



MISSION STATEMENT

TO CONSERVE AND MANAGE
RENEWABLE RESOURCES IN THE
GWICH'IN SETTLEMENT AREA
IN A SUSTAINABLE MANNER
TO MEET THE NEEDS OF THE PUBLIC
TODAY AND IN THE FUTURE.



VISION

WE BELIEVE THAT PEOPLE IN THE
GWICH'IN SETTLEMENT AREA
ARE RESPONSIBLE FOR USING,
PROTECTING AND CONSERVING
THEIR RESOURCES, AND ARE
ACTIVE PARTNERS IN
MANAGING THEIR RESOURCES

Gwich'in Renewable Resources Board

Ten Year Report

1993-2003



Gwich'in Renewable Resources Board Report 05-01

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Gwich'in Renewable Resources Board

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1 Word from the Chairperson – Robert Charlie

The Gwich'in Renewable Resources Board (GRRB) has been in operation since 1995 when it was officially sworn in at a meeting in Inuvik. Although the Gwich'in Comprehensive Land Claim Agreement was signed in April of 1992, the GRRB did not officially start its implementation process until 1994 when we hired an Executive Director. The Executive Director then began the job of setting up the office and hiring staff. The GRRB office is on the second floor of the Alex Moses Greenland Building in Inuvik. We presently have ten full time staff, and hire summer students to assist on research projects.



Over the past ten years, the GRRB has worked with the communities to determine what the management and research priorities are with respect to wildlife, fish, and forestry. We have reviewed past research in the Gwich'in Settlement Area (GSA), identified information gaps, and have developed various research projects to begin the process of collecting additional information to fill these gaps. We have involved the communities in these projects by hiring community people as assistants and guides; we have utilized their knowledge of the land and wildlife to complement existing scientific knowledge.

We have partnered with other government agencies that are also responsible for wildlife, fish, and forest management. This has allowed us to diversify our source of expertise as well as to share the high cost of carrying out research in the Gwich'in Settlement Area. We have partnered with the Territorial government's Department of Environment and Natural Resources (ENR), and the Federal government's Fisheries and Oceans Canada (note that Canadian Wildlife Service and Parks Canada are agencies of Environment Canada). We have also partnered with non-governmental organizations such as Ducks Unlimited and World Wildlife Fund. We have an excellent working relationship with both government and community groups. Staff meet regularly with the Renewable Resources Councils in all four Gwich'in communities and periodically with government agencies to review joint research plans.

The Board is composed of representatives selected by Federal and Territorial Government agencies and the Gwich'in Tribal Council. It holds two-day semi-annual meetings. Meeting locations alternate between the four Gwich'in communities and involve the GRRB staff, Renewable Resources Councils, government agencies, non-governmental agencies and the public. We host a community meal during each meeting so that the community members have a chance to meet the Board members and GRRB staff. Board members and GRRB staff spend one night in the community and this provides additional opportunities for them to discuss renewable resources management

issues with local people. It also ensures that Gwich'in administrative funds for the operation of the GRRB stay within Gwich'in communities as much as possible.

The GRRB is also involved in regional and national issues; it has met with Territorial Government Ministers and Federal Government officials to discuss issues that may affect the GSA. As well, the Board has been involved in discussions on the Migratory Bird Convention, Species at Risk Act, Fisheries Act, and GNWT Wildlife Act.

We also meet periodically with other co-management boards to discuss items of mutual concern to groups in the north. This has allowed us to present items jointly as well as realize some cost-savings. Rather than several groups traveling individually to Ottawa or Yellowknife, one group can make a presentation on behalf of all co-management boards.

Management plans require a solid base of information and consultation. Over the past ten years, we have realized that the development of management plans is a slow process. As we find gaps in the information available, more research is needed on various species of wildlife, fish and plants to produce the plans. Also, the consultation requirements of the Renewable Resources Councils and government agencies are extensive and require a great time commitment. To this end, the GRRB has succeeded in completing several management plans and is currently working on several more.

Overall, the GRRB has done an excellent job of involving the communities and partnering with other agencies. We still have a lot of work to do to complete the activities in the Implementation Plan and will strive to continue public involvement in renewable resources management.

Mahsi Choo,



Robert Charlie,
Chairperson, Gwich'in Renewable Resources Board

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3 Abbreviations

Here is a list of acronyms used in this report:

ARI	Aurora Research Institute
CWS	Canadian Wildlife Services
DFO	Fisheries and Oceans Canada
ENR (ENR)	Department of Environment and Natural Resources
GCLCA	Gwich'in Comprehensive Land Claim Agreement
GEKP	Gwich'in Environmental Knowledge Project
GHS	Gwich'in Harvest Study

GIS	Geographic Information System
GRRB	Gwich'in Renewable Resources Board
GSA	Gwich'in Settlement Area
GSCI	Gwich'in Social & Cultural Institute
GTC	Gwich'in Tribal Council
GTP	Gwich'in Territorial Park
HTC	Hunters and Trappers Committee
PCH	Porcupine Caribou Herd
RRC	Renewable Resources Council
SFMN	Sustainable Forest Management Network

4 Introduction

The following report is a summary report and is meant for all audiences. Those requiring more detailed information on any of the contents should contact the Gwich'in Renewable Resources Board office or visit our website at www.grrb.nt.ca.

To mark its establishment in 1993, the Gwich'in Renewable Resources Board (GRRB) has put together this summary report covering all GRRB activities and projects for the past 10 years and provides an overview of the GRRB, its staff, and information available on renewable resources in the Gwich'in Settlement Area.

Renewable resources (wildlife, fish and forests) are an important part of Gwich'in culture, lifestyle, and economy. The GRRB works with the four Gwich'in communities (Aklavik, Fort McPherson, Inuvik and Tsiigehtchic) to ensure that resources are used and managed in a sustainable manner. By working together, we can ensure there are resources for future generations.



The GSA encompasses thousands of delta channels

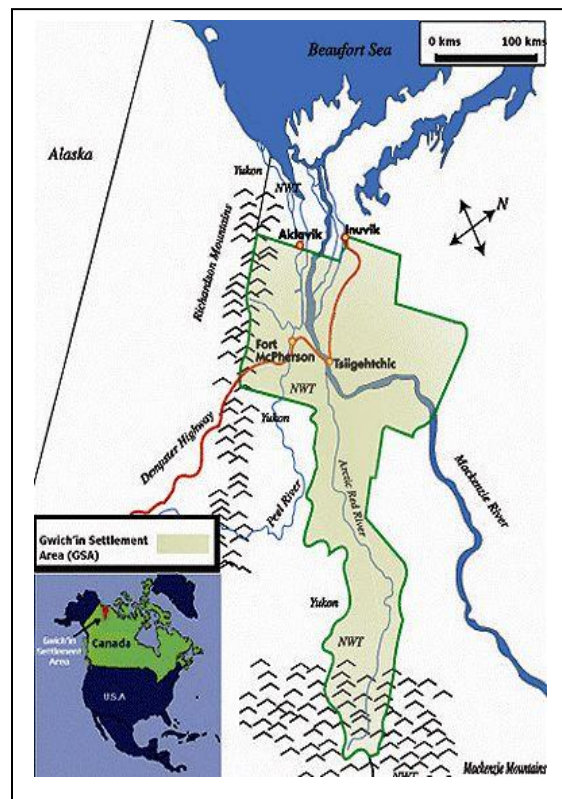
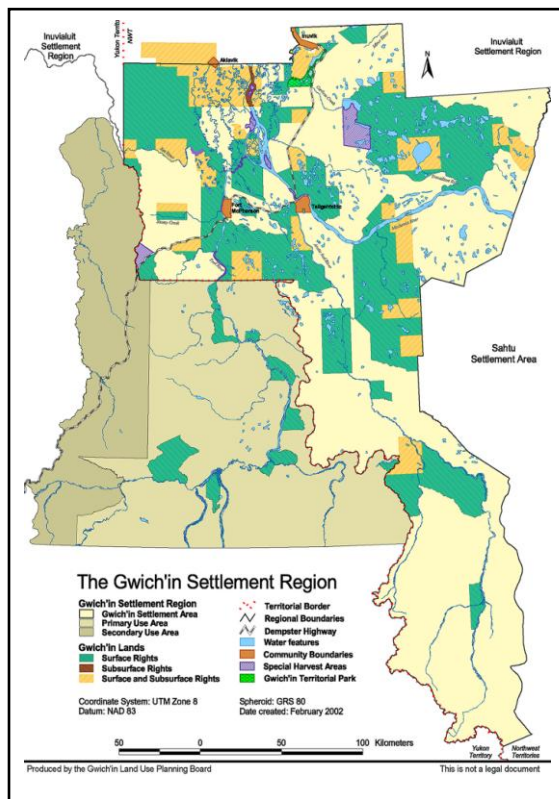
5 Gwich'in Land Claim

The Gwich'in Comprehensive Land Claim Agreement was signed on April 22, 1992. The Agreement covers approximately 56,935 km², and includes the communities of Aklavik, Fort McPherson, Inuvik and Tsiigehtchic

5.1 Land

The Gwich'in Settlement Area (GSA) includes diverse landscapes. Two mountain ranges fall within its borders: the Mackenzie and Richardson Mountains. These high elevation areas are covered primarily with arctic and alpine tundra. The settlement area is also divided by the Mackenzie River and includes half its delta. The river drains an area of 1.75 million km², discharges 335 km³ of water per year and carries 118 tones of suspended sediment, making it the largest delta in Canada. Vegetation in the GSA varies, with dominant forest coverage consisting of white spruce, black spruce, and birch trees.

5.2 Map of the Gwich'in Settlement Area



5.3 People

The population of the Gwich'in Settlement Area, including Gwich'in beneficiaries, Inuvialuit, Metis, and non-aboriginals, is approximately 5,100 (Year 2003). There are close to 3,017 Gwich'in beneficiaries of which 1,664 live in the land claim area. For centuries, the Gwich'in have depended upon the land for their survival. Today, their accumulated knowledge is used to ensure sustainable use of the land and resources in the Gwich'in Settlement Area. People still depend heavily on renewable resources in the area, such as wildlife, fish, and forests to maintain their lifestyle and ties with the land.

Each community has a council that deals with local renewable resources issues. The elected or appointed members represent their community at meetings to make decisions on renewable resources management and planning.



Community members from Aklavik



Gwich'in Elders: E. Vittrekwa and E. Mitchell

5.4 Renewable Resources

(*Note: *Italic words indicate Gwich'in language.*)

The Gwich'in Settlement Area (GSA) supports many different wildlife species. The range of the Porcupine and Bluenose caribou herds and boreal woodland caribou overlap the settlement area. Herds of Dall's sheep (*Divii*) can be found in the Richardson and Mackenzie mountains. Moose (*Dinjik*) are also found throughout the region, as are predators such as grizzly bears (*Shih*), black bears (*Shoh*), lynx (*Niinjii*), and wolves (*Zhoh*). The Mackenzie River Delta, lakes, and wetlands of the GSA are visited by many migratory waterfowl species, such as tundra swans (*Daazraii*), scoters/black ducks (*Njaa*), scaup (*Nitsihdin*), and mallards (*Dats'an vichit'ik gwitl'oo*, *Neet'aai*). Many wildlife species are hunted and trapped by Gwich'in harvesters for subsistence purposes, but Porcupine and Bluenose caribou (*Vadzaih*) are the main food sources. Fish are harvested throughout the settlement area from rivers and lakes. The main species used are broad whitefish (*huk digaii*, *huk zheii*), Dolly varden charr (*Dhik'ii*), inconnu/coney (*Sruh*), lake whitefish/crookedback (*Dalts'an*), lake trout (*Vit*), burbot/loche (*Chehluk*) and northern pike/jackfish (*Eltin*).

White spruce and black spruce forests cover a large part of the GSA and provide important wildlife habitat. Here the spruce trees grow at the northernmost limit of their range and growth rates are extremely low due to the cold temperatures and short growing season. However, white spruce growing in the Mackenzie River Delta and its tributary valleys can reach heights of 23 m (70 feet) over hundreds of years.

6 Gwich'in Renewable Resources Board

The Gwich'in Renewable Resources Board (GRRB) was established under the guidance of the Gwich'in Comprehensive Land Claim Agreement (GCLCA) to be the main instrument of wildlife, fish, and forest management in the Gwich'in Settlement Area. The powers and responsibilities of the GRRB are detailed in Chapters 12 and 13 of the GCLCA, Volume 1.

6.1 Mission

The mission of the GRRB is to conserve and manage renewable resources within the Gwich'in Settlement Area in a sustainable manner to meet the needs of the public, in particular Gwich'in beneficiaries, today and in the future.

6.2 Vision

We believe that people in the Gwich'in Settlement Area are responsible for using, protecting and conserving their resources, and are active partners with the GRRB in managing their resources.



Dark afternoon on the Mackenzie Delta.

6.3 Structure

The Board is composed of one chairperson, six members, and six alternates. The Gwich'in Tribal Council nominates three members and three alternates. The government (including Parks Canada), Fisheries and Oceans Canada, and ENR, each nominate one member and one alternate member. The Board members choose the Chairperson who must reside within the GSA.

Although Board members are nominated by the Gwich'in Tribal Council and various government departments, all members act on behalf of the public interest (independent of their nominating organization or department). Having a mix of Gwich'in beneficiaries and government appointments provides the diversity and balance needed to allow the Board to make informed decisions. The Board has made it a practice to operate on a consensus basis for all decisions reached. This has strengthened and enhanced the interaction between Board members.

The GRRB has developed an *Operating Procedures Manual* to provide direction for the Board and staff.

6.4 Semi-Annual Meetings

The GRRB currently meets twice per year, with the location alternating between the four Gwich'in communities of Inuvik, Aklavik, Fort McPherson and Tsiigehtchic.

During its late January or early February meeting, the Board addresses many important issues concerning operations or renewable resources management and approves its operating and harvest study budgets for the next fiscal year. As well, the GRRB allocates funds from its Wildlife Studies Fund for research, management and educational projects.

The Board meets for a second time in late September or early October. At this meeting, the Board reviews the achievements of current research and management projects, addresses other issues and identifies research and management priorities for the next fiscal year.

During the first five years of the GRRB's operation it was necessary to meet more frequently to provide direction. The Board may meet or tele-conference at any time to address specific issues.

6.5 Office

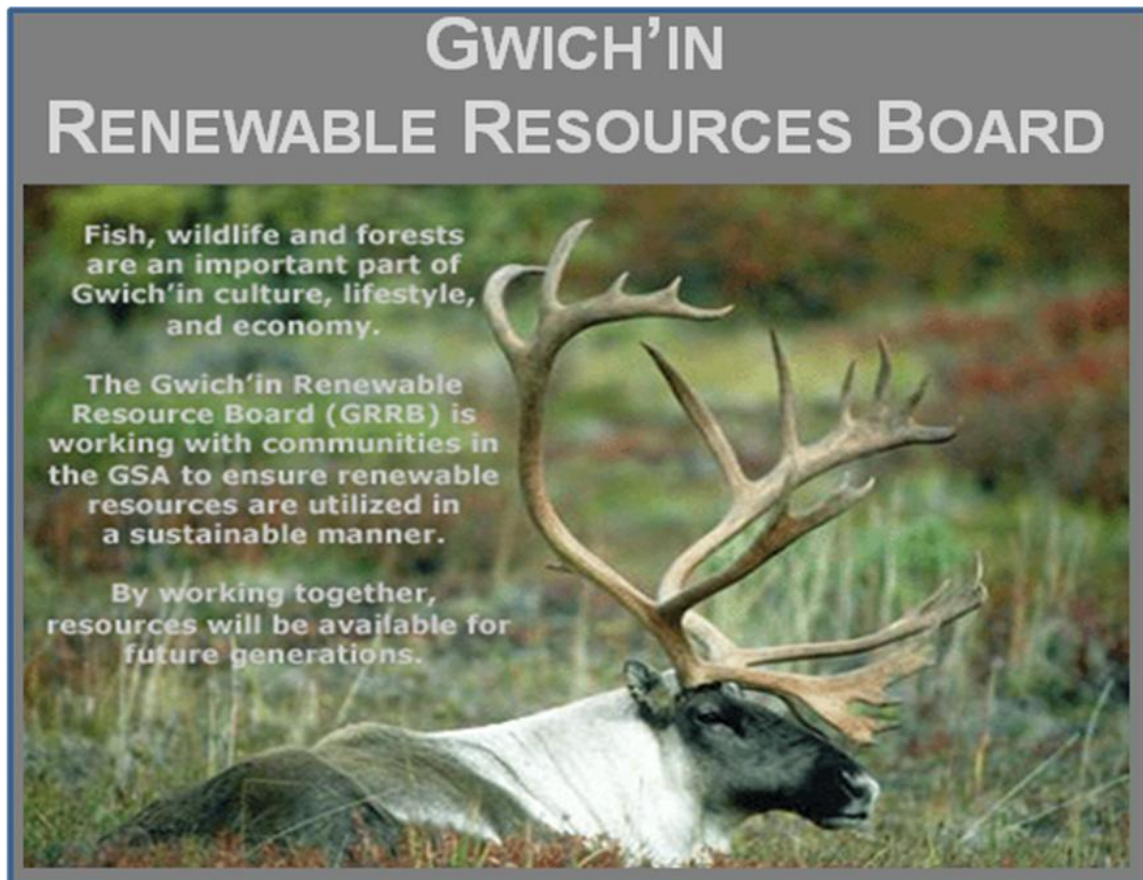
Our office is located in Inuvik on the second floor of the Alex Moses Greenland Building. The GRRB staff provides the Board with support and information required to make informed decisions, help implement the Gwich'in Comprehensive Land Claim Agreement, and conduct meetings, research, management, and education projects.

