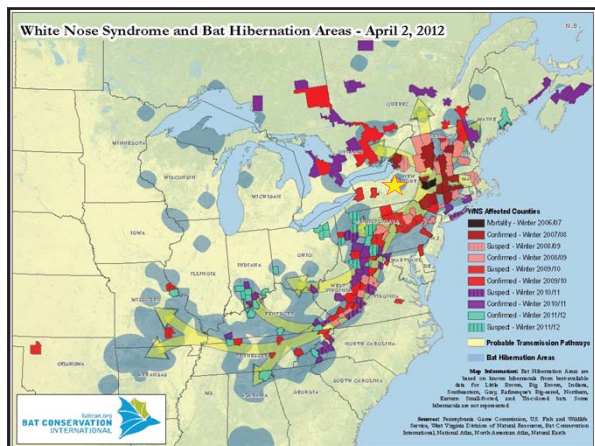
Winter Hibernation Sites



Winter Hibernation Sites







Affected species

6 species are infected in North America

Affected species

6 species are infected in North America

NWT species prone to infection:

Affected species

6 species are infected in North America

NWT species prone to infection:

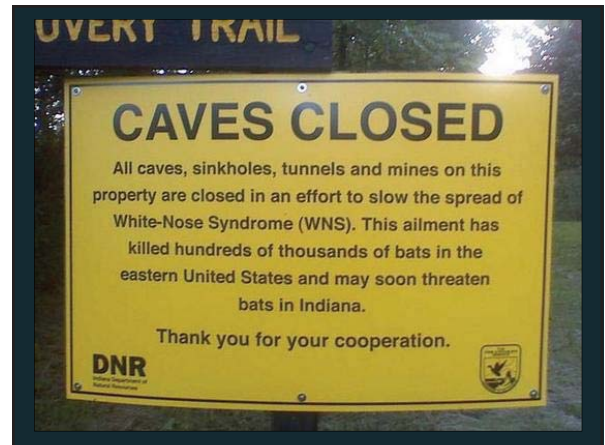
91 % 41 % 98 %



Geomyces destructans

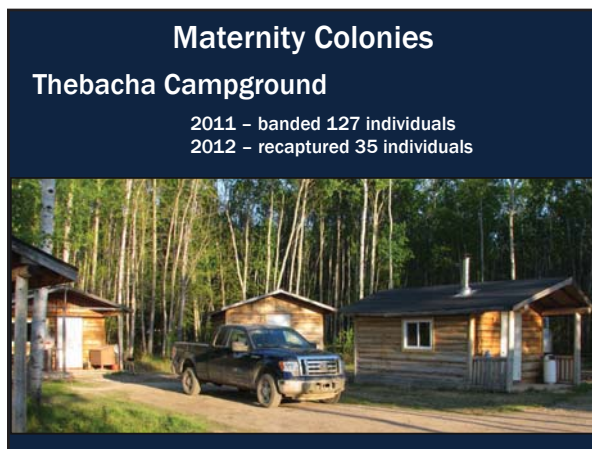


Winter Hibernation Sites – Karst Caves



Wing Condition Index





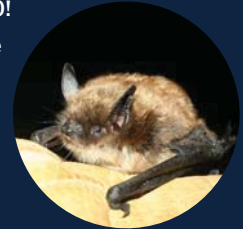
How are NWT bats different from Southern populations?



- Hibernate in cooler caves
- Emerge from hibernation at cooler temperatures
- Feed for shorter times
- Give birth later in the summer
- Return to maternity roosts

What we know so far...

- 8 different species – *migratory & residents*
- Great hibernation sites
- Large, healthy populations
 - Captured close over 1000!
- No white nose syndrome



What more is there to know?



- Feeding efficiency
- Population numbers
- More detailed surveys
- Keep monitoring for whitenose syndrome

Special thanks to:

Brandon Klug

Julian Melnyck

Laura Kaupas

Fort Smith Metis Association

Fort Smith Paddling Club

Appendix 5.

Dehcho Moose Program

Presented by Nic Larter, ENR Fort Simpson

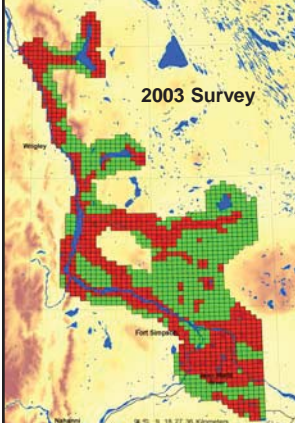


Dehcho Moose Program

- Large-scale Population Survey
- Annual Monitoring Surveys
- Monitoring Contaminants
- 7th International Moose Symposium


Dehcho Wildlife Workshop
October 16, 2012

2003 Survey

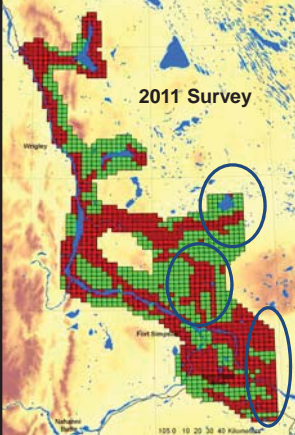


Changes to Survey Design

- Held community meetings seeking advice on changes to improve the survey along the Mackenzie River.
- Discuss changes in survey area, survey coverage and reclassifying blocks based upon regrowth and local knowledge.



