GRRB Wildlife Management
Research Priorities for 2011-2012

Research priorities are identified to guide the Gwich'in Renewable Resources Board (GRRB) research agenda and to inform the research agendas of other organisations. In 2009, the GRRB, in consultation with the four Gwich'in Renewable Resources Councils identified and prioritized community research concerns for last year, 2010-2011. About 50 research topics were collected, collated and prioritized based on several factors, including previous research, relation to the GRRB's mandate and perceived level of urgency. Four priority categories emerged, and were ranked A, B, C and D:

(A) Most urgent priority;
(B) High priority;
(C) Medium priority; strong relation to GRRB mandate, though limited resources to carry out in 2011-2012 field season; and
(D) Low priority; may be e.g., poorly related to GRRB mandate, previously studied, unclear topic, assigned to GRRB day-to-day activities, etc.

The RRC's were contacted again in 2010 to determine whether research priorities had changed or required further clarification for the 2011-2012 research season. It appears the continued monitoring of the Porcupine caribou herd is still the RRC's top research priority for 2011-2012. The Ehdiitat Gwich'in Council has conducted a muskox guiding and outfitting course in Aklavik in the fall of 2010. Therefore, an additional priority advanced by the GTC is a muskox population survey to ensure the population is healthy as outlined by GCLCA 12.7.9 – commercial muskox harvesting. There are concerns of common interest to several communities; notably the apparent increase in landslides observed in several areas within the GSA. Therefore, bank erosion and landslides have been moved from low to medium priority for 2011-2012

Several new research priorities or interests have been identified by the RRC in 2010. These include wolf and beaver population surveys. There is an apparent increase in population of these species. Are populations increasing? How would population increases affect ecosystems and predator-prey interactions? There is also interest on research on why extreme water fluctuations occur. Extreme water level variations impact travel and fishing.

While the GRRB may undertake some of the proposed research topics, the list does not constitute a work plan for the GRRB; there is not enough time or money for GRRB staff to undertake all the wildlife research desired in a given year for the GSA. Other researchers, whether from our co-management partners, universities, or other government agencies or not-for-profit organisations interested in participating in or undertaking some of the listed research topics are welcomed to contact the GRRB for further information.

GRRB Research Priorities for 2011-2012

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1.0 WILDLIFE

A 1.1 Porcupine caribou monitoring

Monitoring the harvest should be a priority as well as continuing to support efforts to obtain herd status information (size, mortality rates, sex and age class sizes & ratios, survivorship etc.).
Identified by: GRRB
Status: Ongoing (WSF allocated to PCH research in 1997, 2001-2006, 2008-2009)
GRRB Comment: The Gwich'in harvest data collection asks participants to identify the species of caribou harvested or seen. The PCMB, of which the GRRB is not a member, regularly monitors several indicators that provide some insight into the health of the Herd. In addition, a Porcupine Caribou Harvest Management Plan has been drafted and could be signed in the near future.

B 1.2 Cape Bathurst and Bluenose-west caribou surveys

These caribou remain a major food source for Gwich'in and need to be constantly monitored in case their population changes. More TK and science-based knowledge should be collected on these herds to better inform harvest management.
Identified by: GTC Staff, GRRB
Status: Ongoing
GRRB Comment: The GRRB will continue to support ENR's Cape Bathurst and Bluenose caribou surveys.

B 1.3 Muskox population survey

A muskox guiding and commercial outfitting course has been offered by Ehdiitat in Fall 2010. Under the GCLCA Section 12.7.9, muskox population surveys are required to establish the health of the population and the viability of a sustainable commercial harvest.
Identified by: GTC staff (2010)
Status: proposed
GRRB Comment:

B 1.4 Dall's sheep population survey

Monitor population size by counting all sheep by helicopter.
Identified by: Dall's sheep management plan
Status: Ongoing
GRRB Comment: The last count was in 2006. The management plan calls for a new count every 3 to 5 years in June. The next population count is scheduled for June 2010.