GRRB staff includes 8 to 10 professional and technical support positions. When filling positions, as far as possible, preference is given to Gwich'in participants with consideration to necessary qualifications. Additional staff (community interviewers, field assistants and students) is hired as needed on a project-by-project basis. GRRB staff work closely with community members to facilitate community-based management.

6.6 Contact Information

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Phone: (867) 777-6600 Fax: (867) 777-6601
www.grrb.nt.ca

6.7 Website



www.grrb.nt.ca

The GRRB has developed a comprehensive website that provides information about the GRRB, its members, staff, funding, research, management, and education programs.

Most GRRB reports and project publications are available and can be downloaded (pdf format). For more information about the GRRB, visit www.grrb.nt.ca.

7 Gwich'in Harvest Study

The Gwich'in Harvest Study (GHS) records the number and location of fish and wildlife that are taken by Gwich'in harvesters. The Harvest Study provides information to determine and protect the *Gwich'in Minimum Needs Level* (GMNL), as well as to inform resource management decisions.

The Harvest Study is required by the Gwich'in Comprehensive Land Claim Agreement to help determine the number of wildlife, fish, and waterfowl harvested by all Gwich'in households each year (the GMNL). The GMNL will both project need requirements and protect Gwich'in hunting and fishing rights in the future.

Initially the GHS was planned as a five-year study (August 1995 to July 2000). The GRRB extended it due to the valuable information it can provide for resource management. The GMNL will be determined with data already collected. Yearly reports were produced from 1996 to 2000 that summarized monthly and annual harvest of wildlife, birds, and fish reported by each community.



Shaun Firth collecting data for the Harvest Study



Harvesting caribou

7.1 Data Collection

The Harvest Study collects information about species harvested by participating Gwich'in beneficiaries and Non-Gwich'in families in the GSA.

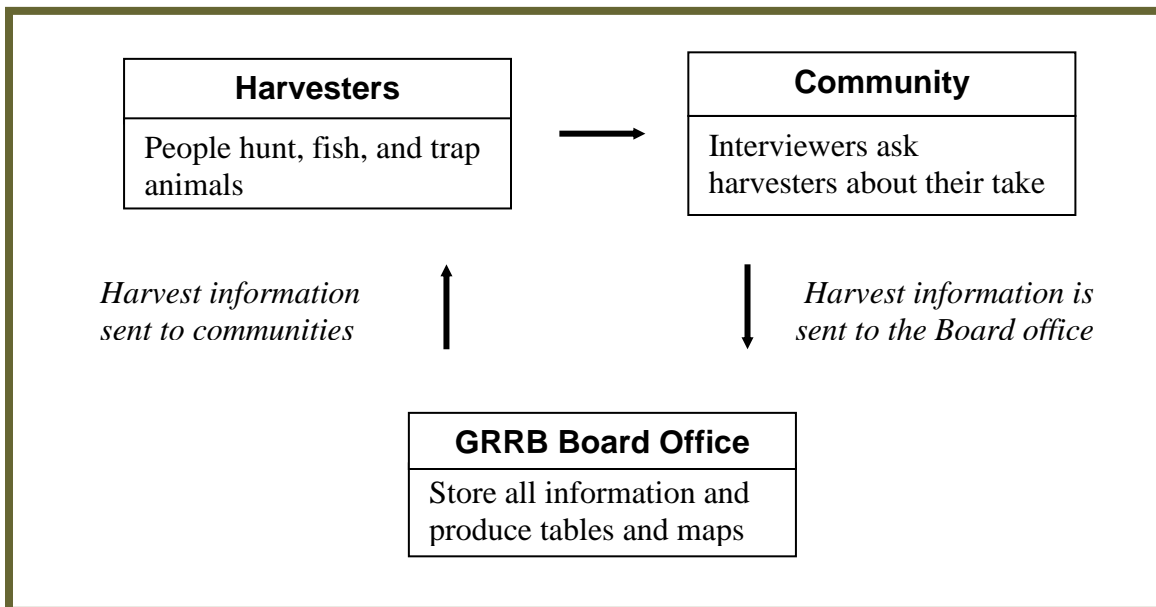
From August 1995 to March 2003, door-to-door interviews were conducted on a monthly basis. Starting in the fall 2003, interviews were cut back to four times per year to reduce cost and participant burn out.

Research is underway to determine if the GHS can be expanded in the future as a cooperative study with other agencies like DFO, ENR and CWS. The new study would provide harvest information for all harvesters within the GSA for resource management purposes.

The Harvest Study was conducted in the four communities of the Gwich'in Settlement Area (Aklavik, Fort McPherson, Tsiigehtchic and Inuvik). Local interviewers record the following information on animals harvested:

- name of species harvested
- number of animals harvested
- harvest location (within 10 km² quadrants)
- age and sex of big game animals harvested
- Harvester comments.

7.2 How does it Work?



7.3 Who Will Use this Information?

The GRRB, RRCs, DFO, CWS, and ENR use the information from the Gwich'in Harvest Study for the management of renewable resources in the GSA. Results are also given to Gwich'in hunters who are interviewed and other interested parties.

To acquire information (other than the monthly and annual data reports), a written request is submitted to the Executive Director of the GRRB. Each request is screened for confidentiality requirements; for example, the GRRB does not release information that could be associated with a person or small group of people because of a particular quality and/or quantity. At all times, the identity of each hunter and their personal harvest information are kept confidential. When information is gathered, the interview form uses a code instead of the harvester's name. The harvester's name is excluded from the database, mapping system and reports.

Confidentiality is the foundation for the collection and release of information by the GHS and is a requirement of the *Terms of Reference* for the study (Schedule 1 to Chapter 12 (Vol.1) Section: Data sharing of the GCLCA).

7.4 Database and Mapping System

The GHS database and mapping system was developed to produce maps and tables to make information more understandable. The data is organized by species and area and allows various methods of entering and accessing information. See Appendix V for an example of a map produced by the database and mapping system.



Heather Swystun

8 Community-based Research and Management

The GRRB applies a community-based approach to manage human activities that affect renewable resources in the GSA. The success of a community-based management approach depends on good communication. Community members need to be well informed in order to make sound decisions when managing their resources. The approach also implies that renewable resources managers and researchers are aware of environmental concerns that community members raise.

The following sections identify how the GRRB and staff have worked with communities in the GSA.



Wildlife Management Meeting



Regional RRC Meeting



Forest Use Planning Meeting



Co-op meeting in Aklavik

8.1 Communicating with the Communities

Why did we do it?

- People from the GSA are part of management decisions and research.

What did we want to do?

- Maintain regular contact with Gwich'in resource users and the general public to discuss wildlife, fish, and forestry issues.

Who were the lead proponents?

- GRRB, RRCs, and community members.

How did we do it?

- Day-to-day communications, posters, reports, meetings, community consultations and workshops.

What was the outcome?

- Communication with the communities ensures good exchange of scientific and local knowledge.

- Integration of community's environmental and cultural concerns into resource management.

8.2 Regional RRC Meetings

Why did we do it?	<ul style="list-style-type: none"> • The four RRCs need to meet to discuss resource management issues since many of their resources are shared.
What did we want to do?	<ul style="list-style-type: none"> • Help the RRCs gather for regional meetings.
Who were the lead proponents?	<ul style="list-style-type: none"> • GRRB, RRCs. and GTC.
How did we do it?	<ul style="list-style-type: none"> • Assisting with meeting logistics, drafting agendas, and writing summary minutes in 1994-1998.
What was the outcome?	<ul style="list-style-type: none"> • Regional meetings allowed community input on resource management issues and plans.

8.3 Community Renewable Resources Workshops

Why did we do it?	<ul style="list-style-type: none"> • To learn more about specific issues in renewable resource management.
What did we want to do?	<ul style="list-style-type: none"> • Discuss common resource management concerns and issues with community members.
Who were the lead proponents?	<ul style="list-style-type: none"> • GRRB, Gwich'in beneficiaries, RRCs, and other agencies.
How did we do it?	<ul style="list-style-type: none"> • Brought together community and RRC members with GRRB and government department staffs to discuss community and resource management concerns. • Workshops addressed the following topics: trapper's issues, guiding and outfitting concerns, eco-forestry principles, grizzly bear management, forest management, youth and Elder environmental concerns, Bluenose caribou management, char management, traditional environmental knowledge, and Dempster Highway caribou hunting concerns.
What was the outcome?	<ul style="list-style-type: none"> • Workshops ensure public input in renewable resource management and decision-making. • Workshops help build community capacity for

renewable resource management.

- Workshops help determine management strategies for the area.

9 Community Knowledge

The GRRB defines "Community Knowledge" as the local knowledge existing within and developed around the specific conditions of people living in a particular landscape over time. This includes the accumulated Gwich'in Traditional Knowledge within each community.

Community knowledge provides the GRRB with information about the area's ecosystems. It also provides researchers and managers with a rich source of information about the land. It helps express concerns that hunters, trappers, and fishers have about the land and resources. Therefore, it helps the GRRB identify management issues and plan research. By using community knowledge, the GRRB produces more informed wildlife management plans and conservation strategies. It leads to sustainable use of the environment and its resources, which are the basis of the Gwich'in culture and the mandate of the GRRB.



Annie Norbert working with hides



Thomas Mitchell creating a jump snare

9.1 Community Interviews and Interviewers

Why did we do it?

- Several GRRB projects have relied on assistants from the communities to interview Elders and other community

What did we want to do?	<p>members.</p> <ul style="list-style-type: none"> • Train community members on interviewing and research techniques. • Gather community knowledge for use in renewable resource management.
Who were the lead proponents?	<ul style="list-style-type: none"> • GRRB, RRCs and community members.
How did we do it?	<ul style="list-style-type: none"> • In the past 10 years, community members conducted interviews in the Gwich'in communities for the Harvest Study, Gwich'in Environmental Knowledge Project and various fish and wildlife projects.
What was the outcome?	<ul style="list-style-type: none"> • Interviewers learned about renewable resource management in the GSA and social science research. • Interview results ensure the importance of community knowledge in research management.

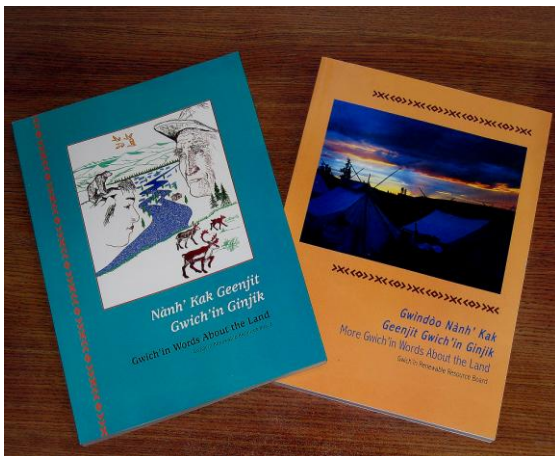
9.2 Gwich'in Environmental Knowledge Project Books (1995-2001)

Why did we do it?	<ul style="list-style-type: none"> • To record (in written format) knowledge held by Gwich'in Elders regarding wildlife, fish, and habitats in the GSA. The information can then be passed down to future generations.
What did we want to do?	<ul style="list-style-type: none"> • Ensure that Gwich'in Environmental Knowledge (GEK) is recognized and used in conservation and overall management of renewable resources in the Gwich'in Settlement Area. • Encourage education that centers on teaching Gwich'in youth about their culture, lands and resources.
Who were the lead proponents?	<ul style="list-style-type: none"> • GRRB
How did we do it?	<ul style="list-style-type: none"> • Interviewed Gwich'in Elders from the four communities on wildlife species • Compiled information and verified focus groups.
What was the outcome?	<ul style="list-style-type: none"> • Produced two books on environmental knowledge from Gwich'in Elders for education, resource management and research. • The books were created over a five year period (1996 to 2001) and now • make GEK easily accessible. • The books also provide alternative ways of teaching and

learning GEK. Gwich'in youth and other interested parties can also access the books.

Want more information?

-
- The books allow incorporation of GEK into renewable resource research and management. The GRRB has received very positive feedback from both communities and other parts of the world (including Aboriginal communities from other continents).
- Gwich'in Renewable Resources Board, 1999. *Nanh' Kak Geenjit Gwich'in Ginjik*, Gwich'in Words About the Land. GRRB, Inuvik, NT, 212 pp.
- Gwich'in Renewable Resources Board, 2001. *Gwìndòò Nanh' Kak Geenjit Gwich'in Ginjik*, More Gwich'in Words About the Land. GRRB, Inuvik, NT, 184 pp.



Gwich'in Words About the Land Books I & II



Gwich'in Elder Mary Kaye

9.3 GEKP Database (1997-2003)

Why did we do it?

- To encourage the use of Gwich'in environment knowledge in renewable resource research and management.

What did we want to do?

- Provide tools that make Gwich'in environment knowledge searchable and easily accessible.

Who were the lead proponents?

- GRRB

How did we do it?

- Developed a database that is easy to use.
- Provided RRCs and communities with database copies.

What was the outcome?

- Made the database accessible for consultation for researchers and managers from the GRRB office.
- The database makes GEK easily accessible and provides alternative ways of teaching and learning about GEK. It is also a knowledge base (insight) into Gwich'in culture for community youth. As well, the database incorporates GEK into renewable resource research and management.

9.4 Community-Land Relationship Project (2000-2002)

Why did we do it?

- To ensure that traditional management guidelines are developed and included into resource management in the GSA.

What did we want to do?

- To document traditional community management and monitoring.

Who is the lead proponent?

- GRRB and GTC

How did we do it?

- Gathered information on how the Gwich'in have traditionally managed interactions with wildlife, fish and forestry resources.
- Evaluated the current procedures of incorporating Traditional Knowledge (TK) into environmental assessment and renewable resource research projects.

What is the outcome?

- The study provided recommendations on how traditional community management and monitoring can be incorporated into environmental assessments.

Want more information?

- Clarkson P. and D. Andre, 2002. Communities, their Knowledge and Participation, Cumulative Effects Assessment Management Framework and Mackenzie Valley Cumulative Impacts Monitoring Program; Role of Traditional Knowledge, Elders and the Communities: Task 9/6. 2002. GRRB, Inuvik, NT, 52 pp.

9.5 Community-Based Ecological Monitoring Program (2001-2003)

Why did we do it?

- To monitor the region over time in regards to the land, fish, and wildlife.

What did we want to do?

- Record, synthesize, and communicate local knowledge about the environment.

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

- Arctic Borderlands Ecological Knowledge Co-op.
- Local people interviewed community members about the land, fish and wildlife.
- A GRRB Renewable Resource Technician assisted interviewers with their work and assumed responsibilities as a resource person for GSA knowledge.
- The program monitored and recorded changes to renewable resources in the region over time.
- Visit the Arctic Borderlands Ecological Knowledge Co-op website at <http://www.taiga.net/>

10 Building Community Capacity

The GRRB recognizes the importance of building capacity among community members to better care for the land and its resources. Building community capacity provides opportunities to beneficiaries, managers and the general public to learn about use of the land and its resources. It provides tools and knowledge to help make sound decisions when managing people's activities that affect renewable resources. It encourages community involvement in research projects and promotes careers in renewable resource management.



Forestry training in the field



GRRB Renewable Resource Technician John Edwards

10.1 RRC Operations Manual

Why did we do it?

- To inform new RRC Councilors about RRC operations and how other organizations work to implement the Gwich'in Comprehensive Land Claim Agreement.

What did we want to do?

- Develop an RRC Operations Manual.

Who were the lead proponents?

- GRRB, RRCs, and GTC

How did we do it?

- The manual covered general RRC meeting procedures, Councilor responsibilities, RRC Coordinator responsibilities and other useful information to assist the RRCs with their mandate.
- The first RRC manual was distributed in 1997 and revised (updated/printed) in 2001 by the GTC.
- The manual assists community RRCs with day-to-day operations and encourages capacity building in resource management.