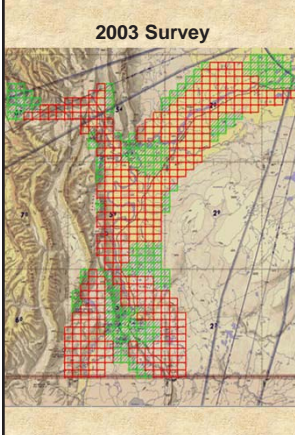
2011 Survey



Changes


- Extended survey area to east along Mackenzie River.
- Reduced survey area around Bulmer Lake.
- Reclassified blocks west of Jean Marie River and near the Horn Plateau.
- Increased survey coverage to 8.3% (121 blocks) by reducing coverage to 12.8% (67 blocks) in Liard River survey.

2003 Survey

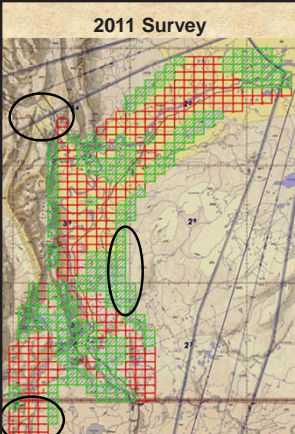


Changes to Survey Design

- Held community meetings seeking advice on changes to improve the survey along the Liard River.
- Discuss changes in survey area (including into British Columbia), survey coverage and reclassifying blocks based upon regrowth and local knowledge.



2011 Survey

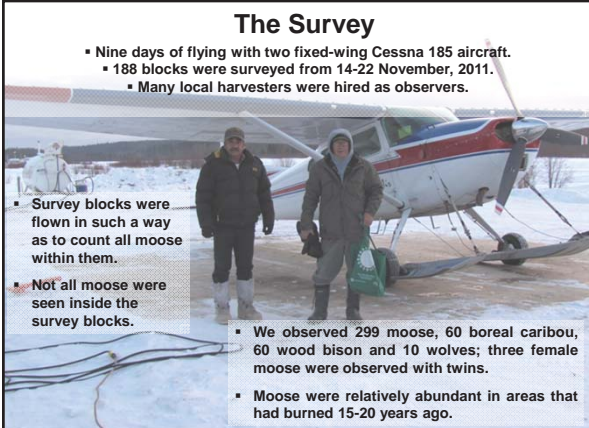


Changes

- Removed areas within Nahanni National Park Reserve from survey area.
- Included a portion of NE British Columbia in the survey area at the request of ADKB.
- Reclassified blocks along the east of the survey area based upon more recent local knowledge.
- Decreased survey coverage to 12.8% (67 blocks) to allow for increased coverage of the Mackenzie River survey to 8.3% (121 blocks).

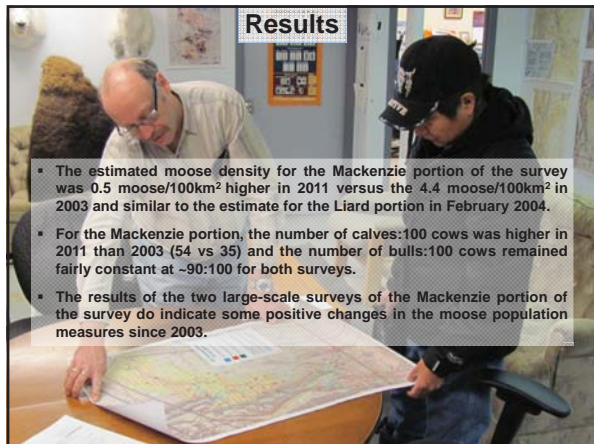
The Survey

- Nine days of flying with two fixed-wing Cessna 185 aircraft.
- 188 blocks were surveyed from 14-22 November, 2011.
- Many local harvesters were hired as observers.



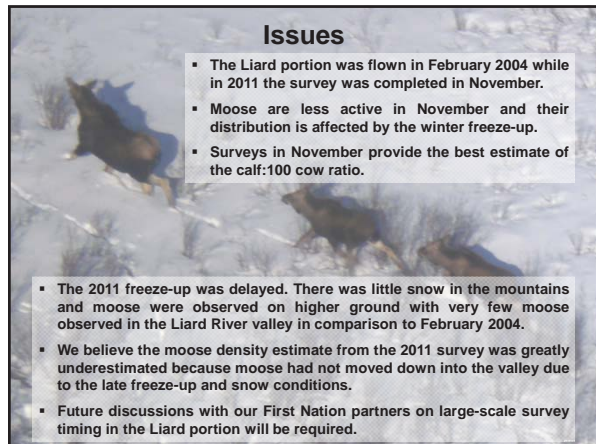
- Survey blocks were flown in such a way as to count all moose within them.
- Not all moose were seen inside the survey blocks.
- We observed 299 moose, 60 boreal caribou, 60 wood bison and 10 wolves; three female moose were observed with twins.
- Moose were relatively abundant in areas that had burned 15-20 years ago.

Results



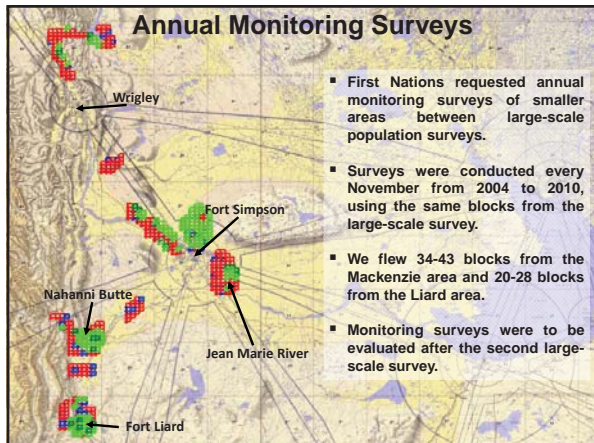
- The estimated moose density for the Mackenzie portion of the survey was 0.5 moose/100km² higher in 2011 versus the 4.4 moose/100km² in 2003 and similar to the estimate for the Liard portion in February 2004.
- For the Mackenzie portion, the number of calves:100 cows was higher in 2011 than 2003 (54 vs 35) and the number of bulls:100 cows remained fairly constant at ~90:100 for both surveys.
- The results of the two large-scale surveys of the Mackenzie portion of the survey do indicate some positive changes in the moose population measures since 2003.

