



MOOSE MANAGEMENT PLAN FOR THE GWICH'IN SETTLEMENT AREA, NORTHWEST TERRITORIES

18 December, 2000

Approved by the:

**Gwich'in Renewable Resource Board
Ehdiitat Renewable Resource Council
Gwichya Gwich'in Renewable Resource Council
Nihtat Gwich'in Renewable Resource Council
Tetlit Gwich'in Renewable Resource Council**

Gwich'in Settlement Area

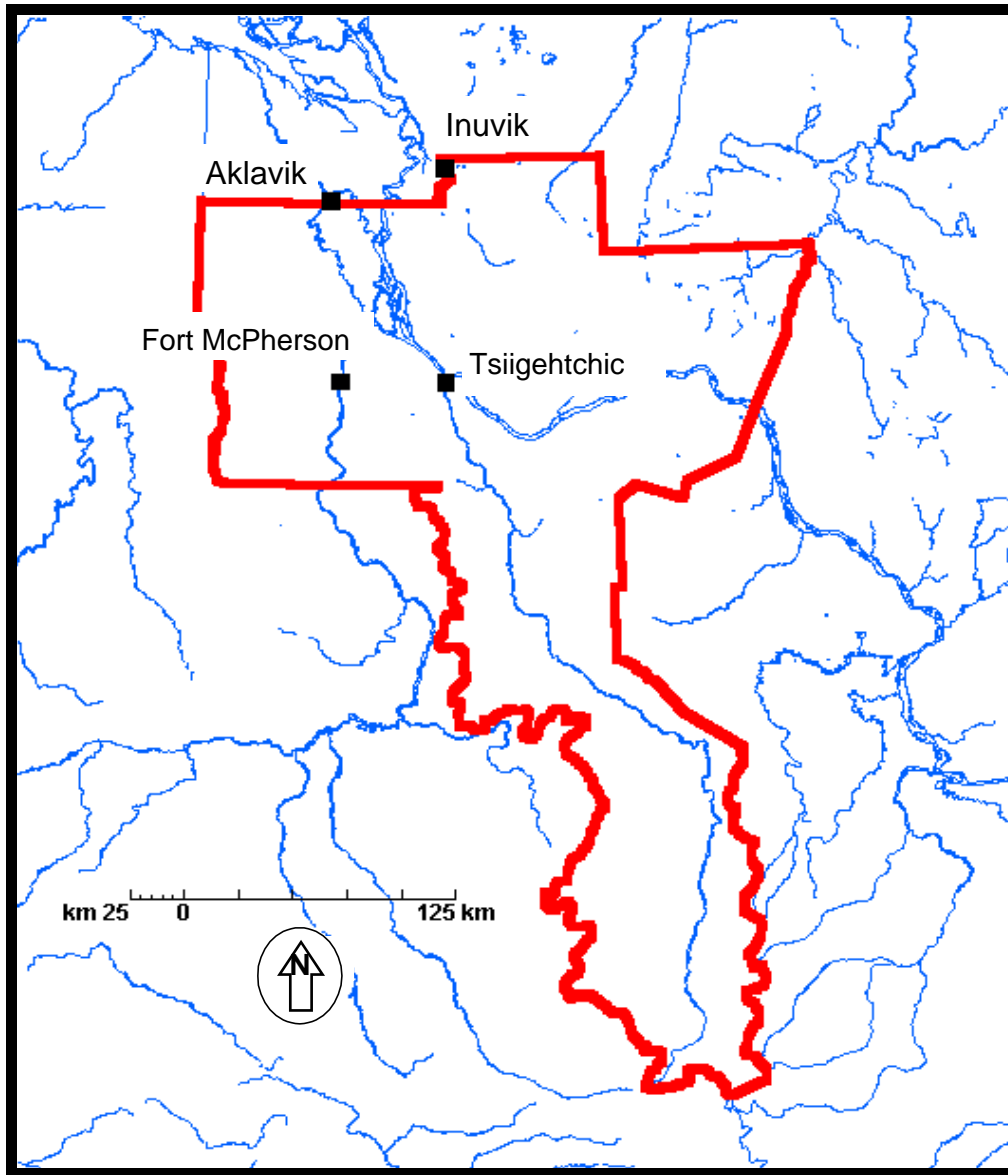


TABLE OF CONTENTS

Map of the Gwich'in Settlement Area	i
TABLE OF CONTENTS	ii
INTRODUCTION	1
About the Plan	1
People and Moose In The GSA	1
Who Manages The Moose Population	1
Management Principles	2
Goals Of The Plan	2
How The Moose Management Plan Works	2
ACTION PLAN	4
Population Characteristics	4
Habitat and Range Use	5
Harvest Management	6
Co-management	7
Culture And Education	8
Tourism And Industry	9
WORK PLAN	10
Population Characteristics	10
Habitat and Range Use	12
Harvest Management	13
Co-management	14
Culture And Education	14
Tourism And Industry	15
Appendix 1: Literature relevant to moose in the GSA	16
Appendix 2: Map of Proposed Moose Survey Areas	18

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INTRODUCTION

The Plan

The best way to manage moose is to make a plan so that everyone can agree on what needs to be done and who is doing it. The Gwich'in Renewable Resource Board (GRRB), Renewable Resource Councils (RRCs), and the Department of Resources, Wildlife and Economic Development (DRWED) cooperated to produce this plan for the Gwich'in Settlement Area (GSA). It is a framework for the management of moose, the protection of their habitats, and the protection of Gwich'in harvesting rights.

People and Moose in the GSA

Today, as in the past, the Gwich'in harvest moose for their subsistence needs. Moose used to be important to Gwich'in for sewing thread, grease, boats, tents, tools and clothing. Today, most people use only the meat but some people still make clothing and footwear from moose hides (Gwich'in Elders 1997). Moose are also hunted by non-beneficiaries on crown lands in the GSA. The potential for viewing wildlife such as moose attracts tourists to the area.

Management agencies know very little about moose population dynamics, habitat use and seasonal movements in the GSA. Moose exist at a low density compared to other similar areas in the north (Treseder and Graf 1985, Stenhouse and Kutny 1988, Veitch 1988, YTG 1996, Marshal 1999, Benn in prep.). The reasons for this are not well understood, however browse is not limiting and snow depths do not appear to seriously affect movements (Marshal and Nagy 1999). Cow moose produce one or two calves each year. Moose generally live in open areas such as shrublands, regenerating burns, and the