What was the outcome?

10.2 Community-Based Research Projects

Why did we do it?

- To empower communities to conduct renewable resources research.

What did we want to do?

- Encourage RRCs in each community to identify renewable resource research projects, prepare project proposals, conduct research, and complete project reports.

Who were the lead proponents?

- GRRB and RRCs.

How did we do it?

- GRRB and agency staff assisted the RRCs with planning and implementation of projects so that community members could learn field research, project coordination, and other skills.
- Community-based research projects provide communities with opportunities to initiate research that address their needs.
- The projects help build community capacity in renewable resource management.

What was the outcome?

10.3 Community Field Assistants and Monitors

Why did we do it?

What did we want to do?

Who were the lead proponents?

How did we do it?

What was the outcome?

- To involve community members in research projects in the GSA.
- Hire field assistants from the communities to assist with research projects.
- GRRB, RRCs, and community members.
- Over a 10 year period, the GRRB, and other related agencies, hired more than 75 community assistants to help with wildlife, forestry, fisheries, conservation, and education projects.
- Assistants helped with the field component of research projects and provided knowledge of the GSA.
- Assistants and monitors developed field research skills and became more informed about renewable resource management. The Program also resulted in increased employment opportunities for Gwich'in beneficiaries. Another benefit is that GCLCA research money remained in GSA communities.



GRRB Renewable Resource Technician Trainee Jozef Carnogursky helps with research mapping



Cecile Andre tagging fish

10.4 Trainees

Why did we do it?

What did we want to do?

- To encourage beneficiaries to be more involved in renewable resource research and management.
- Provide on-the-job training positions to Gwich'in beneficiaries.

Who were the lead proponents?

- GRRB

How did we do it?

- On-the-job trainee positions included: Secretary Receptionist/Office Manager, Environmental Knowledge Assistant, Fisheries Technician, Harvest Study Assistant and Renewable Resource Management Technician.

What was the outcome?

- Employees worked with GRRB and government staff.
- Trainee positions helped beneficiaries to learn more about the land, develop technical and traditional skills, and expand their knowledge of wildlife and plants in the GSA.
- Trainees gained important work experience in renewable resource research and management, leadership-teamwork skills and self-confidence.

Want more information?

- See Appendix VII for names of past and present trainees.
- Contact the GRRB office for additional information.

10.5 Jim Edwards Sittichinli Scholarship

Why did we do it?

- To encourage students from the GSA to pursue careers in renewable resource management.

What did we want to do?

- Provide financial support to students who have made a commitment to careers in renewable resources.

Who were the lead proponents?

- GRRB

How did we do it?

- A scholarship was named after Reverend Jim Edwards Sittichinli, a respected Elder who was committed to the land and wildlife.
- GRRB awarded scholarships each year to students to encourage their continued academic pursuits.

What was the outcome?

- Students were able to continue their studies.
- The Scholarship will continue in the future for other Gwich'in students.

Want more information?

- See Appendix VIII for names of recipients.
- Contact the GRRB office for additional information or applications

10.6 Johnny D. Charlie Memorial Work Scholarship

Why did we do it?

- To provide students with work related experience in renewable resource management.

What did we want to do?

- Provide work experience to students who have made a commitment to careers in renewable resources.

Who were the lead proponents?

- GRRB

How did we do it?

- A scholarship was named after Johnny D. Charlie, a respected Elder who was devoted to his people, the land and wildlife.

What was the outcome?

- GRRB awarded one scholarship each year since 1999.
- The scholarship encouraged students to continue their studies.
- Related work experience helped students secure work in the future and gain a better understanding of renewable resource management.

Want more information?

- See Appendix VI for names of recipients. Contact the GRRB office for additional information.

10.7 Summer Students

Why did we do it?

- To encourage Gwich'in students pursuing studies in renewable resources.

What did we want to do?

- Provide hands-on work experience to students who are interested in pursuing a career in renewable resource management.

Who were the lead proponents?

- GRRB

How did we do it?

- Students were hired for the summer.
- They were assigned specific tasks and projects depending on their strengths and interest.

What was the outcome?

- The summer student positions encourage youth to pursue studies in renewable resources.
- Provided Gwich'in youth an opportunity to learn what is involved in managing renewable resources in the GSA

11 Environmental Education

Teaching residents of the GSA about wildlife, fish and forests encourages them to develop a deeper understanding and respect for the land and resources.

Residents of the GSA are responsible for using, protecting and conserving their resources and are active partners in all management decision-making. Environmental education projects also encourage young people to develop a deeper understanding and respect of the natural environment around them and to reflect on different environmental problems. It also inspires careers in natural resources and further research activities.



Tanya Snowshoe assists Melanie Cote with forestry Project.



GRRB biologists with children on Forestry Activity Day in Ják Park

11.1 Youth Work Experience Program

Why did we do it?

- To encourage junior and senior high school students to pursue careers in renewable resources by providing opportunities for hands-on work experience.

What did we want to do?

- Community monitors, GRRB staff and staff from other cooperating agencies, would hire students as assistants for field research.

Who were the lead proponents?

- GRRB

How did we do it?

- Over summer vacation, students were hired as field research assistants (worked 2-7 days).

What was the outcome?

- Students were paid on a daily basis.
- The program, ongoing since 2000, helps youth to further their understanding and respect for renewable resources in the GSA
- Gives students hands-on experience in renewable resource management in the GSA.
- Promotes careers in renewable resources.

11.2 School Programs

Why did we do it?

- To encourage youth to expand their understanding and respect of the land and its resources.

What did we want to do?

- Inform students throughout the GSA about renewable resource management and conservation.

Who were the lead proponents?

- GRRB

How did we do it?

- Staff participated in career days, class presentations, special forestry and wildlife events, Nature Day, and science-cultural camps.
- Staff assisted in program development and assisted as instructors at Aurora College in the Natural Resources Technology Program.

What was the outcome?

- Students developed a deeper appreciation of Gwich'in lands and resources.
- Promoted careers in renewable resource management.



Biologists and Gwich'in Elders help youth expand their knowledge of the GSA ecosystem.

11.3 Nature Day (2000–Present)

Why did we do it?

- To provide a fun way for Gwich'in children to gain a greater appreciation of the land and animals.

What did we want to do?

- Utilize games that center on wildlife and the ecosystem in order to teach children the importance of respecting the GSA and its animals.

Who were the lead proponents?

- GRRB

How did we do it?

- Focused on Grade 3 children, from each of the four Gwich'in communities, to participate in a series of hands-on nature games.

What was the outcome?

- Children were encouraged to have a greater appreciation and respect for the land, animals and Gwich'in culture.



Youth enjoying Nature Day



GRRB Fisheries Biologist teaching children games on Nature Day

11.4 Youth Treks and Camps (2000-2002)

Why did we do it?

- Educating youth on renewable resources and how to take care of the land is an important part of GRRB activities, Gwich'in youth are future care-takers of the GSA.

What did we want to do?

- Provide opportunities for youth to interact with the local ecosystem, which in turn, would give them a greater appreciation for their resources. In addition, youth would learn traditional skills from Gwich'in Elders.

Who were the lead proponents?

- GRRB and RRCs

How did we do it?

- Youth participated in three 'On-the-Land Youth Treks and Camps' in the GSA in 2000-2002.
- Gwich'in Elders were also involved in the treks to teach hands-on traditional skills and additional Gwich'in cultural knowledge.

What was the outcome?

- Treks encouraged interaction with the local environment, giving youth a greater understanding and respect for the land.
- Elders helped youth develop traditional skills and learn more about their Gwich'in culture.
- Participants developed greater self confidence by expanding their leadership and teamwork skills.



Trek 2002 Arctic Red



Trek 2001 Husky Channel



Millennium Trek 2000



Gwich'in youth learn to skin rabbit during Trek 2000

11.5 Conservation Calendar

Why did we do it?	<ul style="list-style-type: none">• To increase awareness of renewable resource management and conservation.
What did we want to do?	<ul style="list-style-type: none">• Inform people of conservation issues in the GSA and the traditional ways one shows respect for Gwich'in land.
Who were the lead proponents?	<ul style="list-style-type: none">• GRRB, ENR, and DFO
How did we do it?	<ul style="list-style-type: none">• Produced a yearly calendar displaying conservation information related to each season of the year.
What was the outcome?	<ul style="list-style-type: none">• Provides harvesters with a tool to record harvest information.• Increased awareness about renewable resource management and conservation.• Made others aware of the GRRB and its role in renewable resource management in the GSA.

12 Wildlife Research and Management

Wildlife in the GSA includes all mammals and birds that use the area for all or part of the year. Harvested species receive more attention as residents rely on these species for subsistence. However, the GRRB is concerned and responsible for the long-term conservation of all wildlife species.

The Gwich'in are known as the "People of the Caribou" because their culture and subsistence largely depends on the caribou. However, residents of the GSA rely on many different animals for subsistence. To make informed decisions on wildlife management, the GRRB relies on local and traditional knowledge, community input and participation, and results from research projects.

To ensure that human activities affecting wildlife are managed for long-term sustainable use, the GRRB is working with the communities and government departments to develop management plans. As many species are shared with other jurisdictions, management

plans must be worked on cooperatively and integrate all concerns and uses. Comprehensive information and management plans are necessary for fair distribution of available quota species such as grizzly bears. Management plans are also necessary to protect Gwich'in subsistence needs in the event of low wildlife numbers or to ensure fair distribution as community members begin guided sport hunting.

12.1 Rat River Biodiversity, Cultural, and Historical Assessment (1999-2000)

Why did we do it?

- To assess biological and cultural information that motivated the Gwich'in communities of Fort McPherson, Aklavik, Tsiigehtchic, and Inuvik to identify the Rat River watershed as a proposed protected wildlife and cultural area.

What did we want to do?

- Identify the traditional and historical uses of the area.
- Document the biodiversity of the Rat River watershed.

Who were the lead proponents?

- GRRB

How did we do it?

- Identified and sampled fish, wildlife, and vegetation.
- Gathered biological information and cultural knowledge documented during previous research.

What was the outcome?

- The assessment gathered biological and cultural information that strengthens the importance of the area to Gwich'in beneficiaries.

Want more information?

- Haszard, S. and J. Shaw. 2000. Rat River Biodiversity, Cultural & Historical Assessment. GRRB Report 00-01.



Rat River



Historical cabin at Rat River

12.2 Gwich'in Territorial Park Waterfowl Survey (1996)

Why did we do it?

- To provide baseline information on waterfowl within the Gwich'in Territorial Park (GTP).
- To collect information on waterfowl prior to the development of park facilities in order to make recommendations for future development and recreational activities.

What did we want to do?

- Count the number of waterfowl.
- Document waterfowl locations and breeding status within the GTP before the development of park facilities.

Who were the lead proponents?

- GRRB

How did we do it?

- Ground surveys were conducted and observations recorded.

What was the outcome?

- The project provided us with preliminary baseline information of the status of waterfowl in the park.
- The project provided recommendations for recreational and development activities.

Want more information?

- Edwards, J. and C.B. Chetkiewicz 1997. Gwich'in Territorial Park Waterfowl Survey 1996. GRRB Report 97-02.

12.3 Gwich'in Territorial Park Waterfowl Survey (1998)

Why did we do it?

- To complement the 1996 waterfowl survey done within the Gwich'in Territorial Park (GTP)
- To collect information on waterfowl after the development of park facilities.

What did we want to do?

- Continue the waterfowl monitoring program by measuring relative abundance of waterfowl that used the park during spring migration, breeding, and fall migration periods.

Who were the lead proponents?

- GRRB

How did we do it?

- Ground surveys were conducted.
- Birds were identified through binoculars and spotting scopes, and from canoe or boat.

What was the outcome?

- Recorded comparable data to the 1996 survey on the waterfowl and their abundance in the GTP.

**Want more
information?**

- Encouraged a better understanding of waterfowl habitat which will assist in management of the area.
- Marshal, J.P. and A. Firth. 1999. Gwich'in Territorial Park Waterfowl Survey 1998. GRRB Report 99-05.



Aklavik's Pump Lake offers a natural habitat for local waterfowl



White-winged scoter (Black duck, *Njaa*)

12.4 Habitat Requirements of White-winged & Surf Scoters in the Mackenzie Delta Region, NT (1999-2003)

Why did we do it?

- To examine how habitat characteristics affect the abundance, distribution, and productivity of white-winged and surf scoters in the GSA.

What did we want to do?

- Characterize wetland habitats available to breeding surf and white-winged scoters in the Mackenzie Delta and adjacent upland wetlands.
- Test for evidence of habitat selection by determining how specific wetland characteristics affect abundance, distribution and productivity of surf and white-winged scoters.
- Determine whether Landsat data can be used to predict scoter distribution (using 2001 duck data), and, if so, validate model predictions.

Who were the lead proponents?

- Shannon Haszard, Graduate Student, University of Saskatchewan.

How did we do it?

Breeding Waterfowl Assessment:

- Through the assessment, we gathered baseline information on the number and distribution of white-

winged scoters, surf scoters, lesser scaup and greater scaup in the GSA.

What was the outcome?

- Scoters were counted during helicopter surveys in randomly selected plots;
- Wetland area, shoreline perimeter, and an edge-to-area ratio, were calculated for each wetland surveyed.
- Water samples, food items (amphipods), and other physical and spatial measurements of the wetlands and their adjacent uplands, were collected.
- Established that coarse-scale features from Landsat imagery can be used to determine types of habitat needed by scoters to breed successfully.
- Results suggested that habitat changes caused by forest fire (possibly a result of climate warming) in the northwestern boreal forest could lead to a decline in scoter breeding success.

Want more information?

- Haszard, Shannon. 2004. Habitat Requirements of White-winged and Surf Scoters in the Mackenzie Delta Region, Northwest Territories. M.Sc. Thesis. University of Saskatchewan, Saskatoon, Saskatchewan. Please refer website link: <http://library.usask.ca/theses /available/etd-11292004-152440/>

12.5 Ecology of Tundra Swans in the Mackenzie Delta Region (2000-2004 est. completion)

Why did we do it?

- To determine baseline information on the numbers and productivity of tundra swans in the Mackenzie Delta.
- To gather information on swan breeding biology and habitat use in the area.

What did we want to do?

- Identify population sizes and productivity on established monitoring plots for tundra swans at “control” and “development” sites.
- Document Inuvialuit and Gwich'in local knowledge of the distribution, abundance, and biology of tundra swans.
- Assess the reproductive ecology of tundra swans at a number of “control” and “development” sites in the Mackenzie Delta.
- Determine the probable effects climate change will have on the productivity and population size of tundra swans.

Who were the lead

- Heather Swystun, Graduate Student, University of

proponents?	Northern British Columbia.
How did we do it?	<ul style="list-style-type: none"> • Interviewed people from each community. • Counted swans and swan nests by helicopter and fixed-wing aircraft. • Mapped location of swans and their nests. • Visited selected nests to determine brood size.
What was the outcome?	<ul style="list-style-type: none"> • Interviews documented Gwich'in and Inuvialuit traditional knowledge on distribution, abundance, and biology of tundra swans in the GSA and ISR. • To further studies into reproductive biology and habitat requirements for tundra swans.
Want more information?	<ul style="list-style-type: none"> • Swystun, Heather. Reproductive Ecology of Tundra Swans in the Mackenzie Delta Region. M.Sc. Thesis. University of Northern British Columbia, Prince George, British Columbia. In preparation. • Swystun, Heather. 2003. Tundra swans of the Mackenzie Delta. A progress report submitted to Northwest Territories Cumulative Impact Monitoring Program, INAC. 8 p.



Tundra swans on Travaillant Lake



Duck in natural habitat GSA

12.6 The Lower Mackenzie River Delta Project (2001-05 est. completion)

Why did we do it?	<ul style="list-style-type: none"> • To provide baseline information on the GSA and expand knowledge on the decline of black ducks and scaup.
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What did we want to do?

- To further our understanding of waterfowl reproductive ecology and to assess the productivity of wetlands.
- Identify types of vegetation within the selected area.

Who were the lead proponents?

- Ducks Unlimited Canada.

How did we do it?

- Field crews identified vegetation for selected sample areas and used that information to determine the accuracy of existing vegetation mapping information.
- Aerial surveys, ground-based surveys, nest searches, and water samples taken from wetlands, are examples of methods used in the project.

What was the outcome?

- Conducted a land-cover inventory and mapping project.
- The production of a vegetation map that includes a large portion of the GSA which is available in digital format and can be requested by researchers (and used for future research projects in the GSA).
- Provides managers with a greater understanding of water-bird species and numbers, water quality, and breeding ecology in the north.

Want more information?

- Manager. Lower Mackenzie River Delta Project. Ducks Unlimited Canada, Yellowknife, Northwest Territories.