Issues



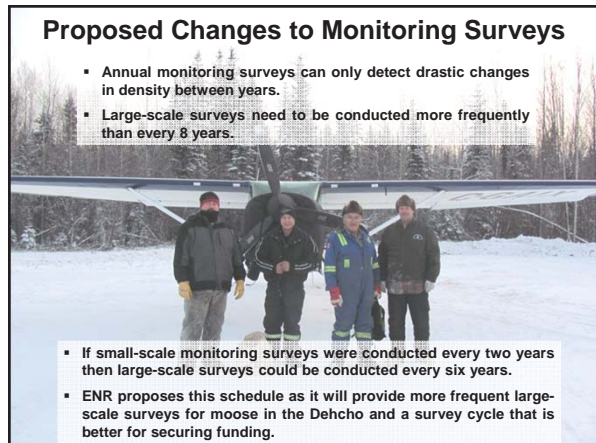
- The Liard portion was flown in February 2004 while in 2011 the survey was completed in November.
- Moose are less active in November and their distribution is affected by the winter freeze-up.
- Surveys in November provide the best estimate of the calf:100 cow ratio.
- The 2011 freeze-up was delayed. There was little snow in the mountains and moose were observed on higher ground with very few moose observed in the Liard River valley in comparison to February 2004.
- We believe the moose density estimate from the 2011 survey was greatly underestimated because moose had not moved down into the valley due to the late freeze-up and snow conditions.
- Future discussions with our First Nation partners on large-scale survey timing in the Liard portion will be required.

Annual Monitoring Surveys



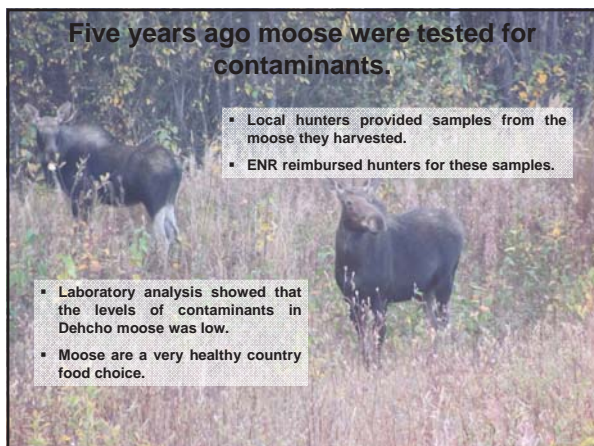
- First Nations requested annual monitoring surveys of smaller areas between large-scale population surveys.
- Surveys were conducted every November from 2004 to 2010, using the same blocks from the large-scale survey.
- We flew 34-43 blocks from the Mackenzie area and 20-28 blocks from the Liard area.
- Monitoring surveys were to be evaluated after the second large-scale survey.

Proposed Changes to Monitoring Surveys



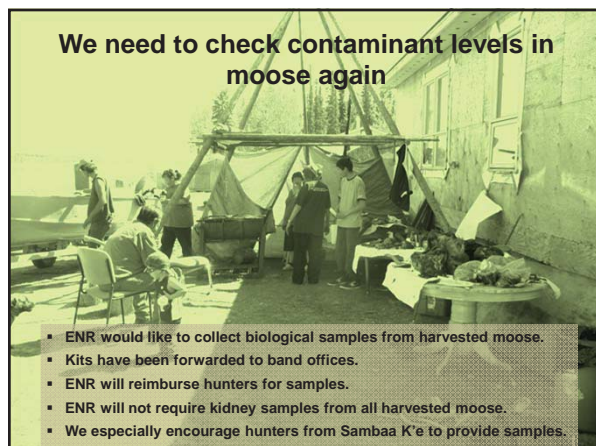
- Annual monitoring surveys can only detect drastic changes in density between years.
- Large-scale surveys need to be conducted more frequently than every 8 years.
- If small-scale monitoring surveys were conducted every two years then large-scale surveys could be conducted every six years.
- ENR proposes this schedule as it will provide more frequent large-scale surveys for moose in the Dehcho and a survey cycle that is better for securing funding.

Five years ago moose were tested for contaminants.



- Local hunters provided samples from the moose they harvested.
- ENR reimbursed hunters for these samples.
- Laboratory analysis showed that the levels of contaminants in Dehcho moose was low.
- Moose are a very healthy country food choice.

We need to check contaminant levels in moose again



- ENR would like to collect biological samples from harvested moose.
- Kits have been forwarded to band offices.
- ENR will reimburse hunters for samples.
- ENR will not require kidney samples from all harvested moose.
- We especially encourage hunters from Sambaa K'e to provide samples.



Appendix 6.

Dehcho Bison Program

Presented by Nic Larter, ENR Fort Simpson




Nahanni Wood Bison Program

- Collared Bison
- 2011 Population Survey
- Range Expansion
- Sex and Age Classification Surveys
- NWT Wood Bison Strategy
- Anthrax

Dehcho Wildlife Workshop
October 16, 2012

Bison Collaring

- As requested, three GPS and four satellite collars were deployed on 6 females and 1 male during February/March, 2011 prior to the population survey.
- We used a dart gun and drugs to immobilize bison.
- Collars were deployed in both ADKB and NBDB traditional areas.