edge of forest habitats. However, during periods of cold weather and deep snow, moose spend a great amount of energy moving to food. As a result, moose group together or "yard up" in forested habitats that have good food sources nearby. Hunting is thought to be the main factor affecting moose population growth in the GSA, especially along roads, waterways and near the communities. The Gwich'in Harvest Study records moose harvest information.

Who Manages The Moose Population

Moose are co-managed under the Gwich'in Comprehensive Land Claim Agreement. The following groups play a part in the management of the moose and their habitats in the GSA:

- Northwest Territories Department of Resources, Wildlife and Economic Development
- Ehdiiat, Gwichya, Nihtat, and Tetlit Gwich'in Renewable Resource Councils

INTRODUCTION

- Gwich'in Renewable Resource Board
- Gwich'in Tribal Council
- Gwich'in Land and Water Board
- Gwich'in Land Use Planning Board
- Gwich'in Land Administration
- Mackenzie Valley Environmental Impact Review Board

Management Principles

Effective co-management of moose requires participation, cooperation, communication and consensus among all stakeholders with regards to:

- recognizing and promoting the social, cultural, economic and ecological importance of moose to the public
- using traditional, local and scientific information on moose to make informed management decisions, and
- involving communities in the research and management of moose in the GSA.

Goals Of The Plan

The goals for managing moose and people in the GSA are:

- to maintain a healthy and viable population by ensuring that the total number of moose harvested is sustainable
- to determine the annual allowable harvest and adapt it as moose populations change
- to increase the knowledge of moose in the GSA by promoting research and the exchange of traditional, local and scientific information
- to recognize the value of moose and their habitats when evaluating land-use activities
- to encourage wise hunting practices, and
- to ensure that management decisions and study results are provided to the communities in a timely and meaningful way.

How the Moose Management Plan Works

The Plan is divided into 6 sections under an **ACTION PLAN** and a **WORK PLAN**:

Population Characteristics

Habitat and Range Use

Harvest Management

Co-management

Culture and Education

Industry and Tourism

INTRODUCTION

How the Moose Management Plan Works

The information in each section of the **Action Plan** is organized under the following headings:

Current Status – describes previous and current research and programs related to moose in the GSA. It provides a summary of what is known.