12.7 The Northwest Territories' Hare & Small Mammal Surveys (1987-2003)

Why did we do it?

- To provide baseline information on natural variations of important species of prey.

What did we want to do?

- Determine density cycles of small mammals and hare in order to predict harvest potential of furbearers.
- Determine abundance and population cycles to predict harvest potential of furbearers.
- Possibly test for Hantavirus in Deer mice and parasites in other species.

Who were the lead proponents?

- GRRB and ENR

How did we do it?

- Part of a Northwest Territories-wide study on snowshoe hare and small mammal population changes.
- Transects were done in June each year to allow for consistent hare pellet counts.
- Trapped small mammals for 5 days along transects in

What was the outcome?

Want more information?

early August.

- Researchers monitored annual fluctuations.
- Determined the abundance of small mammals and hare in the study area which provided trend information for economically important furbearers and other wildlife.
- Allowed researchers to monitor changes in ecosystems.
- Carriere, S. Ecosystem Management Biologist, Wildlife and Fisheries, Department of Resources, Wildlife and Economic Development, Government of the Northwest Territories, Yellowknife, Northwest Territories.



Red fox (*Neegoo tsoo*) in Richardson Mountains.



Wolverine (*Nehtryuh*)

12.8 Status of Furbearers in the Gwich'in Settlement Area, NT (1998)

Why did we do it?

What did we want to do?

Who were the lead proponents?

How did we do it?

What was the

- To compile scientific information and concerns on furbearers in the GSA.
- Gather biological information, specific research, harvest statistics, and community concerns from previous studies on selected furbearer species in the GSA.
- Provide scope and information for research and management decisions in the GSA.
- GRRB
- Compiled agency reports, unpublished documents and data, management plans, theses, scientific articles, harvest study data, and map series.
- Provided a reference for individuals interested in

outcome?	reviewing the status of selected furbearer species in the GSA in order to determine research and planning needs.
Want more information?	<ul style="list-style-type: none"> • Chetkiewicz, C.B. and J.P. Marshal. 1998. Status of Furbearers in the Gwich'in Settlement Area, Northwest Territories. GRRB Report 98-03.

12.9 Status of Large Mammals in the Gwich'in Settlement Area, Northwest Territories (1998)

Why did we do it?	<ul style="list-style-type: none"> • To compile scientific information on large mammals in the GSA.
What did we want to do?	<ul style="list-style-type: none"> • Gather biological information, specific research, harvest statistics, and community concerns. from previous studies on specific large mammals in the GSA.
Who were the lead proponents?	<ul style="list-style-type: none"> • GRRB
How did we do it?	<ul style="list-style-type: none"> • Compiled agency reports, unpublished documents and data, management plans, theses, scientific articles, harvest study data, and maps series.
What was the outcome?	<ul style="list-style-type: none"> • Provided a reference for individuals interested in reviewing the status of large mammals in the GSA in order to determine research and planning needs.
Want more information?	<ul style="list-style-type: none"> • Chetkiewicz, C.B. and J.P. Marshal. 1998. Status of Large Mammals in the Gwich'in Settlement Area, Northwest Territories. GRRB Report 98-06.



Wolf near Dempster Highway

12.10 Status of Large Mammals in the Gwich'in Settlement Area, Northwest Territories (1998)

Why did we do it?

- To determine caribou habitat use of the northern Mackenzie Mountains.
- To determine caribou composition in the area.
- To improve the management of human activities affecting the species.

What did we want to do?

- Learn more on composition of woodland caribou populations in the study area.
- Determine woodland caribou habitat use in the study area.

Who were the lead proponents?

- GRRB

How did we do it?

- Synthesized all current information on woodland caribou in the study area.
- Implemented workshops with Gwich'in Elders, hunters, outfitters, and guides, and past/present wildlife researchers and managers,.
- Aerial surveys and ground classification in September 2000.

What was the outcome?

- Determined sex and calf-to-cow ratios.
- Compiled information on range movements, feeding, harvest, and predation.

Want more information?

- Shaw, J. and B. Benn 2001. Mountain Caribou Survey in the Northern Mackenzie Mountains, Gwich'in Settlement Area, September 2000. GRRB Report 01-03.



Heather Swystun

Caribou cows with offspring in Bonnet Lake region of GSA

12.11 Fall Movements of the Porcupine Caribou Herd (PCH) Near the Dempster Highway (2000)

Why did we do it?

- To determine the fall movements of the PCH.
- To be able to better understand, and better manage activities affecting the caribou.

What did we want to do?

- Monitor movements of the PCH as they approach the Dempster Highway.
- Monitor location and numbers of the lead bands and observe where and how they cross the highway.
- Observe hunter behavior, reactions of the caribou to hunting, and how hunting affects larger herd movements.

Who were the lead proponents?

- GRRB

How did we do it?

- Aerial surveys were conducted in August 2000.
- Recorded the date, locations and number of caribou.

What was the outcome?

- Documented the PCH as they proceeded to and crossed the Dempster Highway.
- Research could not document hunting effects because harvesters respected a voluntary hunting closure.

Want more information?

- Benn, B. 2001. Fall Movements of the Porcupine Caribou Herd Near the Dempster Highway, August 2000. GRRB Report 01-07.



Caribou on horizon in the GSA with storm clouds overhead

Heather Swystun

12.12 Boreal Woodland Caribou Traditional Knowledge Study (2001)

Why did we do it?

- To gather traditional and local knowledge about boreal woodland caribou within the Gwich'in Settlement Area,

What did we want to do?

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

Inuvialuit Settlement Region and Sahtu Settlement Area.

- Learn more on the historical and current distribution, seasonal movements, and habitat use of the boreal woodland caribou.
- Estimate harvest levels of the boreal woodland caribou.
- GRRB and ENR
- Conducted interviews with harvesters and Elders familiar with and/or seen woodland caribou while out on the land.
- Produced maps that show current and past distribution of caribou in the study area.
- Summarized the interviews into a report (although could not determine an overall estimate of harvest)
- Contact GRRB



Caribou (*Vadzaih*)



Group of Caribou between Bonnet Lake and Dempster Highway

12.13 Boreal Woodland Caribou Habitat Ecology Study (2001-2003)

Why did we do it?

What did we want to do?

- To combine several different components of wildlife and forestry research in order to have a strong understanding of boreal woodland habitat selection and availability.
- Produce a Landsat TM based vegetation map that can be used to accurately assess habitat use and selection by boreal woodland caribou.
- Assess use and selection of forested and non-forested vegetation by boreal woodland caribou.

Who were the lead proponents?

- GRRB and ENR

How did we do it?

- Digital vegetation maps were created and verified by visiting selected vegetation sites by helicopter (ground-truthed).
- Satellite collars, placed on the caribou, transmitted signals that showed their locations. Some locations were also surveyed for vegetation type.

What was the outcome?

- Provided researchers and managers with a greater understanding of boreal woodland caribou calving rates, productivity, and recruitment.
- Compiled information on the distribution and movement of boreal woodland caribou in the GSA, including their habitat use and selection.
- Ongoing project to map vegetation in order to assist with determination of potential habitat availability.
- Provided an estimate for numbers of boreal woodland caribou in the GSA.

Want more information?

- Auriat, D.; J. Nagy; P.; Ellsworth, I Wright, W. Slack, S.; Ecology of Boreal Woodland Caribou in the Lower Mackenzie Valley. Progress Report 2002-03. GRRB, Inuvik, Northwest Territories (view report at www.grrb.nt.ca or at www.nwtwildlife.com)

12.14 Dall's Sheep Management Plan (2001- on going)

Why did we do it?

- To provide a framework for management of human activities that affect Dall's sheep, the protection of their habitats, and the protection of Gwich'in harvesting rights.

What did we want to do?

- Maintain a healthy and viable population of Dall's sheep.
- Recognize and protect Dall's sheep habitat.
- Increase knowledge of Dall's sheep by promoting research, and exchange of traditional and scientific knowledge.
- Promote a cooperative spirit among Gwich'in communities, GRRB, government agencies and neighboring land claims, with respect to Dall's sheep management.
- Encourage responsible hunting practices.

Who were the lead

- GRRB, RRCs and ENR

proponents?

How did we do it?

- Compiled literature, scientific information and concerns about Dall's sheep.
- The GRRB organized community consultations to determine what beneficiaries wished to see in the management plan.

What was the outcome?

- Information gathered from community consultations will help ENR, GRRB and the RRCs to develop a management plan that addresses land users issues and makes recommendations.
- Once completed, the Plan will provide the backbone for Dall's sheep management in the GSA.

Want more information?

- Contact Wildlife Biologist at GRRB



Dall's sheep (*Ovis montanus*) grazing in Richardson Mountain Region.

12.15 Moose Management Plan Community Consultation (1998-1999)

Why did we do it?

- To understand community concerns about moose numbers and harvests.

What did we want to do?

- Compile information on community concerns, harvest data, and other local knowledge, for use in Moose Management Plan decision making processes.

Who were the lead proponents?

- GRRB and ENR

How did we do it?

- Workshops were held in each community.

What was the

- A report that compiled Community concerns and information and proposed areas for future moose

outcome?	surveys.
Want more information?	<ul style="list-style-type: none"> • Information compiled was used in development of the Moose Management Plan (see below). • Marshal, J.P. 1999. Moose Management Plan Community Consultation. GRRB Report 99-07

12.16 Moose Management Plan (2000)

Why did we do it?	<ul style="list-style-type: none"> • To provide a framework for the management of human activities that affect moose and their habitat, and to protect Gwich'in harvesting rights.
What did we want to do?	<ul style="list-style-type: none"> • Maintain a healthy and viable population of moose in the GSA by ensuring a sustainable harvesting level. • Determine an annual allowable harvest that can be adapted depending on change in moose populations. • Increase the knowledge of moose in the GSA by promoting research and the exchange of traditional, local, and scientific information. • Recognize the value of moose and their habitat when evaluating land-use activities. • Encourage wise hunting practices. • Ensure that management decisions and study results are provided to communities in a timely & meaningful way.
Who were the lead proponents?	<ul style="list-style-type: none"> • GRRB, RRCs, and ENR
How did we do it?	<ul style="list-style-type: none"> • Conducted community consultations and literature reviews. • Information compiled will help ensure implementation of a sustainable management plan for moose in the GSA. • Plan developed for future management activities, and protection of moose habitat and Gwich'in harvesting rights in the GSA.
What was the outcome?	<ul style="list-style-type: none"> • Moose Management Plan for the Gwich'in Settlement Area, Northwest Territories. 2000. GRRB Report 00-05.
Want more information?	

12.17 Co-management of Moose in the Gwich'in Settlement Area (1998-99)

Why did we do it?

- To make information available on co-management of moose in the GSA.

What did we want to do?

- Describe a wildlife co-management system by utilizing moose populations in the GSA

Who were the lead proponents?

- GRRB

How did we do it?

- Moose co-management process presented at the Alces Conference in 1999.

What was the outcome?

- Report on moose co-management in the GSA.

Want more information?

- Marshal, J.P. 1999. Co-management of Moose in the Gwich'in Settlement Area. Alces Vol. 35:151-158



Moose (*Dinjik*) swimming across Peel River



Moose resting

W. Stebner

12.18 Characteristics of Harvested Moose, Gwich'in Settlement Area, Northwest Territories (1998-1999)

Why did we do it?

- To predict potential effects of over harvesting on moose populations in the GSA.

What did we want to do?

- Determine the effects of harvesting moose on populations in the GSA.

Who were the lead proponents?

- GRRB

How did we do it?

- Developed a moose harvest study to determine characteristics of hunter-killed moose.

What was the outcome?

- Collected lower jaws and aged teeth from harvested moose.
- A report on the effects of harvesting moose in the GSA.
- Analysis indicated that the most commonly hunted moose in the study area were young (3-7 years), which in turn, could affect productivity and reduce moose populations.

Want more information?

- Marshal, J.P. and N. Snowshoe. 1999. Data Report: Characteristics of Harvested Moose, Gwich'in Settlement Area, NWT, September 1998 to June 1999. GRRB Report 99-08.

12.19 Trend Survey of Moose in the Inuvik-Tsiigehtchic Region, Northwest Territories (1997-1998)

Why did we do it?

What did we want to do?

- To monitor changes in moose populations in the area.
- Gather current population information on moose.
- Estimate the number of moose in the study area.
- Determine composition of moose population.
- Identify optimal timing for future moose trend surveys.

Who were the lead proponents?

- GRRB

How did we do it?

- Conducted aerial surveys along transects in the study area during the months of November and March.

What was the outcome?

- Report indicating that the moose population in the study area is stable or increasing.
- Identifies that late fall is the optimal time for surveys due to availability of larger sample sizes.

Want more information?

- Marshal, J.P. 1998. Trend Survey of Moose in the Inuvik-Tsiigehtchic Region, Northwest Territories, November 1997 and March 1998. GRRB Report 98-05.

12.20 Moose Survey in the Fort McPherson Region of the Gwich'in Settlement Area (2000)

Why did we do it?

What did we want to do?

- To monitor changes in moose populations in the area.
- Gather information on moose in an important moose harvesting area near Fort McPherson.

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

- Estimate the number of moose in the study area.
- Determine composition of the moose population.
- Understand fall distribution of moose in the study area.
- GRRB
- Aerial surveys of the study area in November.
- Recorded sex, age, and locations of observed moose.
- Through a mortality assessment with data gathered from resident harvest files and the Gwich'in Harvest Study.
- Survey identified that there is a productive moose population in the study area.
- Congregations of moose were found in certain drainages and not others. It was recommended, therefore, that a habitat assessment be conducted in the future to determine the reason for the variance.
- Benn, B. 2001. Moose Survey in the Fort McPherson Region of the Gwich'in Settlement Area, Northwest Territories, November 2000. GRRB Report 01-06.



Moose taking a drink



Jane Charlie demonstrates how to dry moose during Trek 2000

12.21 Moose Browse and Snow Characteristics in the Inuvik-Tsiigehtchic Region, NT (1998-99)

Why did we do it?

What did we want to do?

- To locate information on moose habitat this is an important factor in moose population dynamics.
- Study habitat characteristics that limit moose populations in the Mackenzie Delta area.

Who were the lead proponents?

- GRRB and ENR

How did we do it?

- Conducted surveys that measured browse availability and selection, and snow depth.

What was the outcome?

- Study indicated that snow depths in the selected habitat were not restrictive.
- Determines that browsable species availability is not a limiting factor for moose.

Want more information?

- Marshal, J.P. and J.A. Nagy. 1999. Moose Browse and Snow Characteristics in the Inuvik-Tsiigehtchic Region, Northwest Territories. GRRB Report 99-09.

12.22 Moose Abundance and Composition Survey in the Arctic Red River Region of the GSA (1999)

Why did we do it?

- To gather information on various impacts effecting moose abundance and composition in the Arctic Red River.
- Utilize data collected to improve moose management in the GSA.

What did we want to do?

- Estimate moose numbers in the Arctic Red River study area.
- Determine moose population composition (number of bulls, cows, yearlings, calves).
- Collect information on moose harvesting in the area, and how it is effecting the population.

Who were the lead proponents?

- GRRB

How did we do it?

- Aerial surveys with fixed-wing aircraft and helicopter were conducted.
- Reviewed and analyzed harvest data from resident harvest files, the Gwich'in Harvest Study, and the Moose Harvest Study.

What was the outcome?

- Determined that the moose population in the area is productive, however, densities vary greatly from area to area.
- Study found a low harvest mortality rate of moose in this area.

Want more information?

- Benn, B. 1999. Moose Abundance and Composition Survey in the Arctic Red River Region of the Gwich'in Settlement Area, NWT, Nov. 1999. GRRB Report 99-10.

12.23 Population Abundance and Composition of Moose in the Inuvik-Tsiigehtchic Region, NT (1996-98)

Why did we do it?	<ul style="list-style-type: none">• To determine moose population abundance and composition for better resource management.
What did we want to do?	<ul style="list-style-type: none">• Estimate the number of moose in the Arctic Red River Study Area, and population composition (number of bulls, cows, yearlings, calves).• Gather information on moose harvesting in the area and its effect on moose population.
Who were the lead proponents?	<ul style="list-style-type: none">• GRRB and ENR
How did we do it?	<ul style="list-style-type: none">• Aerial surveys were conducted in November 1996.• Moose harvest information was gathered from the Gwich'in Harvest Study (from GRRB and RRCs) and Resident Hunter Harvest Data (from ENR)
What was the outcome?	<ul style="list-style-type: none">• Determined existence of a high calf/cow ratio and low moose density in study area. No yearlings were observed.
Want more information?	<ul style="list-style-type: none">• Chetkiewicz, C.B.; D. Villeneuve; M. Branigan; J. Nagy and J.P. Marshal. 1998. Population Abundance and Composition of Moose in the Inuvik-Tsiigehtchic Region, NT, November 1996. GRRB Report 98-04.