B 1.5 Dall's sheep community based monitoring program

Assign a primary coordinator and design a community based monitoring program that is first focussed on harvest and lambing, but can also include other factors in the future: composition, lamb survival, kill locations and habitat use. Consult with each community and set up an effective monitoring program that reflects each community's capacity and interest. Establish annual funding.
Identified by: Dall's sheep management plan
Status: proposed

WILDLIFE continued

B 1.6 Moose survey

Moose are also a major food source for Gwich'in. With current restrictions on harvesting certain caribou populations, it is possible that moose have been under increased pressure in the GSA. Have their numbers changed much since the last survey (2006)? If numbers have decreased, restrictions may have to be considered i.e. limit "resident" hunting. Population research, including surveys will provide information necessary before limits are considered.
Gap Analysis: "The GRRB should ensure that moose management plans are in place and implemented in the GSA."
Identified by: GTC Staff; Ehdiitat RRC (2010)
Status: Proposed
GRRB Comment: GRRB plans Moose survey for 2011.

C 1.7 Dall's sheep lamb survival and population ratios

Monitor lamb survival and ratio of ewes to rams and ewes to nursery sheep.
Identified by: Dall's sheep management plan
Status: proposed

C 1.8 Dall's sheep population trend information including TK

Collect additional information and traditional knowledge to indicate population trend.
Identified by: Dall's sheep management plan
Status: proposed

C 1.9 Dall's sheep health issues impacting population

Review literature to determine important sheep health issues which can affect the population.
Identified by: Dall's sheep management plan
Status: proposed

C 1.10 Dall's sheep population indicators (GSA)

Establish list of indicators of sheep population having problems (YG, GNWT, GRRB).
Identified by: Dall's sheep management plan
Status: proposed

C 1.11 Risks to Dall's sheep range (GSA)

Review literature to evaluate key risks to sheep range such as climate change, overgrazing, and competition with other species (GRRB, YG, GNWT).
Identified by: Dall's sheep management plan
Status: proposed

C 1.12 Dall's sheep sensitive habitat decision making protocol (GSA)

Develop standard steps to make decisions and share information about the locations of sensitive sheep habitat (for example: salt lick locations) (VGG-Heritage, GRRB, YG, GNWT, in consultation with RRCs & AHTC).
Identified by: Dall's sheep management plan
Status: proposed

WILDLIFE continued

C 1.13 Vegetation and Dall's sheep range in the Northern Richardson Mountains (GSA)

Collect vegetation information from previous research in Northern Richardson Mountains and evaluate if information helps understand sheep range (GRRB; GNWT, YG).
Identified by: Dall's sheep management plan
Status: proposed

C 1.14 Impacts on Dall's sheep range (GSA)

Review current land-use plans, Community Conservation Plans, and evaluate effects of access, tourism, and industrial development on sheep range use (VGG, GRRB, IGC, AHTC).
Identified by: Dall's sheep management plan
Status: proposed

C 1.15 Dall's sheep harvest monitoring (GSA)

Evaluate harvest monitoring designs and recommend one for sheep (All Partners).
Identified by: Dall's sheep management plan
Status: proposed

C 1.16 Dall's sheep hunting viability (GSA)

Complete a population viability analysis of hunting at different possible herd sizes and provide this information to the users (GRRB, YG, GNWT).
Identified by: Dall's sheep management plan
Status: proposed

C 1.17 Dall's sheep education program (GSA)

Inform the communities and the partners about sheep management and research projects (All partners).
Identified by: Dall's sheep management plan
Status: proposed

C 1.18 Grizzly bear population survey

Gwich'in harvesters are on a tag/quota system for grizzlies. An up-to-date population estimate is necessary to determine if the tags are still necessary.
Gap Analysis: "Ensure that Grizzly and Black bear management plans are in place for the GSA."
Identified by: GTC Staff; Grizzly Bear Management Agreement; Ehdiitat RRC (2010)
Status: Proposed
GRRB Comment: Inform ENR of this request and work together where possible to get a GSA population survey.