Concerns – describes any problems regarding current moose management, information and programs that are missing or should be improved, and concerns that people have.

Solutions – what needs to be done to address the concerns.

The **Work Plan** describes the tasks required to address the concerns, who is responsible for completing the tasks, and the timeline for completing the tasks.

In the Action Plan, concerns are listed with unique numbers. Each solution in the Action Plan and task in the Work Plan is numbered to correspond to the particular concern. Because a single concern might have more than one solution or work task, there can be several solutions and tasks with the same number.

For more information on the Moose Management Plan contact :

Wildlife Biologist	Supervisor Wildlife Management, Inuvik Region
Gwich'in Renewable Resource Board	Department of Resources, Wildlife, and
P. O. Box 2240	Economic Development
Inuvik, NT X0E 0T0	Bag Service #1
Phone 867-777-3429	Inuvik, NT X0E 0T0
Phone 867-777-7305	

Ehdiitat RRC Coordinator in Aklavik 867-978-2340

Nihtat RRC Coordinator in Inuvik 867-777-3344

Gwichya RRC Coordinator in Tsiigehtchic 867-953-3201

Tetlit RRC Coordinator in Fort McPherson 867-952-2783

ACTION PLAN

2000 – 2005

POPULATION CHARACTERISTICS

Current Status

- GRRB surveyed moose along a portion of the Arctic Red River (see Appendix 2) in November, 1999 (5.5/100km², 67 calves and 172 bulls:100 cows, (Benn in prep.).
- DRWED and GRRB conducted surveys of the Inuvik-Tsiigehtchic area (see Appendix 2) in November 1996, November 1997, March 1998, and November 1998 (7/100km², 54 calves and 146 bulls:100 cows)(Chetkiewicz et al. 1998, Marshal 1998, Marshal 1999).
- DRWED surveyed the Rengleng River area in November 1986 (4/100km², 44 calves and 109 bulls:100 cows, Stenhouse and Kutny 1988).
- DRWED surveyed a portion of the Mackenzie Delta in the GSA (1/100km²), and sections of the Peel (3-13/100km²), Arctic Red (17/100km²), and the Mackenzie River delta (1/100km²), in February and March 1980 (72 calves and 41 bulls:100 cows, Brackett et al. 1985).
- At community workshops, important moose harvesting areas were identified as survey areas.
- The Gwich'in Harvest Study and DRWED record moose harvest numbers.
- GRRB and DRWED collect samples for aging moose.
- The Gwich'in Environmental Knowledge Project has published a book describing traditional knowledge of moose (Gwich'in Elders 1997).

Concerns

1. Population estimates are not available for the entire GSA.
2. The status of the moose population is unknown.
3. The effect of the harvest on the moose population is unknown.

Solutions

1. Survey the moose population by region on a 4-5 year rotation.
2. Conduct studies to estimate productivity and survival.
3. Estimate a total annual allowable harvest.
3. Continue to solicit mortality information from hunters via the Moose Harvest Study.

ACTION PLAN

2000 – 2005

HABITAT AND RANGE USE

Current Status

- Site-specific habitat projects were conducted in the 1970s during pipeline developments (Prescott et al. 1973).
- GRRB and DRWED measured characteristics of browse and snow in various habitat types in the GSA in 1998-99. Neither were considered limiting factors to moose population growth.
- DRWED is producing forestry-based vegetation classification maps from Landsat TM images along the Mackenzie Valley.
- Duck Unlimited Canada is proposing to conduct a GIS-based Landsat TM landcover inventory and mapping program for a major portion of the GSA.
- DRWED (Norman Wells region) is producing habitat-based vegetation classification maps from Landsat TM images for the Sahtu portion of the Mackenzie Mountains.
- The Gwich'in Environmental Knowledge Project has collected traditional knowledge about moose habitat and diet (Gwich'in Elders 1997).

Concerns

1. Moose habitats have not been characterized or mapped in the GSA.
2. Moose home range size, seasonal movements, and habitat selection and use in the GSA are not well understood.

Solutions

1. Create a vegetation classification of the GSA suitable for assessing wildlife habitat.
2. Conduct studies to understand moose home range size, seasonal movements, and habitat selection and use.