12.24 Composition Survey of Moose in the Inuvik-Tsiigehtchic Region, Northwest Territories (1998)

Why did we do it?	<ul style="list-style-type: none">• To determine moose composition in the Inuvik-Tsiigehtchic Region in order to enhance moose management in the GSA.
What did we want to do?	<ul style="list-style-type: none">• Obtain early-winter moose population information.
Who were the lead proponents?	<ul style="list-style-type: none">• GRRB
How did we do it?	<ul style="list-style-type: none">• Aerial surveys were conducted within the study area during the month of November.
What was the outcome?	<ul style="list-style-type: none">• Determined that the study area has a high proportion of calves and bulls due to high harvest of females (or the

**Want more
information?**

small number of moose observed).

- Marshal, J.P. 1999. Composition Survey of Moose in the Inuvik-Tsiigehtchic Region, Northwest Territories, November 1998. GRRB Report 99-04.



Checking radio collar on grizzly bear



Grizzly bear (*Shih*) fishing

12.25 Grizzly Bear Management Plan Community Consultation (1997)

Why did we do it?

- To address community concerns for the Grizzly Bear Management Plan.

**What did we want to
do?**

- Present and discuss a draft version of the Grizzly Bear Management Plan.

**Who were the lead
proponents?**

- GRRB and ENR

How did we do it?

- A Grizzly Bear Management Goal Survey was conducted on beneficiaries in each community.
- Held open houses in each community to gather feedback on the survey and Grizzly Bear Management Plan.
- Distributed questionnaires on hunting and the Management Plan, and held workshops, in communities.
- A report documenting community feedback on the Grizzly Bear Management Plan.
- A Grizzly Management Agreement to review information.

**What was the
outcome?**

**Want more
information?**

- Chetkiewicz, C.B. 1997. Grizzly Bear Management Plan Community Consultation, 14-16 and 28 April 1997. GRRB Report 97-01

12.26 Grizzly Bear Management Agreement (2002)

Why did we do it?	<ul style="list-style-type: none">• To provide a plan for the management activities affecting grizzly bears, the protection of grizzly habitat, and the protection of Gwich'in harvesting rights.
What did we want to do?	<ul style="list-style-type: none">• Maintain a healthy, viable population of grizzly bears in the GSA, and manage grizzly bear harvests for sustained yield according to available information.• Provide maximum protection to female grizzly bears by protecting family groups and keeping the total harvest of females below 33% (of total population in the GSA).• Encourage wise-use of grizzly bear products.• Reduce problem bear incidences and need to destroy them.• Involve grizzly bear hunters in research, management, and collection of harvest data. Also collect adequate technical information on a timely basis to facilitate management decisions.
Who were the lead proponents?	<ul style="list-style-type: none">• GRRB, RRCs, and ENR
How did we do it?	<ul style="list-style-type: none">• Community consultation, workshops, and meetings
What was the outcome?	<ul style="list-style-type: none">• A management plan for grizzly bears in the GSA.
Want more information?	<ul style="list-style-type: none">• Management Agreement for Grizzly Bears in the Gwich'in Settlement Area. 2002. GRRB, Inuvik, Northwest Territories. GRRB Report 02-06

13 Fisheries Research and Management

Fish are an important source of food for the people of the Gwich'in Settlement Area. The GRRB works with the Department of Fisheries and Oceans and the RRCs to ensure there are fish stocks for future generations.

People of the GSA depend on fish for their subsistence and recreation. Today residents fish for whitefish, loche, coney, charr and trout. In the past, herring were also caught each fall for food and to feed dogs. Fishing is an important part of the subsistence

economy of all of the communities. To ensure that fish stocks are not over-harvested the GRRB is working with the Department of Fisheries and Oceans, RRCs, and adjacent land claim co-management boards to prepare fisheries management plans. As most fish stocks are shared with other jurisdictions it is important to develop a management plan that includes all harvesting of fish.

The GRRB has been assisting RRCs to conduct their own fisheries research projects to address local community concerns and questions. Community members are also involved in all fish monitoring and research projects in the GSA.



Setting net at Rat River

13.1 Lower Mackenzie Delta Index Netting Project (1999-2001)

Why did we do it?

What did we want to do?

- To track changes in the fish populations in the Lower Mackenzie River.
- Determine over time the type of fish present in the Lower Mackenzie River.
- Record the length and weight of fish caught.

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

- DFO
- Caught and sampled fish over one week in the Inuvialuit, Gwich'in, and Sahtu Land Claim Areas.
- Identification of fish species in different areas of the lower Mackenzie Delta at the same time of year.
- Stephenson, S.A. 2000. Results of the 1999 Lower Mackenzie River Index Netting Program, DFO unpublished report – please contact DFO, Inuvik Branch, NT.
- Stephenson, S.A. 2001. Results of the 2000 Lower Mackenzie River Index Netting Program. DFO unpublished report - please contact DFO, Inuvik Branch, NT.
- Stephenson, S.A. 2002. Summary results of the 1999-2001 Lower Mackenzie River Index Netting program. DFO unpublished report - please contact DFO, Inuvik Branch, NT.



Robert Elias monitoring fish on the Peel River



GRRB Biologist with monitors on the Peel River

13.2 Peel River Fish Study (1998-2002)

Why did we do it?

What did we want to do?

- To respond to community concerns that potential developments in or near the Peel River might affect fish populations.
- Determine the timing of fish migrations on route to spawning areas in the Peel River.
- Determine spawning sites for fish species in the Peel

	River.
Who were the lead proponents?	<ul style="list-style-type: none"> • Gather baseline information on fish species in the Peel River (size, age, length, etc.). • GRRB, Tetlit RRC and DFO
How did we do it?	<ul style="list-style-type: none"> • Gwich'in fishers who had camps along the Peel River were hired each fall to catch and sample fish. • Helicopter surveys were done to locate potential spawning areas.
What was the outcome?	<ul style="list-style-type: none"> • A study on when different fish species migrate up the Peel River to spawn and return downstream • The study also provided information on fish age, size, growth, sex ratio and number of eggs. Information was collected for coney, broad whitefish, lake whitefish, arctic herring, and least herring.
Want more information?	<ul style="list-style-type: none"> • VanGerwen -Toyne, M. and R.Tallman. 2000. The Peel River Fish Study, 1998 – 1999 with emphasis on broad whitefish (<i>Coregonus nasus</i>). GRRB unpublished report. • Walker-Larsen, J. 2001. The Peel River Fish Study, 2000. GRRB. Report 01-09. • VanGerwen -Toyne, M. 2002. The Peel River Fish Study, 2001. GRRB Report 02-01. • VanGerwen -Toyne, M. 2003. The Peel River Fish Study, 2002. GRRB Report 03-02 • VanGerwen-Toyne, M. and J. Walker-Larsen. Under review. Monitoring spawning populations of migratory inconnu and coregonids in the Peel River, NWT: The Peel River Fish Study, 1998-2003. Canadian Manuscript Report of Fisheries and Aquatic Sciences.

13.3 Husky Lake Test Fishery (1995-1996)

Why did we do it?	<ul style="list-style-type: none"> • To respond to Tetlit RRC concerns about reduced catches of lake trout in Husky Lake.
What did we want to do?	<ul style="list-style-type: none"> • Understand population dynamics of the resident lake trout population in Husky lake • Record physical information on the lake.
Who were the lead proponents?	<ul style="list-style-type: none"> • DFO

How did we do it?

What was the outcome?

Want more information?

- Set gill nets in December 1995 and November 1996.
- Conducted a bathymetric survey in September 1996.
- Gathered information on Husky Lake. The measurements (lake is approximately 766 hectares or 1893 acres, and the shoreline is 38.3 km).
- Recorded a maximum lake depth of 60.8 meters (201 feet).
- Study identified that, least herring, lake whitefish, loche, and pike are present in the lake.
- Data collected did not include lake trout which may have been in a different location of the lake.
- Chipertzak, D. 1997. Husky Lake Fishery Assessment Project. DFO update – contact DFO, Inuvik Branch, NT.



Mary Firth weighing fish



Fish spawning

13.4 Campbell Creek/Lake Study (1998-1999)

Why did we do it?

What did we want to do?

Who were the lead proponents?

How did we do it?

- Campbell Creek is an important recreational and subsistence fishing area and, since recreational use is expected to increase with the development of the Gwich'in Territorial Park, fish populations will be effected.
- Gather information on fish populations in the lake.
- Understand how fish use the lake and creek.
- GRRB
- Set 4.5-inch mesh and multi-mesh nets at 13 locations in

What was the outcome?

Want more information?

the lake in mid-June, early July and mid-November.

- Compared catch at different locations and times of the year.
- Tagged broad and lake whitefish, and coney, to observe whether or not they moved out of the lake.
- Measured length and weight of fish, and collected otoliths to determine fish age.
- Highest numbers of fish caught were pike and broad whitefish; followed by lake whitefish, coney, loche, arctic herring and least herring.
- Pike were mainly caught at the southern end of the lake.
- Broad whitefish and coney grew faster than lake whitefish. At 10 years old, the average coney is 65 cm long - compared to broad whitefish (50cm) and lake whitefish (40 cm).
- Broad whitefish stop growing at approximately 50 cm.
- Number of Broad whitefish caught peaked in July and only a few in November (spawning time) suggesting that broad whitefish leave the lake to spawn.
- Two tagged whitefish and one pike were caught at Campbell Creek the following spring.
- Tallman, R. 2001. Project Report: Fish species diversity in Campbell Lake. DFO unpublished report – please contact DFO, Inuvik Branch, NT for information.



Dan Andre holding lake trout (Vir)



Observing catch

13.5 Inconnu Migration Study (1996-1997)

Why did we do it?

- Little is known about migration routes and timing of coney from the coast to potential spawning areas in the Peel and Arctic Red Rivers.

What did we want to do?

- Identify locations for inconnu spawning, over-wintering, and feeding.
- Identify inconnu migration routes and timing.

Who were the lead proponents?

- DFO

How did we do it?

- In July 1996, 89 coney were tagged with floy tags (80 at Shingle Point, 5 at Arctic Red River and 4 in the outer delta).
- In July 1997, 34 coney were radio-tagged (14 at Shingle Point, 5 in the outer delta, 5 in the Peel River, and 10 in the Arctic Red River).

What was the outcome?

- Radio-tagged fish were tracked during 1996 and 1997.
- Tracking results indicated one potential spawning area on the Peel River. The Ramparts rapids on the Mackenzie River is also a potential spawning site.
- Ground crew confirmed a spawning location on Arctic Red River near the Cranswick River on separate study.
- No floy tags were returned.

Want more information?

- Chipertzak, D.B.; K.L. Howland and I. McLeod. 1998. DRAFT: Results from the 1996-1997 inconnu migration study in the western half of the lower Mackenzie River area and Beaufort Sea coast. DFO unpublished report – contact DFO, Inuvik Branch, NT for more information.



Dolly Varden Char (*Dhik'ii*)



Heading out

13.6 Rat River Charr Study (1995-2003)

Why did we do it?

- Dolly Varden Charr caught in the Rat River are a major food source for Aklavik and Fort McPherson families. Community concerns that the stock was being over-fished led to the development of the Rat River Charr Fishing Plan in 1997.

What did we want to do?

- Collect information on the fish populations (life history, population structure).
- Gather information on fish distribution, spawning movements and over-wintering areas.
- Identify additional spawning areas not previously known.
- Estimate how many fish harvesters are taking and the kinds of fish harvested.
- Estimate the impact of the harvest on the charr stock.
- Determine the trends in the sex, maturity, age, and size of charr taken in the annual harvest by Gwich'in fishers.

Who were the lead proponents?

- DFO and GRRB

How did we do it?

- A harvest-based monitoring program was initiated in 1995 and continues annually. Gwich'in fishermen are hired as monitors to collect biological data on fish caught by themselves and other beneficiaries throughout the late summer (fish migrating upstream are targeted).
- Surveyed and tagged charr at their spawning and over-wintering site in 1995, 1997, and 2001.
- Used tag returns in summer fish season in order to estimate the size of stock using mark-recapture method and also to calculate age-specific growth rates of recaptured fish.
- Charr were radio-tagged and tracked in late fall to decide time of arrival for silvers to their spawning areas.
- Confirmed that community-based monitoring is an effective tool for assessing the status of stock and impact of fishing on stock.
- The study determines harvest success (CPUE – Catch Per Unit Effort) and average length, and age, of fish caught during the 2002 fishing season.
- The study indicated that downturns may be linked to over-fishing in 1996 and 1997, and continuation of monitoring is important to examine this trend.
- Identified size and age structure of spawning and non-

What was the outcome?

Want more information?

spawning charr (at both the spawning and over-wintering site).

- Study estimated stock size for 1995, 1997, and 2001.
- The study showed that silvers arrive late to the over-wintering site indicating they were under-represented in fall surveys done in 1995, 1997, and 2001.
- Rat River Charr Fishing Plan Working Group. 2000. Rat River Charr Fishing Plan. DFO unpublished report.
- Department of Fisheries and Oceans. 2001. Rat River Dolly Varden. DFO Science Stock Status Report D5-61 (2001).
- Harwood, L. A. 2001. Status of anadromous Dolly Varden (*Salvelinus malma*) of the Rat River, Northwest Territories, as assessed through community-based sampling of the subsistence fishery, August-September 1989-2000. Canadian Science Advisory Secretariat. Research Document 2001/090.
- Sandstrom, S. J. and C. Chetkiewicz. 1996. An Investigation of Dolly Varden Charr (*Salvelinus malma*) spawning and over-wintering habitat. DFO unpublished report.
- Sandstrom, S. and L.A. Harwood. 1997. Rat River Charr Fall Seining and Tagging Project. DFO unpublished report.
- Sandstrom, S.J.; L.A. Harwood and C.B. Chetkiewicz. 2001. Over-wintering habitat of the juvenile Dolly Varden Charr (*Salvelinus malma*)(W.) in the Rat River, NT as determined by radio telemetry. Can. Tech. Rep. Fish. Aquat. Sci. To view report, go to: <http://inter01.dfo-mpo.gc.ca/waves2/summary.html?> (type “275372” into “CATNO” box – no other input data required - click “Search”)

13.7 Database of Fish Research in the GSA (1999)

Why did we do it?

- To gather all known records of fish research undertaken in the Gwich'in Settlement Area.

What did we want to do?

- Produce a database centered on fish research in the GSA that is searchable by fish species, location of research, type of data collected, and other parameters.

Who were the lead

- GRRB

proponents?

How did we do it?

- Conducted extensive literature reviews.
- Mapped research locations using a Geographic Information System (GIS).
- Developed a comprehensive tool to access information of fish research in the GSA.

What was the outcome?



Implanting radio transmitter for tracking fish



Allan Firth and Leslie Snowshoe remove fish otolith



The Andre fish camp on Travaillant Lake



DFO and GRRB biologists with William Teya on the Peel River

13.8 Travaillant Lake Fish Movement Study (2002-2003)

Why did we do it?

- Travaillant Lake is the largest lake in the GSA and an important area for fish and wildlife harvesting. However, little is known about its fish populations and whether the fish are lake-locked or migratory.
- There is significant potential for development activities

What did we want to do?

near the lake (proposed oil and gas pipeline, transportation corridor) that may affect lake and fish.

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

- Collect information on fish movements.
- Determine if fish populations in the lake system are migratory or lake-locked.
- Gather biological information for fish species.
- GRRB
- Conducted traditional knowledge interviews.
- Tagged, and released fish in July and September.
- Sampled a portion of fish caught for biological characteristics.
- Developed a plan to collect harvest information on tagged fish caught in subsequent years.
- The traditional knowledge interviews provided information on traditional Gwich'in use of Travaillant Lake and knowledge of fish movements.
- Fieldwork collected occurrence and biological information on fish species.
- VanGerwen –Toyne, M. 2002. Travaillant Lake Fish Movement Study: Traditional Knowledge Interviews. GRRB Report 02-02.
- VanGerwen –Toyne, M. 2003. Travaillant Lake Fish Movement Study, 2002. GRRB Report 03-01.



Drying fish

14 Forest Research and Management

A Forest Management Plan was drafted for the Gwich'in Settlement Area to address community and management concerns about forestry. The Gwich'in Renewable Resources Board in cooperation with the Department of Environments and Natural Resources, the GTC and the RRCs developed the draft plan.

The GRRB discusses forestry issues at the community level and conducts research that will help to implement a Forest Management Plan.

The GRRB and ENR worked with the RRCs and collected information on forest resources in the GSA. Past harvest and fire locations were recorded and were used to complete a forest management plan.



Forest along lakeshore in Travaillant Lake area of the GSA

14.1 Forest Management Plan

Why did we do it?