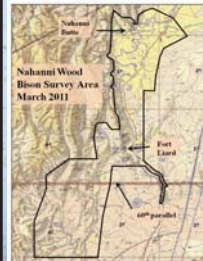

Bison Collaring

- Satellite collars provide daily locations; GPS collars provide two locations/day.
- Location data from collared animals has provided important information on movements and range use.
- Collared animals provide information on sightability in different habitats which is critical for interpreting the results of the population survey.

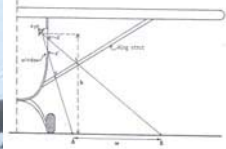


March 2011 Population Survey


- Last survey in March 2004.
- The 2011 survey covered 7600km² a slightly larger area than in 2004.

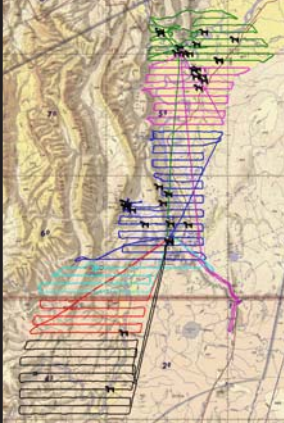
March 2011 Population Survey



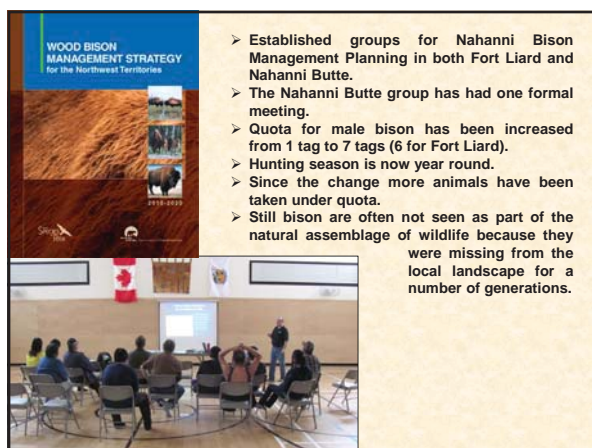
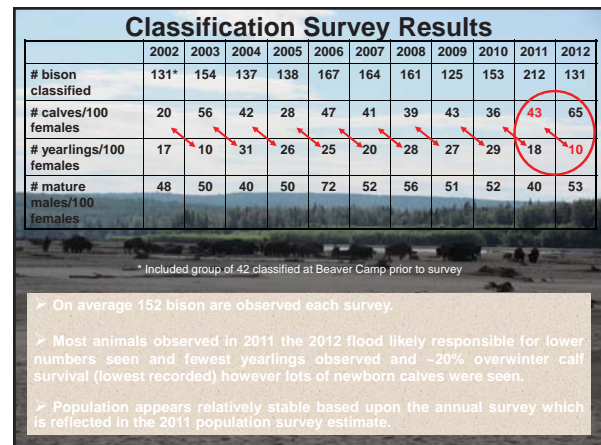
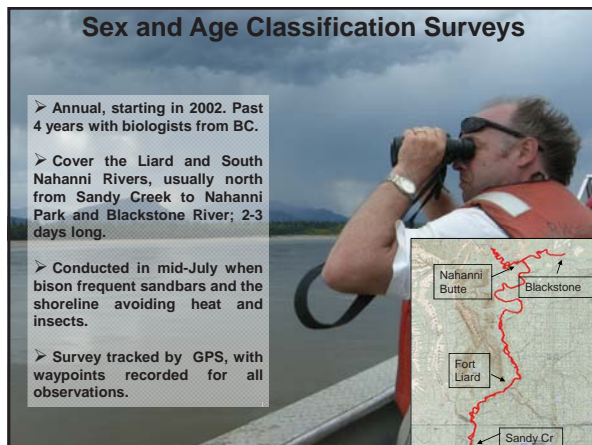
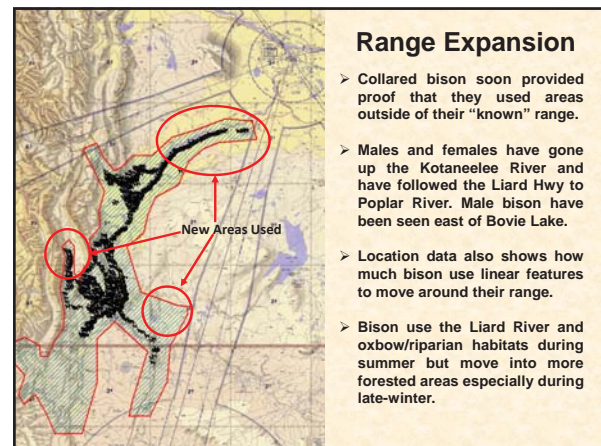
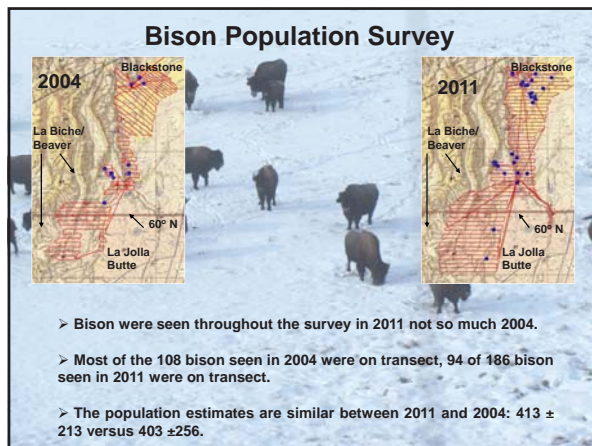
- Aerial strip transect survey using a fixed-wing Cessna 185 aircraft.
- Lines ~ 3.5km apart.
- Flown ~ 400 ft above ground.
- Struts marked so a 500m swath could be seen per side.
- In forested habitats the swath was reduced to 100m/side.
- Flew 55 transect lines.
- Hired observers from Fort Liard and Nahanni Butte.