ACTION PLAN

2000 – 2005

HARVEST MANAGEMENT

Current Status

- Aboriginal and resident hunters may voluntarily report their kill. Non-resident and non-resident aliens are required to hire a commercial outfitter, who is required to report all animals killed. DRWED maintains resident and non-resident harvest databases.
- The Gwich'in Harvest Study has interviewed aboriginal hunters monthly to obtain information on the harvests of all wildlife species. The study is in its 5th year and is scheduled to end this year.
- DRWED and GRRB initiated a Moose Harvest Study. Hunters are requested to report their kill along with date, location and sex of moose, and to submit the incisor bar for aging purposes.
- Known and (estimated) moose harvest for the past 5 years in the GSA is as follows:

<u>Year</u>	<u>Total</u>	<u>Subsistence</u>	<u>Resident</u>	<u>Non-resident</u>
1995-96	41	26	8 (15)	7
1996-97	40	32	4 (8)	8
1997-98	36	31	4 (9)	5
1998-99	52	48	6 (12)	4
1999-00	36	34	-	2

Concerns

1. There is no mandatory reporting of harvested moose for the majority of hunters. As the annual number of unreported kills are unknown, the numbers used for mortality assessment are estimates. Thus, it is not known with any certainty if the moose harvest is sustainable.

Solutions

1. Continue the Moose Harvest Study and support the extension of the Gwich'in Harvest Study.
1. Create an integrated moose mortality database from harvest study records and DRWED's resident and non-resident harvest databases.
1. Develop a model for estimating a sustainable harvest limit based on population and studies and mortality data.
1. Make reporting of moose kills by resident hunters mandatory.

Current Status

- The GRRB is responsible for managing wildlife in the GSA. The GRRB regularly consults with the RRCs on wildlife issues, and it coordinates research and management with DRWED. Gwich'in selected by the RRCs assist with research.
- The GRRB has collected traditional knowledge about moose in the GSA.
- This moose management plan and projects are based on concerns raised in the communities.
- Moose populations are shared with people from neighbouring land claims
- Gwich'in and non-Gwich'in have harvest rights in the GSA.

Concerns

1. Not all people in the communities, land claim organizations, and government agencies in the GSA know about moose biology, research and management.
2. Traditional knowledge needs to be used when planning moose research projects.
3. Moose research and management has not always been coordinated among co-management boards, DRWED, and other land claim groups and government agencies.
4. The moose management plan should be integrated with other wildlife and land management plans.

Solutions

1. Provide timely information about moose biology, research, and management to communities, land claim organizations, government agencies, and the public.
2. Use traditional knowledge when planning moose research.
3. Coordinate moose research and management with co-management boards, DRWED, and other land claims groups and government agencies.
4. Integrate the Moose Management Plan with other wildlife and land management plans.

Current Status

- There are no formal cultural or educational programs about moose in the GSA. A large amount of scientific, local and traditional information is available on moose.
- There are several programs in the GSA that gather traditional knowledge from Gwich'in elders, and teach Gwich'in youth about the land and traditional ways of life.
- GRRB and DRWED have given presentations on moose at workshops and to schools.
- DRWED has produced educational materials on moose.
- GRRB provides opportunities for Gwich'in interested in pursuing careers in renewable resources. These include scholarships, summer employment, and training programs.
- DRWED regularly hires people based on recommendations from the RRCs to assist with studies.

Concerns

1. There are no educational programs about moose for elementary, secondary, and post-secondary schools.
2. Plain-language reports and information on moose biology and management are not available.

Solutions

1. Give presentations in schools about moose ecology and management.
1. Provide plain language traditional and scientific information on moose to people who plan school and cultural programs and encourage them to have it taught in class.
2. Provide plain language traditional and scientific information on moose to land claim and government offices.
2. Give updates on the ecology and management of moose in the GSA through local media.

Current Status

- Development and tourism projects are reviewed to see how they will affect important wildlife habitats.
- Many people visit the GSA to view wildlife.
- There is an interest in developing a guided sport hunting industry.

Concerns

1. The needs of moose and hunters are not always considered in development proposals.
2. Development activities could harm moose or their habitats.

Solutions

1. Provide plain language information to those people reviewing development and tourism proposals.
2. Work with development and tour companies to minimize negative impacts associated with their activities.