WILDLIFE continued

C 1.19 River otter abundance

More otters are being seen by residents of Tsiigehtchic and Fort McPherson than ever before. What impact are they having on other wildlife? Are its prey species, namely muskrat, Lake trout, whitefish and Dolly Varden char at risk? Might a warming climate be benefiting otters? Very little is known about otters in the GSA so perhaps a baseline study on their population and diet would be useful. Their increased (nuisance) presence has led some RRC members to suggest that an otter bounty be set. Based on brief, informal discussions it appears that their current perceived value as a resource is quite low, especially as a food source, though their fur may be of use.
Identified by: Gwichya RRC; Tetlit RRC; Ehdiitat (2010)
Status: Proposed

C 1.20 Peregrine falcon monitoring (Campbell Hills, Gwich'in Territorial Park)

In the 1970's and 1980's, the Campbell Hills were believed to have one of the highest densities of peregrine falcons in North America. Today, a new Territorial Park and intensive gravel extraction occurs in direct proximity and the Inuvik Airport (directly to the north) has increased its daily flight volume. Peregrine falcons are currently listed as threatened by SARA; in light of this, it is important to know what impact these recent developments are having on the population.
Identified by: Nihtat DGO
Status: Proposed; GRRB was in support of IMG Golder-led proposed project for 2008/09 but it did not proceed due to lack of funds.

C 1.21 Swallows and other songbirds (Delta Region)

Elders say that there used to be many more songbirds, specifically swallows, in the Delta region. The birds would sing so much during the spring hunt that at times it was difficult to sleep. Today we do not hear or see nearly as many of them. The swallows used to be seen in the nesting in the eaves of the row houses but not anymore.
Previous Research: CWS conducted a roadside Breeding Bird Survey in 2007. In 2008, with funding from GRRB's WSF, CWS set out to determine the species composition, relative abundance, and patterns of occurrence of breeding birds in the Gwich'in Settlement Area (GSA). Of the eight sites surveyed along the Dempster highway corridor between Tsiigehtchic and Inuvik, the American Tree Sparrow and the White-crowned Sparrow were the most commonly observed species. Baseline information of this nature will become more useful when the surveys are repeated in the future. Repetition of such surveys will enable resource managers to evaluate changes in forest bird communities and perhaps identify environmental changes more quickly. (CWS March 26, 2009)
GRRB Gap Analysis: "The GRRB should examine with its co-management partners the possibility of establishing a monitoring program for songbirds and shorebirds."
Identified by: Nihtat RRC
Status: Ongoing
GRRB Comment: Environment Canada is currently completing a national review of all bird monitoring programs. Results of the review will identify requirements for monitoring of boreal forest birds that will adequately inform partners or conservation questions. CWS in the NWT is awaiting the results of the national review before deciding on future monitoring locations. For the GSA in particular it would be helpful to find a reliable and capable volunteer observer to conduct annual road side breeding bird surveys. A repeat of the larger study conducted in 2008 in five years time (2013) would be advisable to get trend data and we would look forward to collaborating on another study at that time. If interest and resources are available to support revisiting the 2008 study sooner, CWS could

coordinate work and report back to the GRRB. The earliest advisable time would be 2011, a three year time span.

WILDLIFE continued

C 1.22 Wolf population survey

Have wolf populations increased locally? Are they having a significant impact on prey populations such as caribou and moose?
Identified by: Tetlit (2010)
Status: proposed
GRRB Comment:

C 1.23 Beaver population survey

Have beaver populations increased? How are they impacting the ecosystem and populations of other animals dependent on the ecosystem such as caribou and moose?
Identified by: Ehdiitat (2010)
Status: proposed
GRRB Comment:

D 1.24 Caribou availability (GSA)

Where are the caribou? Why has their migration changed?
Identified by: Ehdiitat RRC
Status: Ongoing
Proposed Action: Research priorities 1.1 and 1.2 may cover much of this research topic. The monitoring of caribou herds is an ongoing wildlife management priority in the GSA and the most up-to-date information about these monitoring programs can be found at ENR.