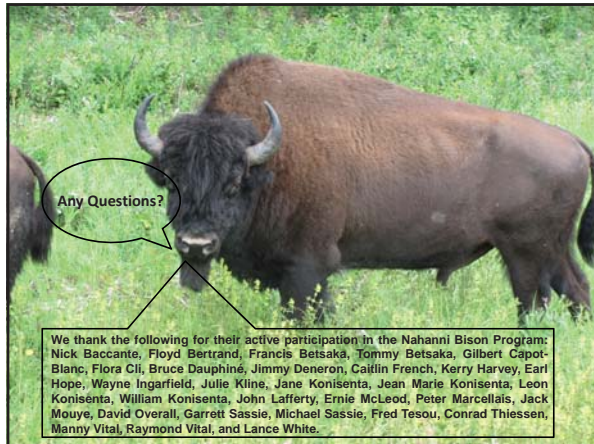


Population Survey



- Flew over 3,400 km of flight lines during survey.
- Survey area included NE British Columbia and SE Yukon.
- Coverage 30% for NT and 27% for BC/YT.
- All wildlife observed was recorded with a GPS.
- We located all 7 collared bison.
- We saw 186 bison, 79 moose, 1 otter, signs of 2 wolf packs and areas of caribou cratering.
- Ninety-four bison were seen on transect.
- Estimated 431 animals (\pm 213 the 95% confidence interval).
- Bison sightability determined from locating collared bison improved the accuracy the estimate.
- Poster of results provided to First Nations partners.





Appendix 7.

Anthrax, Bison and Humans: the Mackenzie Herd

Presented by Brett Elkin, ENR Yellowknife



The slide features a blue background with a wavy pattern at the top. The title "Anthrax and Mackenzie Bison Herd" is written in a light blue, sans-serif font. Below the title, the date "October 16, 2012" and the event name "Dehcho Wildlife Workshop" are also in light blue. On the left side, there is a photograph of a brown bison standing in a grassy field with trees in the background. In the bottom right corner, there is a white rectangular box containing the Northwest Territories logo, which consists of a blue circle with a white bison silhouette inside. Below the logo, the text "Northwest Territories" is written in a small, black, sans-serif font, and below that, "Environment and Natural Resources" is written in a smaller, black, sans-serif font. A small white number "1" is located in the bottom right corner of the slide.

Anthrax and Mackenzie Bison Herd
October 16, 2012
Dehcho Wildlife Workshop



Northwest Territories Environment and Natural Resources

1

Anthrax and Mackenzie Bison Herd

October 16, 2012

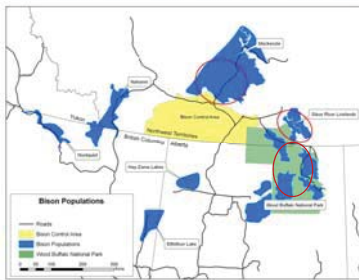
Dehcho Wildlife Workshop



What is Anthrax

- Environmental disease
- Found in the ground (spores)
- Not found in the air
- Seen in bison only in certain herds/areas
- Not found in bison droppings or feces
- Not passed animal to animal
- Must have direct contact

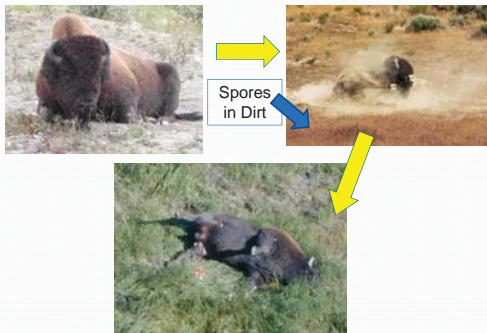
Wood Bison and Anthrax



Anthrax Outbreaks in the NWT

Mackenzie Bison Range	Slave River Lowlands	Wood Buffalo National Park
1993 - 172	1962 - 281	1963 - 47
2010 - 9	1963 - 257	1964 - 60
2012 - 440	1964 - 303	1967 - 120
	1971 - 33	1968 - 1
	1978 - 39	1978 - 47
	2001 - 12	1991 - 32
	2006 - 26	2000 - 106
	2010 - 46	2001 - 91
		2007 - 64
		2010 - 7

How do Bison Get Anthrax?



2012 Anthrax Outbreak



How Are Carcasses Treated?



7

Safety Precautions


- Report any sick or dead bison
- Do not approach or touch dead bison
- ENR staff will dispose of carcasses



8

Can Other Animals Get Anthrax?

- Rarely
- 1 black bear in 1993 (MBR) confirmed
- 1 moose in 1993 (MBR) confirmed
- 1 moose in 2010 (SRL) confirmed
- 5 moose in 2012 (MRB) unconfirmed



9

Questions?




10

Appendix 8.