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APPENDIX 1 – Relevant Moose Literature

Benn, B. in prep. Population abundance and composition of moose in the Arctic Red River area. Gwich'in Renewable Resource Board Report 00-01. Inuvik, NT.

Brackett, D., W. Spencer, G. Baird, J. A. Snowshoe, E. Krutko, L. Males, and P. Latour. 1985. Moose surveys in the Mackenzie River delta, valleys and tributaries, 1980. NWT Wildl. Serv. Report #48. 15pp.

Chetkiewicz, C.-L. B., D. Villeneuve, M. Branigan, J. Nagy, and J. P. Marshal. 1998. Population abundance and composition of moose in the Inuvik-Tsiigehtchic Region, November 1996. Gwich'in Renewable Resource Board, Inuvik, Northwest Territories. Report 98-04.

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Marshal, J. P. 1998. Trend survey of moose in the Inuvik-Tsiigehtchic region, Northwest Territories, November 1997 and March 1998. Gwich'in Renewable Resource Board, Inuvik, Northwest Territories. Report 98-05.

Marshal, J. P. 1999. Composition survey of moose in the Inuvik-Tsiigehtchic region, Northwest Territories, November 1998. Gwich'in Renewable Resource Board, Inuvik, Northwest Territories. Report 99-04. 11pp.

Prescott, W. H., G. L. Erickson, L. E. Walton and D. G. Smith. 1973. Atlas of wildlife habitat inventory maps. Moose. In Watson, G. H., W. H. Prescott, E. A. de Bock, J. W. Nolan, M. C. Dennington, H. J. Poston and I. G. Stirling. 1973. An inventory of wildlife habitat of the Mackenzie valley and the northern Yukon. Special Habitat Evaluation Group. Canadian Wildlife Service. Prepared for the Environmental-Social Committee. Task Force on Northern Oil Development. Northern Pipelines. Report No. 73-27.

Smits, C. M. M. 1991. Status and seasonal distribution of moose in the northern Richardson Mountains. Yukon Fish and Wildlife Branch Report TR-91-2. Whitehorse, YT. 64pp.

WORK PLAN – Population Characteristics

Annual	Lead Organization	Support
1. Conduct regional population surveys so that areas are re-surveyed approximately every five years (see Appendix 2).	GRRB	RRCs, DRWED
1. Analyse composition information from surveys to determine indices of productivity and survival.	GRRB	DRWED
1. Identify potential new moose study areas.	GRRB, RRCs	DRWED
1. Collect traditional knowledge on moose in the new moose study areas.	GRRB, RRCs	
1. Recommend assistants to help with population surveys.	RRCs	
1,2. Summarize information on population size, composition, productivity, and survival.	GRRB	
2,3. Review available information on productivity, survival, and radio-collar studies from other areas.	GRRB	DRWED
1,2,3. Review information on moose populations and provide input.	GRRB	RRCs, DRWED
2000-2001		
1. Conduct a population survey in the Fort McPherson study area.	GRRB	RRCs, DRWED
2. Evaluate necessity of using radio-collar studies to determine productivity and survival.	GRRB, RRCs, DRWED	
3. Develop a population model to estimate a harvestable surplus, and potential effects of harvest on the population.	GRRB	DRWED
2001-2002		
1. Conduct a population survey in the Aklavik study area.	GRRB	GRRB

WORK PLAN – Population Characteristics

<p>2. Conduct radio-collar studies to measure productivity and survival if necessary.</p>	<p>GRRB, DRWED</p>	<p>GRRB, DRWED</p>
<p>2002-2003</p>		
<p>1. Conduct a population survey in the Mackenzie Delta study area.</p>	<p>GRRB</p>	<p>RRCs, DRWED</p>
<p>2. Begin radio-collar studies to measure productivity and survival if necessary.</p>	<p>GRRB</p>	<p>RRCs, DRWED</p>
<p>2003-2004</p>		
<p>1. Conduct a regional population survey (area to be determined).</p>	<p>GRRB</p>	<p>RRCs, DRWED</p>
<p>2. Continue radio-collar studies to measure productivity and survival.</p>	<p>GRRB</p>	<p>RRCs, DRWED</p>
<p>2004-2005</p>		
<p>1. Conduct a regional population survey (area to be determined).</p>	<p>GRRB</p>	<p>RRCs, DRWED</p>
<p>2. Continue radio-collar studies to measure productivity and survival.</p>	<p>GRRB</p>	<p>RRCs, DRWED</p>