D 1.25 Grasshoppers and other new species (Aklavik area)

More grasshoppers are here than before. There are also some different looking plant species. What are they, why are they here and what might their impact be? Anything related to climate change?
Identified by: Ehdiitat RRC
Status: Proposed
Proposed Action: GRRB Wildlife Biologist to note and monitor these types of observations.

2.0 FISH

B 2.1 Dolly Varden stock assessment plan

Develop and implement a comprehensive stock assessment plan for anadromous Dolly Varden in the GSA.
Identified by: Dolly Varden integrated fisheries management plan
Status: Ongoing
GRRB Comment: Rat River data collected; Vittrekwa in process.

FISH continued

B 2.2 Dolly Varden habitat assessment plan

Develop and implement a comprehensive habitat assessment plan for Dolly Varden.
Identified by: Dolly Varden integrated fisheries management plan
Status: Ongoing
GRRB Comment: DFO's Neil Mochnacz intends to do habitat research on the Rat River.

C 2.3 Dolly Varden climate change effects on population and habitat

Monitor possible effects of climate change on Dolly Varden and its habitats.
Identified by: Dolly Varden integrated fisheries management plan
Status: Proposed

C 2.4 Dolly Varden communication plan and educational program for Dolly Varden

Develop a Dolly Varden communication plan and educational program.
Identified by: Dolly Varden integrated fisheries management plan
Status: Proposed

C 2.5 Dolly Varden traditional fishing practices

Gather information on traditional fishing practices for incorporation into the IFMP.
Identified by: Dolly Varden integrated fisheries management plan
Status: Proposed
GRRB Comment: See Tim Byers' report on Rat River Dolly Varden Char TK.

C 2.6 Dolly Varden fisheries monitoring

Develop and conduct plans for monitoring all coastal and inland fisheries**.**
Identified by: Dolly Varden integrated fisheries management plan
Status: Proposed

D 2.7 Loche biology, habitat and movement information

Gap Analysis: "The GRRB should consider obtaining more information on the biology, habitat and movement of loche in the GSA."
Status: Proposed
GRRB Comment: Two years of data has been collected on GSA loche genetics, parasites and diet.

D 2.8 Parasites on Rat River char (Range of Rat River char)

Some caught char have long, pin-sized parasites attached. Where have they come from and what do they do? Occasionally other white things are seen on char and are thought to also be parasites.
Identified by: Anonymous interviewee from Char TK Report
Status: Planned, DFO, Fall 2009
Proposed Action: DFO has been notified and plans to undertake parasite research.

D 2.9 Coney prevalence (Mackenzie River, aka *Nagwichoonjik*)

People are getting Coney in their nets all summer, whereas it is normal to only get them for two or three weeks in July. Coney are also found in many areas where they were not before.
Identified by: GSCI
Status: Proposed
Proposed Action: Low Research Priority; inform DFO.

FISH continued

D 2.10 New fish species (GSA)

People have started to net more and more chum, Coho, pink, and sockeye salmon. Arctic char are appearing in the Mackenzie (*Nagwichoonjik*). There are also some abnormal fish such as a half jumbo whitefish and half coney. Increasing numbers of walleye (pickerel) have been observed in Chii Tiet in 2010.

Identified by: GSCI (2009 and 2010)
Status: Proposed
Proposed Action: GRRB Fisheries Biologist will monitor; inform DFO.

D 2.11 Creel census (Eastern GSA)

Gap Analysis: "A Creel census system should be developed with the co-management partners of the GRRB to monitor the harvest of Lake Trout, Grayling and Northern Pike in the GSA. Particular attention should be placed on the lakes in the eastern area of the GSA (Sandy and Travaillant Lake area) which has a high sport fishing potential."
Status: Proposed
Proposed Action: Low research priority

D 2.12 Fish less healthy (GSA)

People are noting abnormalities with some fish intestines, their sperm ducts and their eggs. Eggs and sperm ducts are harder than they used to be. The fish cannot be left as long in the nets as in the recent past, and their runs are longer than they used to be. That is, the fish are coming earlier than they used to and staying later. The taste of some fish is not as good as it was in the 1970s. Some fish livers have a lot of black spots. There are sometimes red spots on the skin of whitefish. Red scars have been noted on whitefish and coney.
Identified by: GSCI; Ehdiitat RRC(2010)
Status: Proposed
Proposed Action: GRRB Fisheries Biologist to document and undertake literature review; inform DFO.