Wildlife When We're Not There: Remote Monitoring in Nahanni National Park Reserve

Presented by Douglas Tate, Parks Canada Fort Simpson

The slide features a dark green background with a stylized landscape graphic at the bottom consisting of white, yellow, and blue wavy lines. In the top left corner is the Parks Canada logo and the website parks canada.gc.ca. The title is displayed in large, yellow, underlined text. The presenter's name and title are in green text. The date is in green text. The bottom left corner contains the Canadian flag and the text 'Parks Canada' and 'Parcs Canada'. The bottom right corner features the 'Canada' wordmark with the Canadian flag.


 parks canada.gc.ca

Wildlife When We're Not There:


Remote Monitoring in
Nahanni National Park Reserve

Douglas Tate
Conservation Biologist,
Nahanni National Park Reserve

16 October 2012

 Parks Canada Parcs Canada

Canada


 parkscanada.gc.ca


Wildlife When We're Not There:

Remote Monitoring in Nahanni National Park Reserve

Douglas Tate
Conservation Biologist,
Nahanni National Park Reserve

16 October 2012

 Parks Canada



Parks Canada Mandate

- Protect & present representative examples of all of Canada's Natural Regions
- Nahanni represents the Mackenzie Mountains Natural Region



- Protect ecological integrity (health of the land)
- Present natural & cultural heritage
- Provide public education

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Wildlife Surveys are Important


1. Get estimates of the numbers of animals out there (populations)
2. Understand if numbers are going up or down (trends)
3. Learn where important habitats are – calving areas, rut areas, winter range
4. Predict where species will be at certain times of year
5. Determine how many can be harvested
6. Assess if certain species are at risk of disappearing from an area, or going extinct
7. Find out if new species are coming in to an area


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Wildlife Surveys are Not Easy

1. Difficult to get to remote areas (plane, helicopter)
2. Dependent on good weather
3. Short time window for some surveys
4. Need experienced observers
5. Expensive
6. Animals active at night are difficult to survey
7. Some techniques may not be appropriate for the local culture



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Wildlife Surveys...

Need to consider different approaches:

- Traditional knowledge works well for some things
- Aerial surveys might be best in some situations
- Collaring can provide great information on movements
- "Feet on the ground" surveys (counts by looking / listening) are good for some wildlife species
- Will show some examples of other approaches that are currently being used or under consideration today


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Fish Transmitters & Receivers

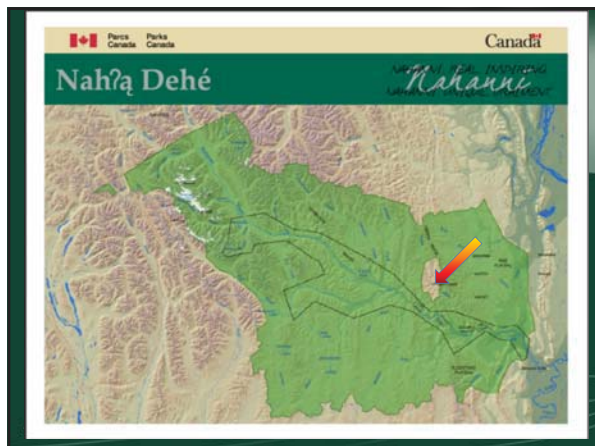
- Bull Trout movement

1. Research led by Fisheries & Oceans, Neil Mochnacz
2. Bull Trout are listed as **May be at Risk** in the Northwest Territories (GNWT 2006); scheduled for national (COSEWIC) assessment in 2012
3. Species is sensitive to impacts (e.g. industrial development)
4. Known spawning area in Funeral Creek; proposed mine includes access road along Funeral & Prairie creeks
5. First Nations partners concerned about potential impacts on fish and water quality
6. All work was done in consultation with local communities, primarily Nahanni Butte, and community members participated in work



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Methods

- Beginning in August 2010, Bull Trout were captured in the Prairie Creek watershed
- A total of 78 Bull Trout had internal acoustic tags implanted, released back into streams
- A total of 24 receivers were placed in-stream along Funeral and Prairie creeks, and tributary streams
- Receivers record the sound of transmitter when fish passes by, and identifies the individual tag / fish, date and time
- Temperature recorders deployed in streams

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Equipment



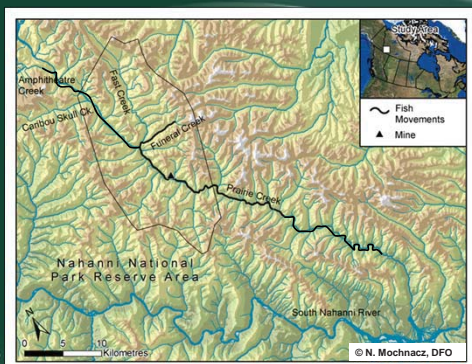
Preliminary Results

- Bull Trout have moved repeatedly upstream and downstream of the mine site
- Bull Trout do overwinter in Prairie Creek