WORK PLAN – Habitat and Range Use

	Lead Organization	Support
2000-2001		
1. Begin habitat-based vegetation classification.	GRRB	DRWED, RRCs
1. Evaluate need to conduct additional habitat assessments and mapping.	GRRB	DRWED, RRCs
2. Evaluate need to study home range characteristics, seasonal movements and habitat selection and use, using VHF or GPS collars.	GRRB	DRWED, RRCs
2. Collect traditional and local knowledge on home range characteristics, seasonal movements and habitat use.	GRRB	DRWED, RRCs
2001-2002		
1. Finish habitat-based vegetation classification.	GRRB	DRWED, RRCs
2. Conduct studies to understand home range characteristics, seasonal movements and habitat selection and use, using VHF or GPS collars.	GRRB	DRWED, RRCs
2002-2003 to 2004-2005		
1. Describe and map important moose habitats in the GSA.	GRRB	DRWED, RRCs
2. Continue studies to understand home range characteristics, seasonal movements and habitat selection and use.	GRRB	DRWED, RRCs

WORK PLAN - Harvest Management

	Lead Organization	Support
Annual		
1. Advertise the Moose Harvest Study in the local media.	GRRB	RRCs
1. Ensure that officers selling licences inform hunters about the Moose Harvest Study.	GRRB	DRWED
1. Collect moose harvest information and run it through the population model.	GRRB	DRWED
2000-2001		
1. Integrate resident harvest and harvest study data into a common moose mortality database.	GRRB	DRWED
1. Develop a population model for estimating a sustainable harvest limit.	GRRB	DRWED
1. Begin the process to make reporting moose kills by resident hunters mandatory.	DRWED	GRRB, RRCs
2001-2002		
1. Finish the integrated moose mortality database.	GRRB	DRWED
1. Continue developing the population model for estimating a sustainable harvest limit.	GRRB	DRWED
2001-2002 to 2004-2005		
1. Continue the process to make reporting moose kills by resident hunters mandatory.	DRWED	GRRB, RRCs

WORK PLAN - Co-management

Annual

- | | | |
|--|-------------------|-------------|
| 1. Prepare posters of survey results for each community of concern. | Lead Organization | Support |
| 1. Prepare reports for each annual moose survey. | GRRB | |
| 2. Continue to use traditional and local knowledge when planning moose research. | GRRB | RRCs |
| 3. Coordinate moose research and management with other co-management boards, DRWED, and other land claim groups and government agencies. | GRRB | RRCs, DRWED |
| 4. Integrate the Moose Management plan with other wildlife and land management plans. | GRRB | DRWED |

WORK PLAN – Culture and Education

Annual

- | | | |
|--|-------------------|-------------|
| 1. Provide timely information about moose biology, research, and management to communities, land claim organizations, government agencies, and the public. | Lead Organization | Support |
| | GRRB | DRWED, RRCs |
| 2. Use traditional knowledge when planning moose research. | GRRB | RRCs |
| 3. Coordinate moose research and management with co-management boards, DRWED, and other land claims groups and government agencies. | GRRB | DRWED, RRCs |
| 4. Integrate the Moose Management Plan with other wildlife and land management plans. | GRRB | DRWED |

WORK PLAN - Industry and Tourism

Annual	Lead Organization	Support
1. Provide plain language information to those people reviewing development and tourism proposals.	GRRB	DRWED, RRCs
2. Work with development and tour companies to minimize negative impacts associated with their activities.	GRRB	DRWED, RRCs