- To address community and management concerns about forests and forestry.

What did we want to do?

- Coordinate forest management and research activities between ENR, GRRB, and GTC.

Who were the lead

- GRRB, ENR, and GTC.

proponents?

How did we do it?

- Held workshops and meetings with the communities to discuss forestry issues at the community level.
- Formed a working group to oversee plan development.

What was the outcome?

- A draft plan was completed in November 2003.

Want more information?

- Contact the GRRB, GTC Lands & Resources, or ENR Forestry for more information.



Community Forest Use Planning Meetings in communities

14.2 Forestry Working Group

Why did we do it?

- To assist with the development of the Forest Management Plan.

What did we want to do?

- Ensure the Plan reflects priorities of the communities.

Who were the lead proponents?

- GRRB, ENR, GTC, and RRCs.

How did we do it?

- Developed a forest research and management work plan for a 5-year period.
- Discussed any forest management concerns or issues that needed to be addressed.
- The Working Group met when required.

What was the outcome?

- A draft plan was completed in November 2003.

Want more information?

- Contact the GRRB, GTC Lands & Resources, or ENR Forestry for more information.

14.3 Community Forest Use Planning Workshops (2000-2001)

Why did we do it?

- To address community and management concerns about forestry.

What did we want to do?

- Understand how people of the Gwich'in Settlement Area use the forests.
- Identify community issues/concerns about the forests or current forest management activities.
- Identify potential forest management solutions.

Who were the lead proponents?

- GRRB and ENR

How did we do it?

- Workshop participants included GRRB, ENR, GTC staff, community RRC members and community delegates.
- Held workshops with forest users in each community.
- Mapped current and historic forest use.
- Discussed forestry concerns and management solutions.
- Most forest use is woodcutting for personal use by community residents.
- The level of forest use is low now compared to forest use 50 years ago.
- Most forest use by residents of a community is restricted to the area surrounding that community.
- Although there are some forestry issues throughout the settlement area, each community is unique and faces

What was the outcome?

**Want more
information?**

- different forestry challenges.
- Forest management must be approached at both a settlement area level and at an individual community level to properly address concerns.
 - Walker-Larsen, J. 2000. Aklavik Forest Use Planning Workshop, Aklavik, NT. GRRB Report 00-02.
 - Walker-Larsen, J. 2001. Fort McPherson Forest Use Planning Workshop, Fort McPherson, NT. GRRB Report 01-01.
 - Walker-Larsen, J. 2001. Tsiigehtchic Forest Use Planning Workshop, Tsiigehtchic, NT. GRRB Report 01-04.
 - Walker-Larsen, J. 2001. Inuvik Forest Use Planning Workshop, Aklavik, NT. GRRB Report 01-05.

14.4 Forest Inventory of Productive Areas (1996)

Why did we do it?

- To inventory forest stands in areas of the Gwich'in Settlement Area with potential for commercial harvesting (in the middle of the Mackenzie Delta and along Arctic Red River and Peel River).

**What did we want to
do?**

- Map forest stands within the study areas and record stand characteristic (e.g. tree species, diameter, and height).

**Who were the lead
proponents?**

- GRRB and ENR

How did we do it?

- Aerial photographs of the forest stands were taken.
- A professional forester looked at the aerial photos and marked out boundaries of forest stands, identified tree species in the stands, and measured stand heights.
- The interpretation of the aerial photographs was verified by visiting the various forest stands on foot and gathering forest data (timber cruising).

**What was the
outcome?**

- Gwich'in beneficiaries were trained to collect forest data.
- Production of forest inventory maps.
The inventory indicated that:
- There are forest stands with white spruce trees of suitable size for commercial harvesting, but these trees grow extremely slowly.
- Due to their slow growth rates, the forests can only sustain a low level of harvest.

**Want more
information?**

- Forests in the GSA are not suitable for large scale commercial harvesting of timber and logs.
- Contact Manager of Forests Dept., ENR, Inuvik Region



Knuckle berry plant



Cotton grass

Jen Walker-Larsen

14.5 Vegetation Classification (1995-2003)

Why did we do it?

**What did we want to
do?**

**Who were the lead
proponents?**

How did we do it?

**What was the
outcome?**

**Want more
information?**

- To map forests and other plant communities in the GSA.
- Determine the abundance, distribution, and location of different types of forests and plant communities growing in the settlement area.
- ENR and GRRB
- The GRRB purchased a Landsat 7 satellite image of the Gwich'in Settlement Area in 1995.
- Features (rivers, lakes, mountains) and different plant communities show up as different colors on the satellite image. Areas that show up as the same color on the satellite image were visited by helicopter or plane to collect information about plants and features.
- Data is still being collected and analyzed.
- Preliminary maps are available.
- Contact Manager of Forests, Department of ENR, Inuvik Region

14.6 Forest Use Survey (1996-1997)

Why did we do it?

What did we want to do?

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

- To provide information needed for forest management.
- Determine the current uses of the forest, how people value the forest, and concerns related to forestry.
- GRRB
- Gwich'in beneficiaries were hired and trained to design and run the survey.
- Over 250 households were interviewed in Inuvik, Tsiigehtchic, Fort McPherson and Aklavik
- Questions were asked about subsistence, commercial and other uses of the forest, concerns about forestry, and special areas in the settlement area related to forests.
- Respondents were asked to map areas important for cutting firewood and lumber, hunting, trapping, community woodlots, wildlife, and cultural areas.
- Many households in Aklavik, Fort McPherson and Tsiigehtchic use firewood to heat and/or cook in town.
- Deadwood represented 78% of the harvest followed by live trees (16%) and driftwood (6%).
- Tsiigehtchic reported the greatest harvest of logs for personal and commercial use.
- Only a small number of households (about 10%) are involved in commercial forestry activities
- McDonald, I, D. Andre and P. Simon. 1999. Gwich'in Settlement Area Forest Use Survey. GRRB Report 99-01.



Gwich'in Elder Rebecca Francis educates James Williams about traditional uses for plants



Historic photo of Gwich'in Elder making traditional basket with paper birch bark from the local forest

14.7 Traditional Knowledge of the Forest (1997)

Why did we do it?

- A lack of recorded traditional knowledge about the forest was identified as a community concern through the Forest Use Survey.

What did we want to do?

- Gather traditional knowledge about the forest.

Who were the lead proponents?

- GRRB

How did we do it?

- A workshop was hosted in March 1997 with Elders from Aklavik, Fort McPherson, Inuvik and Tsiigehtchic.
- Past uses and changes in the forest were discussed.

What was the outcome?

- When people were living on the land, wood use was lower and people used all the parts of the tree. Now more people live in the Mackenzie Delta and their lifestyles require more wood and products. Steamboats, mission schools, and the construction of Inuvik, led to a large amount of forest harvesting in the region and people began relying on forests to provide cash income.
- Fewer trees now surround the communities and some areas up the Peel and Arctic Red Rivers are over-harvested. Seismic line cutting throughout the GSA alters the forest.
- Today old seismic lines are used as traplines and travel corridors.
- Today's youth must be educated in traditional ways.

Want more information?

- See Haszard, S.L. and D. Andre. 1999. Traditional Knowledge Forestry Workshop 23-25 March 1997, Aklavik, NT. GRRB 99-03.



Blueberries

Heather Sywstun



Cranberries

Jen Walker-Larsen

14.8 Gwich'in Ethno-Botany Study (1996-2000)

Why did we do it?

- Many skills Gwich'in needed to survive on the land survive only in the memories of the Elders. As they pass away, this knowledge needs to be documented for the use of younger generations.

What did we want to do?

- Document Gwich'in traditional use of plants and create education kits to be used by educators, naturalists and the public.

Who were the lead proponents?

- Gwich'in Social and Cultural Institute (GSCI), Aurora Research Institute (ARI), and GRRB

How did we do it?

- Information about Gwich'in uses for various plants was collected by working on the land with Gwich'in Elders and youth.

- Plant specimens were collected for the education kits

What was the outcome?

- A book that documents Gwich'in traditional use of 32 different plants and 3 rock minerals.

Want more information?

- See Andre, A. and A. Fehr. 2000. Gwich'in Ethnobotany: Plants used by the Gwich'in for food, medicine, shelter and tools. GSCI and ARI, Inuvik, Northwest Territories. Please contact ARI for copies.



Historic photo of worker loading wood for steamship fuel on the Mackenzie River



Cordwood for winter fuel

14.9 Historic and Current Forest Use in the GSA (1999-2001)

Why did we do it?

- To provide information needed for forest management.

What did we want to

- Collect information on current forest use practices and

do?

historical timber harvests.

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

- Gather information on wood use by Hudson Bay Company supply steamships that traveled in the GSA.
- GRRB, University of Alberta, and Sustainable Forest Management Network.
- Two students stayed with Gwich'in beneficiaries at their camps along the Peel River for two summers in order to learn more about forest use and practices.
- Another student searched the Hudson Bay Company Archives for ship logs, trading post logs and other information on wood use.
- Wood is mostly cut in the winter when residents can use snowmobiles to reach areas that are not accessible from the waterways.
- The Hudson Bay Company supplied wood to steamships from the late 1880's to the 1950s when steamships were converted to burn oil.
- Green cordwood was cut from different locations around the GSA by community members and company staff and taken aboard as needed by the ships.
- Current level of wood use by community members is much lower in comparison.
- Most residents prefer standing dry wood for firewood since it is less heavy for carrying, burns more quickly, and generates more heat than green wood.
- Ship logs did not always contain detailed records of wood use but most ships made 1 trip around the GSA each open water season and probably burned at least 265 cords per trip.
- The steamboat, S. S. Distributor, burned approx. 3-3.5 cords/hour of travel, and there were no detailed records in the archives about wood use by schools, trading posts, or missions.
- Anderson, D.G., R. Wishart, A. Murray and D. Honeyman. 2000. Sustainable forestry in the Gwich'in Settlement Area: Ethnographic and Ethnohistoric Perspectives. SFMN Report 2000-9. University of Alberta, Edmonton, Alberta.

14.10 Regeneration and Productivity of White Spruce in the Mackenzie Delta (1999-2001)

Why did we do it?

- To gather information about how white spruce forests grow at the northern limit of their range and how permafrost affects growth.

What did we want to do?

- Investigate growth rates and patterns of white spruce in two distinct environments: the Mackenzie delta and upland environments.
- Investigate re-growth of white spruce after wildfire and timber harvesting.

Who were the lead proponents?

- GRRB, University of Alberta, and Sustainable Forest Management Network.

How did we do it?

- Selectively harvested sites in the Mackenzie River delta were assessed for regeneration and growth rings of neighboring trees were analyzed for a growth release.
- Growth patterns of upland and delta white spruce trees were compared by analyzing growth rings.
- An experiment was done to see if seeds of various tree species could ripen and sprout after the tree was killed at different times of the growing season.

What was the outcome?

- Sites in the area burned by the 1998 wildfire near Tsiigehtchic were assessed for white spruce regeneration.
- Unlike southern forests, delta white spruce trees do not have a growth release after selective cutting.
- Upland white spruce stands are more productive than delta spruce, but these stands are limited to small areas with good growing conditions such as south slopes of well drained eskers.
- In the upland areas, most white spruce trees establish in the first 40 years after a wildfire.
- Seeds on upland trees killed by late season (July-Aug) fires can ripen and produce seedlings.

Want more information?

- Wein, R.W., S. M Landhausser, M.J. Salomons, B. Sander, J. Schoplick and J. Truscott. 2001. Sustainable forestry in the Gwich'in Settlement Area: Biological Perspectives. SFMN Report 2001-31. University of Alberta, Edmonton, Alberta.



ENR worker Lawrence Lewis cutting cookie rings which will determine age of white spruce tree



GRRB trainee Justin Frost drilling into tree to get core sample

14.11 True Age of White Spruce in the Mackenzie Delta (2000-2001)

Why did we do it?

What did we want to do?

Who were the lead proponents?

How did we do it?

What was the outcome?

Want more information?

- To investigate difficulties in accurately aging white spruce of the Mackenzie River delta.
- Determine how to estimate age of white spruce trees in the Mackenzie River delta.
- Determine a preliminary correction factor for estimating tree age being slowly buried under sedimentation.
- Investigate accuracy problems when aging delta white spruce.
- GRRB, University of Alberta, and Sustainable Forest Management Network
- Five white spruce trees partially buried by delta sedimentation were washed out from cut-banks
- Tree stems were sectioned and growth rings counted.
- The research estimates that buried section of tree stems represent 26 to 83 years of growth (47 years on average). This estimate is low since most stems are rotting in the center and the rings in this area could not be counted.
- More work is needed to develop a more accurate factor.
- See Wein, R.W., S. M Landhausser, M.J. Salomons, B. Sander, J. Schoplick and J. Truscott. 2001. Sustainable forestry in the Gwich'in Settlement Area: Biological Perspectives. SFMN report 2001-31. University of Alberta., Edmonton, Alberta.

14.12 Developing Sustainable Non-Timber Forest Products (2000-2002)

Why did we do it?

- The slow growth of northern forests makes the production of typical forest products like lumber and logs unsustainable. In order for northern communities to build economic opportunities from the forests, suitable alternative forest products must be developed.
- Gwich'in people have a long history of using plants, berries, and other forest products.
- To determine if Gwich'in operating non-timber forest product businesses are able to earn income and still follow a traditional lifestyle.

What did we want to do?

- Assess whether a local business that produces a non-timber forest product could succeed.

Who were the lead proponents?

- GRRB, University of Alberta, and Sustainable Forest Management Network.

How did we do it?

- Documented current levels of berry and other non-timber forest product use by residents of the GSA
- Estimated the amount of berries that are produced each year in the GSA by measuring numbers of berries in different forest stand types.
- Determined local interest in turning wild collection and processing of berries into an economic opportunity.
- Investigated whether markets exist for northern berry products. Berry jam was chosen as a test product.
- Completed market surveys to find out if a price premium exists for a First Nation labeled product.

What was the outcome?

- In the 4 communities of the GSA, people mostly pick cranberries, blueberries and cloudberries.
- A total of 15,344 liters of berries were reported picked in 2000. 29% of the berries picked were cranberries (4,400 liters), 28% were blueberries (4,426 liters) and 44% were cloudberries (6,718 liters).
- The Market survey indicated that: People most preferred cloudberry jam followed by blueberry, then cranberry. Also those consumers would be willing to pay 5 to 15% more for Gwich'in products over Swedish ones.

Want more information?

- Murray, G. and P. Boxall. 2002. The distribution, abundance, and utilization of wild fruits by the Gwich'in in the Mackenzie River Delta. Sustainable Forest Management Network Final Project Report 2002-7. University of Alberta, Edmonton, Alberta.

- Murray, G. 2002. An exploration of non-timber forest product potential in a sub-arctic aboriginal setting. Unpublished MSc Thesis. University of Alberta, Edmonton, Alberta.
- Boxall, P.C., Murray, G., and J.R. Unterschultz. 2003. Non-timber forest products from the Canadian boreal forest: an exploration of aboriginal opportunities. Alberta. Journal of Forest Economics Vol.9, Dept. of Rural Economy, University of Alberta, Edmonton, Alberta.

14.13 Driftwood Model (2001-2003)

Why did we do it?

- The slow growth of northern forests makes the production of typical forest products (such as lumber and logs) non-sustainable. For northern communities to build forest-based economic opportunities, alternative forest products must be developed.
- Large amounts of driftwood move down the Mackenzie River each year during spring and summer floods.
- Some of this wood is suitable for logs and lumber and may be suitable for other forest products.

What did we want to do?

- Understand production, movement, decomposition, and use of driftwood logs, along the major rivers in the GSA.

Who were the lead proponents?

- GRRB, University of Alberta and Sustainable Forest Management Network.

How did we do it?

- A traditional knowledge survey was completed in 2001.
- Two University of Alberta anthropologists spent two summers at Gwich'in Camps on the Peel River and collected information on driftwood use.
- In 2001 a graduate student commenced work to further understand driftwood decomposition and movement. The researcher also developed a mathematical model to describe why drift logs sink.

What was the outcome?

- Drift logs are harvested both for subsistence and commercial sale, in spring after break-up, and used for piling, lumber, log homes, and firewood.
- Drift logs collected range from 20 to 50 feet long and from 10 to 20 inches in diameter.

Want more

- Wishart, R. and A. Murray. 2001. Report on driftwood use. Unpublished Report. University of Alberta,

information?

Edmonton, Alta.

- Greenland, B.J. and J. Walker-Larsen. 2002. Local knowledge and use of driftwood and drift logs in the Gwich'in Settlement Area. GRRB Report 02-01.
- Dimitrov, D. and D. Dimitrov. 2001. Theory of Wood Buoyancy: Why do logs sink? Draft Report. University of Alberta, Edmonton, Alta.