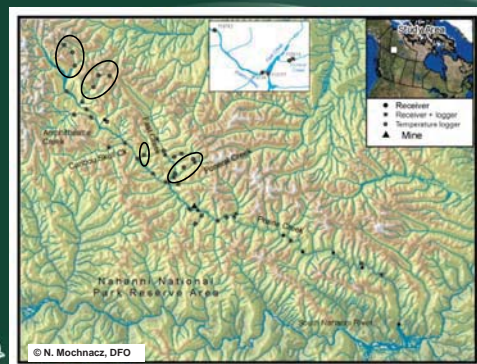


- No need to catch fish again & again to see movements of individuals

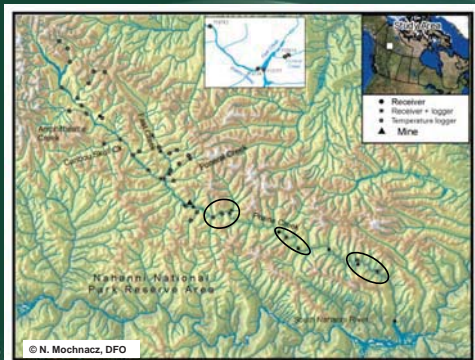
Results - Long Range Movements



Results – Spawning Areas



Results – Winter Habitat



Frog & Bird Recorders

- Automated sound recorders are used to capture the sounds of frogs and birds (and anything else...)
- Can be deployed at any time of year, left out for long periods of time
- Monitor timing of frog calls (first calls in spring, time of peak calling) over years
- Determine the presence of secretive species, or those in hard to access habitats, e.g. marsh birds
- Can record any time; 24 hours a day if desired



Frog & Bird Recorders

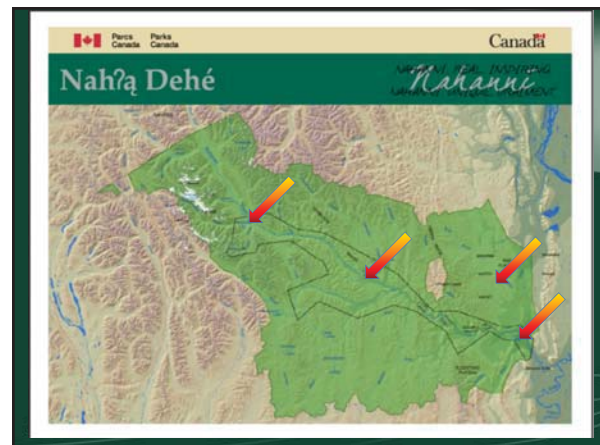
- In Nahanni, recorders have been set up at Yohin Lake / Chitu, Virginia Falls / Nailicho, Rabbitkettle Lake / Gahnihthah and Mosquito Lake



- Deployed in early spring, left out for most of summer
- Set to record for 5 min at the top of the hour, every hour (i.e. 1:00–1:05; 2:00–2:05...)
- Records early morning, daytime, evening and nighttime species
- Battery & sound card life up to 6 weeks



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Frog & Bird Recorders

- Successful in recording spring calling of Wood Frog
- Records of Yellow Rail at Yohin Lake, a rare species in park, and national species at risk



© 2006 Birds of North America Online
Cornell University

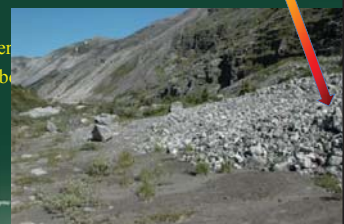
- Discovered a new bird species for the park – Le Conte's Sparrow
- Numerous other bird species detected; may be able to use for migration monitoring
- Also useful as a backup system for bird surveys
- Plan to analyze for other rare species, maybe bats



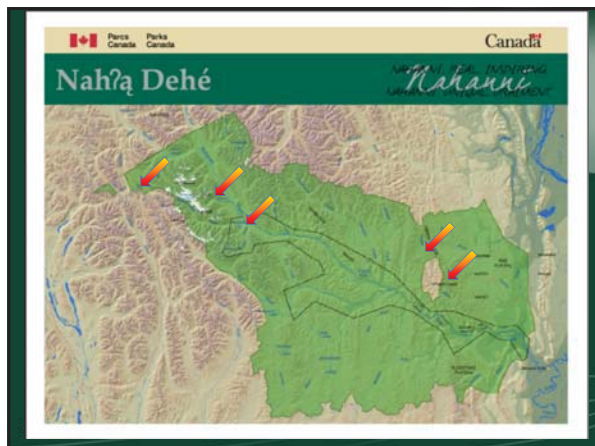
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Remote Cameras

- Small and unobtrusive, can be attached to trees, rocks, etc.
- Motion-sensitive, i.e. triggered when an animal walks by
- Can be set to take pictures at certain times of day
- Camera records the date and time, also temperature
- Have photographed Caribou, Moose, Wolf, Lynx, Black & Grizzly bears, Wolverine



Bringing you



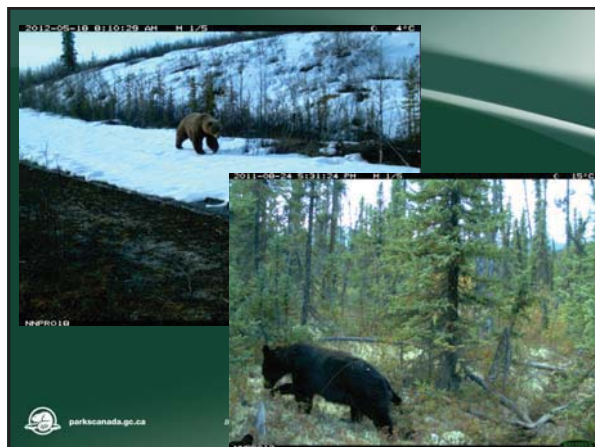
Preliminary Results

- Has shown areas and timing of high use by Grizzly Bears in Glacier Lake area; used to plan trail routes & facilities
- Helped to indicate caribou (& other wildlife) use and timing on Prairie Creek access road
- Showed seasonal use of Howard's Pass access road by caribou, especially post-rut & early winter use
- Testing usefulness for timing of lake ice-out and snow level monitoring - uses the timed photograph function, rather than motion-sensing



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Final Words

- Remote monitoring techniques can play a valuable role in research and monitoring
- Other approaches such as using satellite images to monitoring vegetation growth & change are being used in Nah7q Dehé, Nahanni National Park Reserve
- Cannot replace knowledge from having people out on the land, but can supplement it



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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 9.