D 2.13 Whitefish and coney flesh firmness (Peel, Arctic Red and Mackenzie Rivers)

Fishermen in Fort McPherson have noted that the flesh of whitefish caught by Tsiigehtchic harvesters is generally firmer than those caught near Fort McPherson. Firm fish flesh is more desirable than soft flesh because it is easier to cut and to make dry fish out of. Fish with soft flesh are also perceived as unhealthy. Is this true? What is the relationship between flesh firmness and water temperature, time of year (Spring to Fall), and location (river, lake, creek etc.)?
Identified by: Nihtat RRC, Tetlit RRC, GSCI
Status: Proposed
Proposed Action: GRRB Fisheries Biologist to document and undertake literature review; inform DFO.

D 2.14 Sand in the stomachs of Lake whitefish (West Mackenzie Delta)

Harvesters (namely Richard Ross and John Carmichael), have noticed some strange stomach contents in Lake Whitefish, especially sand. What are some of these unidentified contents and why is there so much sand?
Identified by: Ehdiitat RRC
Status: Proposed
Proposed Action: GRRB Fisheries Biologist to document and undertake literature review; inform DFO.

3.0 FORESTS

C 3.1 Forest vegetation inventory

Complete reconnaissance forest vegetation inventory for the GSA (GTC, GRRB, ENR).
Identified by: Gwich'in Forest Management Plan
Status: Ongoing

C 3.2 Impacts of tree clearing activities on tree recruitment and regeneration

Learn more regarding tree clearing impacts related to development activities with respect to tree recruitment and regeneration; perform research on forest regeneration following natural and man-made disturbance (clearing, harvesting).
Identified by: Gwich'in Forest Management Plan
Status: Proposed

C 3.3 Fire behaviour, fire effects, and effects of climate change on vegetation

Perform research and monitoring to improve the knowledge and understanding of fire behaviour, fire effects, and climate change.
Identified by: Gwich'in Forest Management Plan
Status: Proposed

C 3.4 Forest stressors/disturbances in the GSA

Perform research and monitoring to improve the knowledge and understanding of forest stressors/disturbances such as floods, insects and disease in the settlement area. Specifically, are spruce budworm or pine beetle affecting forests in the GSA?
Identified by: Gwich'in Forest Management Plan; Ehdiitat RRC (2010)
Status: Proposed

C 3.5 Impacts of forest use activities on wildlife and wildlife habitat

Identify impacts that forest use activities have on wildlife and wildlife habitat; promote research into the effects of forest use activities on wildlife distribution and population.
Identified by: Gwich'in Forest Management Plan
Status: Proposed

C 3.6 Historic timber harvest (GSA)

Document historic commercial timber harvest information.
Identified by: Gwich'in Forest Management Plan
Status: Proposed

D 3.7 Berry and medicinal plant monitoring (GSA)

Gap Analysis: In cooperation with GSCI, the GRRB should develop and implement a plan to inventory and monitor the locations for berry picking and medicinal plant collection in the GSA.
Status: Proposed

D 3.7a Vegetation monitoring (GSA)

Plants that have been traditionally collected such as rhubarb and bear root appear to be decreasing. Why aren't these species found where they used to be?
Identified by: Gwichya RRC (2010)