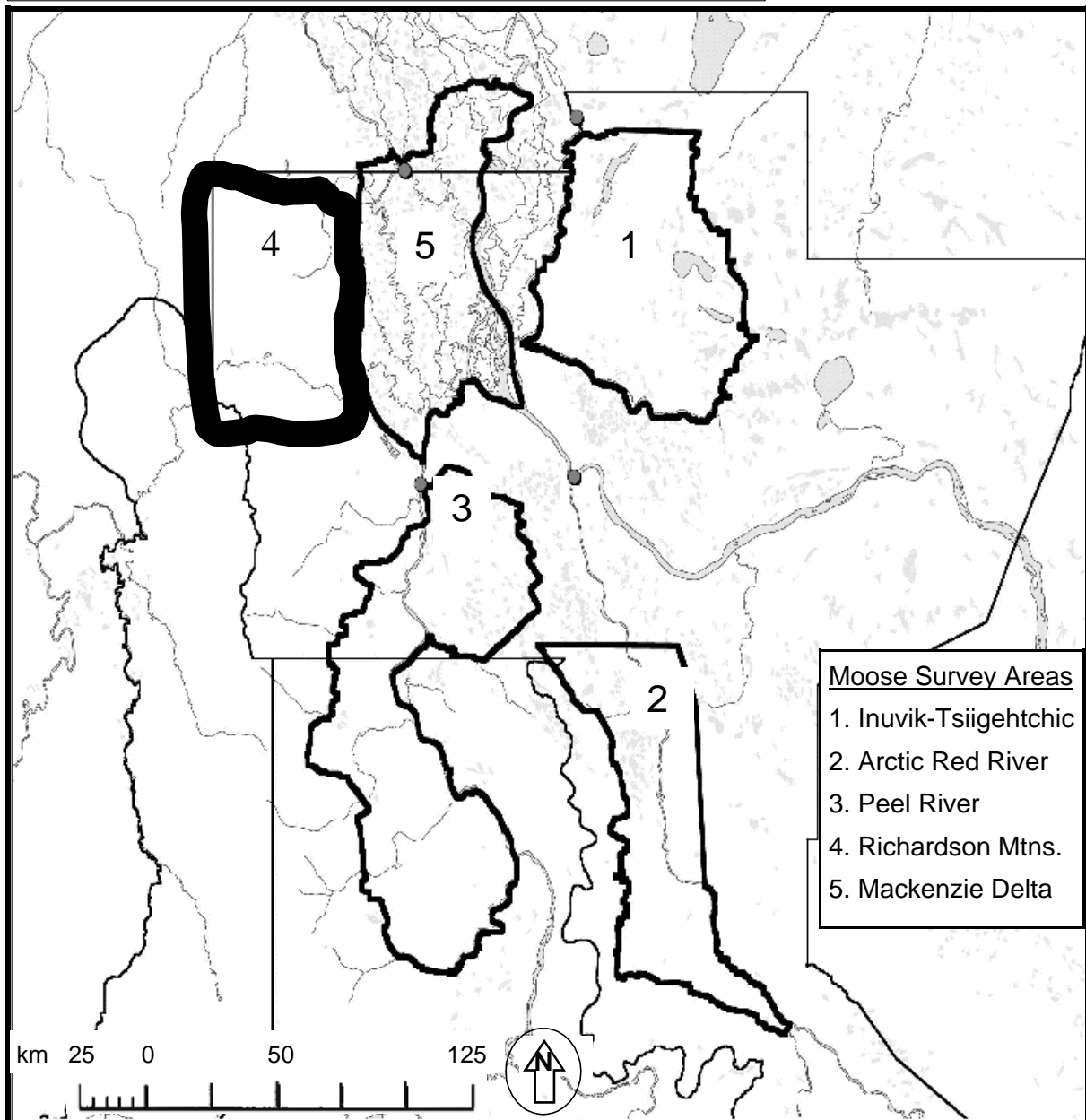
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APPENDIX 1 – Relevant Moose Literature

Stenhouse, G., and Kutny, L.
1988. Abundance and composition of moose in the Rengleng River Area, November 1986.
Unpublished Report. Department of Renewable Resources, Inuvik, NWT. 29 pp.

YTG (Yukon Territorial Government). 1996. Moose management guidelines. Yukon Renewable Resources, Wildlife Branch. Whitehorse, YT. 12pp.

APPENDIX 2 – Proposed Moose Survey Areas



Survey areas recommended during moose workshops (November 1998 to April 1999). The Arctic Red River survey area was reduced in size to the northern 1/2 of the area shown. The Inuvik-Tsiigehtchic survey area will be expanded northward toward Sitidgi Lake. The Peel River survey area will consist of river valley blocks important to Ft. McPherson hunters and the RRC. The Richardson Mountains area will be a repeat of surveys conducted in the 1980s (Smits 1991).

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