Driftwood on the Peel River



Tree coverage on Delta between Inuvik and Aklavik

14.14 Forest Health Plot (1998-2001)

Why did we do it?

- To establish a forest health plot in the GSA as part of a national network to monitor tree health.

What did we want to do?

- Establish a plot to help detect early signs of air pollution damage to Canada's Forests.

Who were the lead proponents?

- GRRB and Canada's National Forest Health Monitoring Plot Network.

How did we do it?

- The GRRB established a permanent forest monitoring plot in the Gwich'in Territorial Park near Campbell Lake in 1998.
- The condition of trees is assessed annually, based on the extent of leaf and branch damage by various agents (including insect pests and environmental factors).
- General tree measurements (height, diameter, etc.) are taken every five years.

What was the outcome?

- The trees on the plot were assessed in 1999, 2000, and 2001. No change in tree health was seen and there was little evidence of insect damage in the plot.
- The national network was disbanded in 2001. No

**Want more
information?**

measurements have been taken since.

- Hall, J.P., W.W. Bowers, H.E. Hirvonen, G.D. Hogan, N. Foster, I. Morrison, K.E. Percy, R.M. Cox, and P.A. Arp. 1998. Effects of acidic deposition on Canada's forests. (Effets des dépôts acides sur les forêts canadiennes). Natural Resources Canada, Canadian Forest Service, Headquarters, Science Branch, Ottawa. Information Report ST-X-15. 23 p.
- D'Eon, S.P., L.P. Magasi, L.P., D. Lachance and P. DesRochers. 1994. ARNEWS: Canada's national forest health monitoring plot network. Manual on plot establishment and monitoring (revised) Natural Resources Canada, Canadian Forest Service, Petawawa National Forestry Institute, Chalk River, Ontario. Information Report PI-X-117.
- McDonald, I. 1999. Forest Monitoring in the Gwich'in Settlement Area. GRRB (unpublished report).



Arctic lupine



Heather Swystun

Mushroom, hair-cap moss, and lichen thrive in GSA

14.15 Forest Biodiversity Plot (1998-2003)

Why did we do it?

- To establish a plot as part of an international network to measure forest diversity.

**What did we want to
do?**

- Monitor tree diversity as part of national and international efforts.

**Who were the lead
proponents?**

- GRRB and Ecological Monitoring & Assessment Network (EMAN).

How did we do it?

- A permanent monitoring plot was established in 1998.
- Every five years GRRB staff and local college students

What was the outcome?

will measure trees in the plot. Each tree with a stem diameter over 5 cm, is measured, tagged, and plotted.

- Data is sent to EMAN for analysis and reporting.
- 617 white spruce trees are tagged in the plot.
- From 1998-2003, tree diameter increased by 0.5 cm which indicates a very slow growth rate compared to southern forests.
- More information will be available as measurements are made in upcoming years. Currently, the only tree species in the monitoring plot is white spruce.
- EMAN website: www.eman.com
- McDonald, I. 1999. Forest Monitoring in the Gwich'in Settlement Area. Unpublished report provided to First Nations Forestry Program, Environment Canada.

Want more information?



Ják Park Interpretive Trail, a GRRB sponsored project, educates hikers on the local ecosystem, and traditional Gwich'in culture and uses for the forests.



Forestry training in the field.



The GSA ecosystem is dependent on sustainable forest management (photo taken during GRRB's Millennium Trek).

15 Gwich'in Renewable Resources Board Funding

Securing adequate funding for staff and research and management programs is a high priority for the GRRB. The Board receives funding from numerous sources each year but the main funding source is the federal government through land claims implementation funding. Implementation funding is provided for the GRRB's General Operations budget and Harvest Study budget. Having independent funding and expenditure programs allows the GRRB to be financially efficient and effective.

15.1 Operations Budget

The GRRB Operations budget covers the main expenses of the GRRB, office and staff. Each year the GRRB submits an expenditure plan to the Gwich'in Land Claim Implementation Committee for approval. The expenditure plan is limited by the funding available to the GRRB as identified in the Land Claims Implementation Plan. Section 13.6 of this report shows how much money was used by the GRRB each year for the past 10 years.

15.2 Gwich'in Harvest Study

The GRRB was assigned the task of conducting the Harvest Study and receives a separate budget for all Harvest Study expenses. The Harvest Study expenses include pay for the Coordinator, Assistant, Community Interviewers, supplies and travel needed to complete the study. Total amounts for the Harvest Study budgets in 1995-2003 are shown below in Section 15.6. Please contact the GRRB office or visit www.grrb.nt.ca.



Boat ride

15.3 Wildlife Studies Fund

The GRRB received two million dollars in 1995 to provide funding for wildlife and other renewable resource research and management projects during the 10-year implementation period. The GRRB invested the funds in secure, interest bearing investments and each year disburses a portion of the investment to research, management, local knowledge and educational projects. The total amount of Wildlife Studies Funds utilized by the GRRB from 1994-2003 is shown below in Section 15 (refer Appendix VII to view which projects received Wildlife Studies Funds in 1994 - 2003).

15.4 Outside Funding

To complete all the projects the GRRB approves each year requires additional funding from outside sources. GRRB staff apply for funding and in-kind support from a number of groups and agencies. The amount of outside (cash) funding received each year is shown in Section 15.6 below. Additional outside/in-kind support, such as helicopter hours, staff time and other project support, is not included in the table below and total over \$250,000 per year.

15.5 Audited Financial Statements

Each year the GRRB has an independent auditor prepare audited financial statements. These statements are submitted to the federal government each year and are available for review at the GRRB Office.



Lone snowmobile rider near Inuvik

15.6 Total GRRB Funding (1993 to 2003)

Fiscal Year	Operations Budget	Harvest Study Budget	Wildlife Studies Fund	Outside Funding*	Total Funding
1993-1994	\$ 53,005				\$ 53,005
1994-1995	\$ 360,966			\$ 6,757	\$ 367,723
1995-1996	\$ 642,050	\$ 160,950		\$ 32,165	\$ 835,165
1996-1997	\$ 757,398	\$ 145,700	\$ 100,000	\$ 230,924	\$ 1,234,022
1997-1998	\$ 738,372	\$ 185,470	\$ 200,000	\$ 321,682	\$ 1,445,524
1998-1999	\$ 541,364	\$ 171,629	\$ 200,037	\$ 276,005	\$ 1,189,035
1999-2000	\$ 552,810	\$ 181,230	\$ 197,774	\$ 299,776	\$ 1,231,590
2000-2001	\$ 521,030	\$ 159,427	\$ 200,000	\$ 127,986	\$ 1,008,443
2001-2002	\$ 528,781	\$ 70,470	\$ 200,000	\$ 231,315	\$ 1,030,566
2002-2003	\$ 548,121	\$ 35,973	\$ 200,000	\$ 254,842	\$ 1,038,936

*Outside funding only includes cash contributions

16 Appendices

Appendix I List of Past Meetings: Dates & Locations

Year	Date	Location
2003	February 4-5	Aklavik
2002	January 22-23	Inuvik
2002	October 1-2	Tsiigehtchic
2001	January 25-26	Aklavik
2001	September 17-18	Fort McPherson
2000	January 27-29	Inuvik
2000	October 02-03	Aklavik
1999	January 28-29	Aklavik
1999	September 23-24	Fort McPherson
1998	January 28-30	Inuvik
1998	October 1-2	Tsiigehtchic
1997	January 21-24	Tsiigehtchic
1997	April 9-11	Aklavik
1997	July 21-23	Tl'oondih, Peel River
1997	October 7-8	Fort McPherson
1996	February 12-14	Aklavik
1996	April 10-12	Fort McPherson
1996	July 25-26	Tsiigehtchic
1996	October 16-18	Inuvik
1995	January 23-26	Aklavik
1995	April 3-6	Fort McPherson
1995	July 25-27	Tsiigehtchic
1995	November 25-26	Inuvik
1994	February 18	Whitehorse
1994	May 25-27	Inuvik
1994	June 15	conference call
1994	October 12-14	Inuvik
1993	October 1-2	Tsiigehtchic

Appendix II Past Board Members and Alternates

Past Board Members and Alternates		
Years	Members	Alternates
2003	Robert Charlie-Chairperson James B. Firth Robert Alexie Sr Joe Benoit Paul Latour Roger Peet Elizabeth Hansen	Robert Elias Robert Moshenko Vicky Johnston Melba Mitchell John Nagy
2002	Robert Charlie-Chairperson James B. Firth Robert Alexie Sr Joe Benoit Paul Latour Roger Peet Elizabeth Hansen	Robert Elias John Nagy Robert Moshenko Vicky Johnston Melba Mitchell
2001	Robert Charlie-Chairperson James B. Firth Ron Morrison Robert Alexie Sr Joe Benoit Paul Latour Roger Peet	Robert Elias John Nagy Robert Moshenko Vicky Johnston Melba Mitchell
2000	Robert Charlie-Chairperson James B. Firth Robert Alexie Sr Joe Benoit Paul Latour Roger Peet Ron Morrison	Robert Elias Norman Snowshoe John Nagy Robert Moshenko Vicky Johnston Melba Mitchell
1999	Robert Charlie-Chairperson James Firth Roger Peet Paul Latour Ron Morrison Joe Benoit Robert Alexie Sr.	John Nagy Melba Mitchell Norman Snowshoe Robert Elias Vicky Johnston Robert Moshenko
1998	Robert Charlie-Chairperson James Firth Joe Benoit	Roger Peet James Ross John Nagy

	Robert Alexie Sr. Ron Morrison Paul Latour Jim Hickling	Kevin McCormick Melba Mitchell Robert Elias Norman Snowshoe
1997	Robert Charlie-Chairperson James Firth Joe Benoit Robert Alexie Sr. Paul Latour Jim Hickling Roger Binne	Roger Peet Ron Morrison Freddie Greenland Kevin McCormick Ed Henderson James Ross
1996	Robert Charlie-Chairperson James Firth Robert Alexie Sr. Joe Benoit Jim Hickling Paul Latour Roger Binne	Grace Blake James Ross Freddie Greenland Ed Henderson Kevin McCormick Roger Peet
1995	Robert Charlie-Chairperson James Firth Robert Alexie Sr. Joe Benoit Jim Hickling Paul Laotour Roger Binne	Freddie Greenland Roger Peet Grace Blake Ed Henderson Kevin McCormick James Ross
1994	Robert Charlie-Chairperson James Firth James Ross Joe Benoit Jim Hickling Kevin McCormick Roger Binne	Paul Latour Ed Henderson Robert Alexie Sr. Roger Peet Grace Blake Freddie Greenland
1993	James Firth James Ross Joe Benoit Jim Hickling Roger Binne Kevin McCormick	Roger Peet Ed Henderson Paul Latour Grace Blake Freddie Greenland Robert Alexie Sr.

Appendix III Contact Information & Staff

Contact information:

Gwich'in Renewable Resources Board
 PO Box 2240, 105 Veterans' Way
 Inuvik, NT X0E 0T0
 Ph: (867) 777-6600 Fax: (867) 777-6601
www.grrb.nt.ca

GRRB Staff (1994 – 2003)		
Job title	Name	Mandate
Executive Director	Peter Clarkson	1994-2003
Office Manager	Barbara Chalmers Jane Tetlich Julia Neyelle Trina Edwards	2002-2003 1999-2002 1999 1995-1999
Secretary	Cheryl Wright Bonnie Ross Rita Mitchell	1996-1999 1994-1995 1994-1995
Wildlife Biologist	Denise Auriat Bryon Benn Jason Marshal Cheryl Chetkiewicz	2001-2003 1999 1997-1999 1995-1997
Fisheries/Forestry Biologist	Jennifer Walker-Larsen Melanie Toyne Ian MacDonald Patrice Simon Wynet Smith	1999-2003 2002-2003 1998-1999 1997-1998 1995-1996
Fisheries Technician	Jozef Carnogursky Johnny Edward Allen Firth Steven Charlie Ian McLeod	2002-2003 2000-2002 1998-1999 1997-1998 1996-1997
Special Projects Biologist	Les Harris Pippa Seccombe-Hett Shannon Haszard Jennifer Shaw	2003 2002-2003 1998-2000 1999-2001

	Shannon Ward	1996-1997
Community Knowledge Coordinator	Janet Winbourne	2003
Gwich'in Harvest Study Coordinator	Charlie Rose Beverly Arey Ian MacDonald	2002-2003 1998-1999 1995-1998
Gwich'in Harvest Study Assistant	Sheldon Bernard Lena Church Beverly Arey Shawn Firth Norman Snowshoe	1999-2001 1998-1999 1997-1998 1996-1997 1995-1996
Gwich'in Harvest Study Interviewers	Lucy-Ann Kendo Eugene Pascal Neil Firth Bella Snowshoe Eliza Greenland Rhea Kay Frederick Blake Shirley Alexie Beverly Arey Louie Cardinal Annie Smith Effie Jane Snowshoe Lena Church Elizabeth Snowshoe Melba Mitchell Donna Koe Johnny Firth Beverly Arey Dan Andre Julie Ann Andre Loretta Koe Clifford Francis Shawn Firth Norman Snowshoe Eddie Greenland Ernest Bonnetplume Georgie Blake Noel Andre James Andre	2002-2003 2002-2003 2002-2003 2002-2003 2001-2002 2001 2001-2003 2000-2001 1998-1999 1999-2000 1999 1998-1999 1998-1999 1997-1999 1996-1999 1997-1998 1997-1998 1997-1998 1997-1998 1997-1999 1996-1997 1996 1996-1997 1995-1996 1995-1996 1995-1996 1995-1996 1995-1996 1996-1997
Renewable Resource Technician	Forrest Kendi Richard Francis Doug Villeneuve	2003 2001 1996-1998
On-Site Resource People	Donald Andre Isaac Imasuen Jaida Edwards Jennifer Castleden	2000-2001 1998 1996 1995-1996

Gwich'in Environmental Knowledge Project (GEKP) Coordinator	Marie-Anick Elie	2000-2003
	Bobbie Jo Greenland	1999
	Vesna Madjaric	1999
	Deena Clayton	1998-1999
	Gordon Petrie	1997-1998
	Gleb Raygorodetsky	1995-1997
GEKP Assistant	Bobbie Jo Greenland	1998-1999
Communications Manager	Marie-Anick Elie	1997-2003
GEKP Archival Assistant	Neal Simard	1996-1997
GEKP Interviewers	Dan Andre	1997-1998
	Agnes Francis	1998
	Myrna Vaneltsi	1997-1998
	Michelle Furlong	1998
	Beatrice Stewart	1997-1998
	Charles Wright	1997
	Russell Andre	1996
Summer Students	Catherine Jorstead	2002
	Kristina Lynn John	2000-2001
	Catherine Peters	2001
	Augusto Carriedo	2000
	Suzannah Simon	1999
	Donald Andre	1999-2000
	Johnny Edwards	1997-1999
	Dave Watt	1998
	Krista Carnogursky	1998
	Amanda Jerome	1998
	Eleanor Jerome	1998
	Herbert Blake	1997
	Bradley Firth	1997
	Beatrice Stewart	1995-1996
	Louise Simpson	1996
	Kenny Smith	1996
	Grant Sullivan	1995
	Ian McLeod	1995
		1995