4.0 ENVIRONMENT AND HEALTH

C 4.1 Health of Campbell Creek & Campbell Lake aquatic ecosystem

This area has long been a valuable source of whitefish, though Gwich'in have reported poorer fishing here in recent years. This location is very close to the proposed route of the Mackenzie Gas Project and it appears that a large camp would be built here if the pipeline is built. Nihtat RRC would therefore like a baseline study done on the Campbell Creek system before any development occurs.
Previous Research: (Tallman, R. 2001. Project Report: Fish species diversity in Campbell Lake. DFO unpublished report) The researchers aimed to gather information on fish populations in the lake to understand how fish use the lake and creek. To do this, they set gillnets at 13 locations in the lake at different times of the year and floy-tagged a number of fish to follow their movements.
Gap Analysis: "In cooperation with co-management partners, i) design and implement a program to document the aquatic habitats in the GSA; and ii) initiate an aquatic habitat classification system."
Identified by: Nihtat RRC; Ehdiitat (2010)
Status: Proposed (also identified in 2008 by NRRC)

C 4.2 Bank erosion and landslides (Mackenzie River and Arctic Red River)

Residents are noticing more landslides and riverbank erosion than before, especially during times of high water. Is this regular erosion or is the permafrost melting?
Previous Research: The Geological Survey of Canada has recently completed two relevant projects: i) a 4-year study in the GSA to better understand the slope failure mechanisms in permafrost regions, particularly related to landslides; and ii) an extensive look at landslides along the proposed Mackenzie Valley Pipeline route, including inventory mapping and an analysis of the controlling factors of these landslides. Several publications have resulted from these projects and are filed with their respective research applications. Dr. Boalin Wang of the GSC would be interested to receive any relevant research priorities from GRRB.
Identified by: Gwichya RRC (2009, 2010); Ehdiitat (2010); Tetlit (2010)
Status: Complete
Proposed Action: Send publications and researcher contact info to RRCs

C 4.3 Water quality (Peel Channel, Mackenzie Delta, Arctic Red River)

A 2008 study found that 70% of its participants had H. pylori, an ulcer-causing bacterium likely contracted through local drinking water. Aklavik residents often drink bottled water now in place of their tap water. Water quality has been a research priority of ERRC for a few years now and this is one example of why. Tsiigehtchic residents have also expressed concern over the water quantity and quality of the Arctic Red and Mackenzie Rivers. Are they healthy rivers? What are contaminant levels? What has river height/ discharge volume been in recent years compared to historical data?
Gap Analysis: "The GRRB should approach its co-management partners and INAC to design and implement a transboundary water quality monitoring network for the Mackenzie and Peel Rivers."
Identified by: Ehdiitat RRC (2008, 2009, 2010); Gwichya RRC (2009)
Status: Proposed
Proposed Action: Inform Environment Canada

ENVIRONMENT AND HEALTH continued

D 4.4 Decreasing country food consumption (GSA)

Country food consumption is not nearly what it used to be. Country foods play an important nutritional, cultural and spiritual role in the lives of Gwich'in and it is feared that as the consumption of country food decreases, so too does the health, culture and general well being of Gwich'in.
Identified by: GSCI Staff (2009, 2010)
Status: Proposed
Proposed Action: Provide assistance to GTC/GSCI where possible (e.g., provide harvest information). Encourage government departments, such as health departments, to develop education and awareness programs about the benefits of country foods (GSCI, 2010)

D 4.5 Contaminants monitoring (Peel and Mackenzie Rivers upstream of communities)

New upstream developments have raised questions about contaminants entering the Peel and Mackenzie River watersheds. GTC would therefore like to see monitoring stations on the Peel River above Fort McPherson and Aklavik and possibly along the Mackenzie River near Tsiigehtchic. (Note: this may be something that can be done in partnership with Environment Canada).
Gap Analysis: "The GRRB should, in co-operation with its co-management partners, develop a contaminants monitoring program for the species most commonly used as food items by the Gwich'in.
Identified by: GTC; Ehdiitat RRC (2010)
Status: Proposed
Proposed Action: Inform Federal government agency responsible of GTC's interest

D 4.6 Fluctuating water levels

Extreme fluctuations in water levels are affecting local travel and fishing. What causes these fluctuations? Are these events more extreme than in the past? Baseline monitoring would help establish flood frequency and water level variations over time.
Identified by: GSCI (2010)
Status: Proposed