Plans for a single-chamber wall-mounted bat house

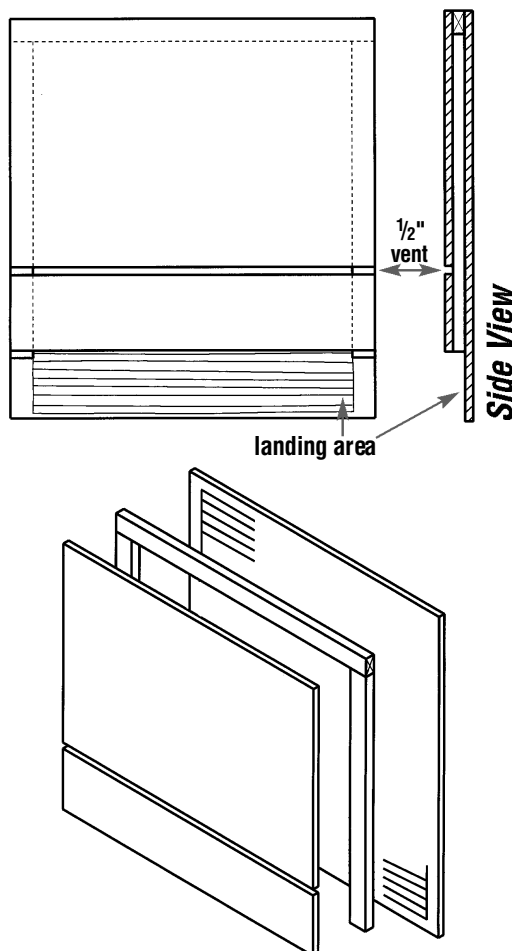
Single-chamber Bat House (wall mounted)

Materials (makes one house)

¼ sheet (2' x 4') ½" AC, BC or T1-11 (outdoor grade) plywood
 One piece 1" x 2" (¾" x 1½" finished) x 8' pine (furring strip)
 20 to 30 exterior-grade screws, 1"
 One pint dark, water-based stain, exterior grade
 One pint water-based primer, exterior grade
 One quart flat, water-based paint or stain, exterior grade
 One tube paintable latex caulk
 1" x 4" x 28" board for roof (optional, but highly recommended)
 Black asphalt shingles or galvanized metal (optional)
 6 to 10 roofing nails, ¾" (if using shingles or metal roofing)

Recommended tools

Table saw or handsaw	Caulking gun
Variable-speed reversing drill	Paintbrushes
Screwdriver bit for drill	Hammer (optional)
Tape measure or yardstick	Tin snips (optional)



More bat-house plans and additional information can be found in BCI's *Bat House Builder's Handbook*, available at www.batcatalog.com.

Construction

1. Measure and cut plywood into three pieces:
 26½" x 24" 16½" x 24" 5" x 24"
2. Roughen inside of backboard and landing area by cutting horizontal grooves with sharp object or saw. Space grooves ¼" to ½" apart, cutting ½" to ⅞" deep.
3. Apply two coats of dark, water-based stain to interior surfaces. Do not use paint, as it will fill grooves.
4. Cut furring strip into one 24" and two 20½" pieces.
5. Attach furring strips to back, caulking first. Start with 24" piece at top. Roost chamber spacing is ¾".
6. Attach front to furring strips, top piece first (caulk first). Leave ½" vent space between top and bottom front pieces.
7. Caulk all outside joints to further seal roost chamber.
8. Attach a 1" x 4" x 28" board to the top as a roof (optional, but highly recommended).
9. Apply three coats of paint or stain to the exterior (use primer for first coat).
10. Cover roof with shingles or galvanized metal (optional).
11. Mount on building (south or east sides usually best).

Optional modifications to the single-chamber bat house

1. Wider bat houses can be built for larger colonies. Be sure to adjust dimensions for back and front pieces and ceiling strip. A ¾" support spacer may be needed in the center of the roosting chamber for bat houses over 24" wide to prevent warping.
2. To make a taller version for additional temperature diversity, use these modifications: From a 2' x 8' piece of plywood, cut three pieces: 51" x 24", 33" x 24" and 12" x 24". Cut two 8' furring strips into one 24" and two 44" pieces. Follow assembly procedure above.
3. Two bat houses can be placed back-to-back, mounted between two poles, to create a three-chamber nursery house. Before assembly, cut a horizontal ¾" slot in the back of each house about 9" from the bottom edge of the back piece to permit movement of bats between houses. Two pieces of wood, 1" x 4" x 4¼", screwed horizontally to each side, will join the two boxes. Leave a ¾" space between the two houses, and roughen the wood surfaces or cover the back of each with plastic mesh (see item 5 below). Do not cover the rear exit slots with mesh. One 1" x 4" x 34" vertical piece, attached to each side over the horizontal pieces, blocks light but allows bats and air to enter. A galvanized metal roof, covering both houses, protects the center roosting area from rain. Eaves should be about 3" in southern areas and about 1½" in the north.
4. Ventilation may not be necessary in cold climates. In this case, the front should be a single piece 23" long. Smaller bat houses like this one will be less successful in cool climates. However, those mounted on buildings maintain thermal stability better and are more likely to attract bats.
5. Durable plastic mesh can be substituted to provide footholds for bats. Attach one 20" x 24½" piece to backboard after staining interior, but prior to assembly.