Appendix IV Harvest Study Data 1995-2002¹

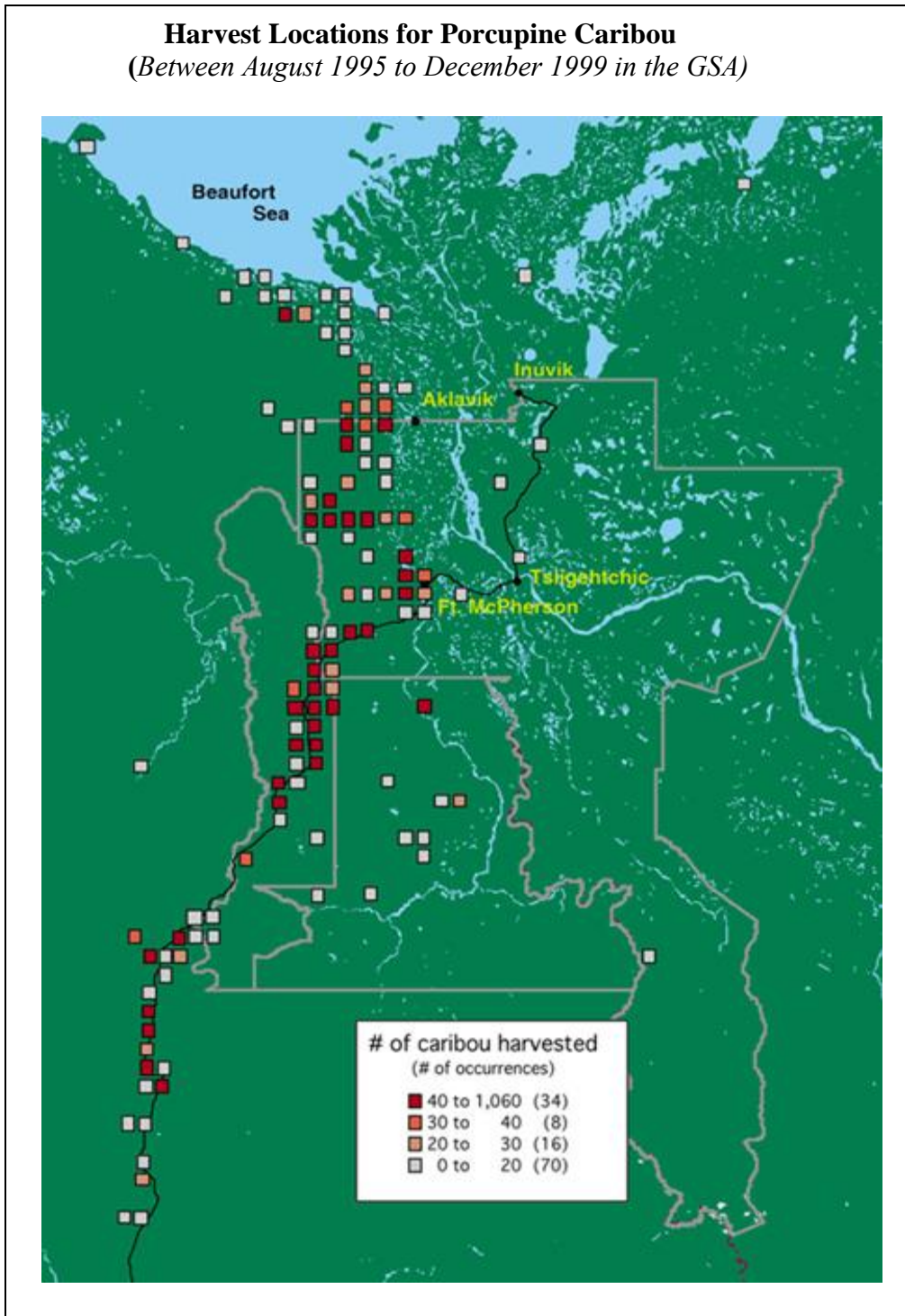
Total Harvest For All Gwich'in Communities August 1995 - October 2002								
	1995 Aug-Dec	1996	1997	1998	1999	2000	2001	2002 Jan-Oct
Waterfowl								
Black Duck	100	624	656	1056	333	975	500	252
Blue-winged Teal	0	11	0	0	0	0	5	0
Brant	0	0	0	0	0	0	5	0
Canada Goose	17	99	40	122	183	177	99	80
Canvasback	15	70	2	7	5	0	0	0
Goldeneye	30	23	0	0	57	0	0	0
Great White Fronted Goose	9	92	68	39	149	39	0	0
Green Winged Teal	0	9	0	5	0	0	0	0
Mallard	131	136	174	189	171	48	244	87
Oldsquaw	0	33	0	19	0	0	0	1
Pintail	0	29	26	11	10	6	10	11
Ring Necked Duck	0	3	0	0	0	0	0	0
Scaup	6	20	0	0	32	0	0	0
Shoveller	0	17	0	0	0	0	0	0
Snow Goose	50	186	154	275	112	381	116	0
Tundra Swan	24	75	106	55	65	72	64	4
Wigeon	3	62	10	16	82	64	40	13
Duck (special)	0	317	299	243	158	0	60	126
Goose (special)	0	350	201	146	74	100	94	0
Fish								
Charr	1366	1908	1627	3623	1013	1179	735	392
Chum Salmon	0	0	2	60	0	3	4	8
Coney	3327	6082	3194	5288	4757	5068	6230	3244
Crookedback	9732	14151	1891	1086	4023	4088	4757	4749
Grayling	0	0	4	60	1	0	1	0
Herring	5645	5500	2000	4000	2330	449	575	0
Jackfish	369	943	1037	1136	728	1126	1111	505
Lake Trout	90	127	166	78	311	216	49	78
Loche	574	1109	1479	1310	305	1456	1481	334
Sucker	0	6	0	15	2	32	13	1
Walleye	0	0	1	5	0	6	11	1
Whitefish	21770	29009	30289	22573	21221	25919	11465	12506
Fish sp	1000	930	7225	1149	0	6	2836	4870

¹ Preliminary data from Annual Harvest Reports. See final Gwich'in Harvest Study Report (2009) for final results from this study.

	1995 Aug-Dec	1996	1997	1998	1999	2000	2001	2002 Jan-Oct
Big Game								
Black Bear	2	4	4	6	0	4	2	2
Bluenose Caribou	64	104	165	125	117	101	45	4
Brown Bear	0	4	0	0	1	1	1	2
Dall's Sheep	1	1	4	14	1	0	0	0
Moose	30	35	36	54	34	52	32	25
Porcupine Caribou	663	1869	1906	2102	733	994	1232	462
Woodland Caribou	0	0	0	5	10	0	0	0
Furbearers								
Beaver	2	153	153	123	73	86	63	101
Ermine	2	23	8	5	3	5	0	0
Lynx	13	114	83	110	69	32	42	0
Marten	353	777	1132	464	248	318	227	0
Mink	33	134	70	75	91	37	4	8
Muskrat	0	1649	4733	5849	3701	5	14	1472
Otter	2	0	0	0	0	0	0	0
Red Fox	50	103	43	103	34	39	9	1
White Fox	0	2	0	0	0	0	1	0
Wolf	6	23	12	3	11	9	3	6
Wolverine	14	4	7	9	9	13	3	0
Small Game								
Ground Squirrel	0	4	1	2	1	4	0	0
Grouse	79	41	44	78	20	10	3	2
Porcupine	0	6	1	7	1	1	1	0
Ptarmigan	64	65	79	130	86	151	20	10
Snowshoe Hare	679	718	1087	1047	1134	848	165	99
Marine Mammals								
Beluga Whale	2	1	1	0	2	0	0	0

Appendix V Harvest Study Map

The following illustrates use of Harvest Study data in mapping applications. The maps are used to help with resource management in the GSA.



Appendix VI GRRB Trainees

Name	Trainee Position
Donald Andre	Renewable Resource Management Technician
Beverly Arey	Gwich'in Harvest Study Assistant
Sheldon Bernard	Gwich'in Harvest Study Assistant
Jozef Carnogursky	Renewable Resource Management and Fisheries Technician
Steven Charlie	Renewable Resource Management Technician
Lena Church	Gwich'in Harvest Study Assistant
Johnny Edwards	Renewable Resource Management and Fisheries Technician
Trina Edwards	Office Manager
Allen Firth	Renewable Resource Management and Fisheries Technician
Eleanor Firth	Office Manager
Shawn Firth	Gwich'in Harvest Study Assistant
Bobbie-Jo Greenland	Gwich'in Environmental Knowledge Assistant
Ian McLeod	Renewable Resource Management Technician
Julia Neyelle	Office Manager
Norman Snowshoe	Renewable Resource Management Technician
Jane Tetlich	Office Manager
Doug Villeneuve	Renewable Resource Management Technician
Cheryl Wright	Office Manager-Secretary

Appendix VII Scholarships

Jim Edwards Sittichinli Scholarship Recipients		
Year	Name	Program
1996	Ian McLeod	Natural Resources Technology Program (NRTP), Aurora College NT
1996	Joe Benoit	NRTP, Aurora College, NT
1997	Mary Ann Carol	Forestry/Recreation Program, University of Northern BC
1999	Donald Andre	NRTP, Aurora College, NT
1999	Sheldon Bernard	NRTP, Aurora College, NT
2000	John Edwards	NRTP, Aurora College, NT
2000	Ruth Anne Carroll	Christian Studies, Briercrest Bible College, SK
2000	Margaret Vittrekwa	Biblical Studies Diploma, Key-Way-Tin Bible Institute, AB
2001	Donald Andre	NRTP, Fort Smith, NT
2001	Forrest Kendi	NRTP, Aurora College, NT
2002	Donald Andre	NRTP, Fort Smith, NT
2002	Forrest Kendi	NRTP, Aurora College, NT
2003	Bobbie-Jo Greenland	Environmental Health and Science, University of Regina, SK
2003	Catherine Jorstead	Renewable Resource Program, Northern Alberta Institute of Technology, AB
2003	Elaine Alexie	Ecology and Environmental Biology, University College of the Caribou, BC
2003	Mabel Brown	Taylor College of Mission and Evangelism, NB

Johnny D. Charlie Memorial Work Scholarship Recipients		
Year	Name	Program
1999	Donald Andre	NRTP, Aurora College, NT
2000	Johnny Edwards	NRTP, Aurora College, NT
2001	Bobbie Jo Greenland	Environmental Health and Science, University of Regina, SK
2002	Jozef Carnogursky	Pre-Technology Program, Aurora College, NT

Appendix VIII Wildlife Studies Fund Project Allocation

PROJECTS	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	TOTAL
Wildlife										(\$)
Bluenose Caribou Collaring	56,000									56,000
Bluenose Photocensus		47,000								47,000
Bluenose Caribou Range Use		12,235		10,000		7,500		7,500	7,500	44,735
Bluenose Fuel Cache Request		4,893								4,893
Bluenose Car. Recruitment Survey						10,000				10,000
Dall Sheep Survey				5,000						5,000
Richardson Mtn Grizzly Bear Collaring			10,000	5,000	4,000	7,500				26,500
Moose Survey			45,200	13,664	12,124	35,000				105,988
Moose Habitat and Harvest					12,950					12,950
Porcupine Adopt-a-caribou				3,000						3,000
Large Mammal Management Plan					22,610					22,610
Trapline Monitoring						7,170				7,170
Spring Hunt Waterfowl Study	39,417									39,417
Peregrine Falcons		12,100								12,100
GTP Waterfowl Survey										0
Lower Mackenzie River Project								40,000		40,000
Habitat Requirements of Scoters								15,000		15,000
Reproductive Ecology of Tundra Swans								3,000		3,000
Dall's sheep habitat assessment								none		0
Moose Survey – Aklavik								none		0
Bluenose Caribou Recruitment								10,000	none	10,000
Porcupine Caribou Satellite Program								5,000		5,000
Por. Caribou -Peel R.Check Stat'n								Impl. Funds		0
Dall's Sheep Management Plan									5,000	5,000
Woodland Caribou -Arctic Red							28,635			28,635
Fall Mov'ts Por. Caribou – Dempster							9,935			9,935
Forest Fire Effects on Veg-Wildlife Habitat							22,000			22,000
Dall sheep-Richardson/Macken. Mtns.							15,075			15,075
Moose Compo./Abundance-Ft. McPh.							49,010			49,010
Peregrine Falcon -Survey/Sat. Tracking							none			0
Peregrine Falcon - Sum. Product. Survey							none			0
Breeding Waterfowl in the GSA					2,600		19,145			21,745
Lower Macken. R. Watershed Proj.									25,000	25,000
Habitat Requirements of Scoters									16,000	16,000
Reproductive Eco.-Tundra Swans									3,300	3,300
Exper. Infections Dall's Sheep-Lungworm									5,000	5,000
Subtotal	95,417	76,228	55,200	36,664	54,284	67,170	143,800	80,500	61,800	671,063

Forestry	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	Total
Aerial Photography		10,000								10,000
Air Photo Interpretation			20,000							20,000
Timber Cruising			31,200	36,500						67,700
Forest Health Monitoring (ARNEWS)					7,000	8,590				15,590
Biodiversity Monitoring (SI/MAB)						5,000				5,000
Forest Regeneration & Productivity						26,000				26,000
Aklavik Forest Use						12,190				12,190
Northern Forest Regrowth After Seismic								on hold		0
Developing Sustainable NTFP								ENR		0
Regeneration and Productivity							8,000	5,000		13,000
Driftwood Model Along Mackenzie River								none		0
Forest Mgmt.Planning – W. Group							none	2,500	3,800	6,300
SFMN Contribution								10,000	10,000	20,000
BW Caribou Habitat Proj.(Seismic Regrowth)										0
SFMN Contribution							none			0
Develop. Sustainable Non-timber Forest Prod.							none			0
Forestry Mgmt. Planning-Comm. Forest Use							20,100			20,100
Forest Fire Mapping							none			0
ARNEWS Forest Monitoring Plot							6,000			6,000
Inuvik Region Fire Effects Camp							10,000			10,000
N. Forest Product/Regrowth After Seismic									20,000	20,000
Tree Phenology Study									3,000	3,000
GTC Req. -Fund Seasonal Botanist/Biologist									none	0
Subtotal	0	10,000	51,200	36,500	7,000	51,780	44,100	17,500	36,800	254,880
Fisheries	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	Total
Rat River Charr Monitoring		12,000	17,500	22,000	24,800	20,000	22,000	20,000	20,000	158,300
Rat River Fish Hole Survey		16,000	840	17,000						33,840
Rat River Spawners Assessment		18,000								18,000
Rat River Hydroacoustics		8,700								8,700
Micro-PIXE analysis		2,000								2,000
Husky Lakes (Fish Survey)		7,000	10,000							17,000
Inconnu Radio-tagging			25,500	11,000						36,500
Fish Lakes Biodiversity Study			9,550	13,600						23,150
Rat River Silver Radio-tagging			20,800							20,800
Rat River Spring Reconnaissance		6,700								6,700
Rat River Spawning Habitat				13,600						13,600
Vittrekwa River Fish Assessment				9,750						9,750
GTP Creel Census					9,850					9,850
Vittrekwa River Fish Hole Investigation					5,550					5,550
Campbell Lake/Creek Harvest Models					3,000					3,000
Peel River Coregonid Spawning Sites					20,550	23,540				44,090
Campbell Lake Spring Whitefish Study					3,900	7,200				11,100
Coney Index Netting Project						10,000				10,000
Vittrekwa River Charr Study						7,000	none			7,000
Sunny/Sandy/Point Lakes Stock Study						8,500				8,500
Peel River Fish Study							37,650	30,000	23,000	90,650
Sustainable Harvest Rates of Lake Trout								none		0
Lower Mackenzie River Index Netting							10,500	none		10,500
Angler Diary Program								Impl. Funds		0
Rat River Charr Biological Assessment								11,000		11,000
Willow Creek Fish Survey								none		0
Arctic Red R. Index Netting Study									10,000	10,000
Fish Stock Study at Trout Lake							7,600			7,600
Fisheries Training							none			0
Travaillant Lake Fish Floy-Study									10,000	10,000

Peel River Tributaries Fish Study									2,500	2,500
Stock Composition of the Rat River Char									none	0
Subtotal	0	70,400	84,190	86,950	67,650	76,240	77,750	61,000	65,500	589,680
Culture/Education/Training	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	Total
Field Training Program		1,441								1,441
GSCI Science Camp				17,600	20,000	10,000				47,600
Gwich'in Ethnobotany Project				3,000	5,000					8,000
GEKP		28,700	41,500	32,600	35,000	37,000	40,000			214,800
GRRB Website					5,000					5,000
Fisheries Technician Salary			16,700	16,700						33,400
Community Ecological Monitoring						5,000				5,000
Gwich'in Knowledge of the Land						5,000	5,000			10,000
Gwich'in Harvest Study								30,000	20,000	50,000
Nature Day - Environmental Education								none	2,400	2,400
On-the-Land Youth Trek - 8 mile to Aklavik								7,000		7,000
Youth Work Experience								5,000	5,000	10,000
Gwich'in Science Camp 2001								8,000		8,000
Gwich'in Gathering at Summit Lake								3,000		3,000
Oglivie River Paddling Trip								none		0
Naming Creeks and Lakes to Bear Creek								none		0
Fort McPherson Trail Cutting								none	none	0
Land Skills Course								3,500		3,500
Trapper Training and Land Skills Program								5,000		5,000
Millenium Trek - Fort McPh.to Old Crow							15,925			15,925
Community -based Ecological Monitoring							5,000			5,000
Self-guid.Forest Interpretive Trail-Chuk Pk							12,208			12,208
On the Land Youth Trek - Arctic Red River									3,000	3,000
Caribou Celebrations Week									2,500	2,500
Walk-Washington Campgn.(Por.Caribou C.Grounds)									none	0
Birds Macken. Delta -Field & TK Guide									5,000	5,000
Subtotal	0	30,141	58,200	69,900	65,000	57,000	78,133	61,500	37,900	457,774
Other	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	Total
Peel River Mapping			10,000	6,000						16,000
Aklavik Water Samples			1,152							1,152
James Creek Check Station			980							980
Subtotal	0	0	12,132	6,000	0	0	0	0	0	18,132
Total (\$)	95,417	186,769	260,922	236,014	193,934	252,190	343,783	220,500	202,000	1,991,529