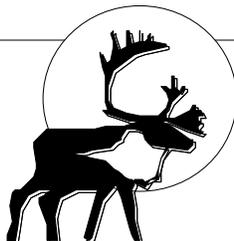


**MOOSE SURVEY IN THE FORT MCPHERSON  
REGION OF THE GWICH'IN SETTLEMENT  
AREA, NORTHWEST TERRITORIES,  
NOVEMBER 2000**

**Bryon Benn**

**Gwich'in Renewable Resource Board  
April, 2001**

**Gwich'in Renewable Resource Board Report 01-06**



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**Abstract.** This report documents the results from our aerial moose survey of drainages in the Fort McPherson area of the Gwich'in Settlement Area (GSA) in November, 2000. Of 70 observed moose, 41 (59%) were bulls, 20 (29%) were cows, and 9 (13%) were calves. This gave ratios of 205 bulls:100 cows and 45 calves:100 cows. Nine cows were observed with single calves. There were no twins observed. All moose found were in river valley habitats. The high calf:cow ratio is a good indicator that the moose population in this part of the GSA is healthy. The average annual subsistence harvest in the study area for the past 6 years from 1995-2000 was 6.2 moose/year.

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## **INTRODUCTION**

Moose are an important food species for the Gwich'in people. However, very little research has been conducted on moose in the Gwich'in Settlement Area (GSA) (see Brackett et al. 1985, Stenhouse and Kutny 1988, Chetkiewicz et al. 1998, Marshall 1998, Marshal 1999). As a result of community concerns expressed at moose workshops in the GSA in November 1998, moose became a management priority in the GSA. This led the Gwich'in Renewable Resource Board (GRRB), Department of Resources Wildlife and Economic Development (DRWED) and the community Renewable Resource Councils (RRCs) to develop a moose management plan. One of the action items from the workshop was to establish moose survey areas where community members harvest moose. River valleys and the Niendo Lake area were identified as important moose hunting areas for hunters from Fort McPherson (see Figure 1).

Knowing the changes in moose populations is important for moose management. Accurate measurements of population abundance and composition are required to compare the effects of harvesting, and to predict population change with harvest rates over time. Therefore, our objectives were to:

- estimate the abundance of moose in the study area,
- determine the composition of the population (numbers of bulls, cows, yearlings, calves), and
- understand the fall distribution of moose in the study area.

## **STUDY AREA**

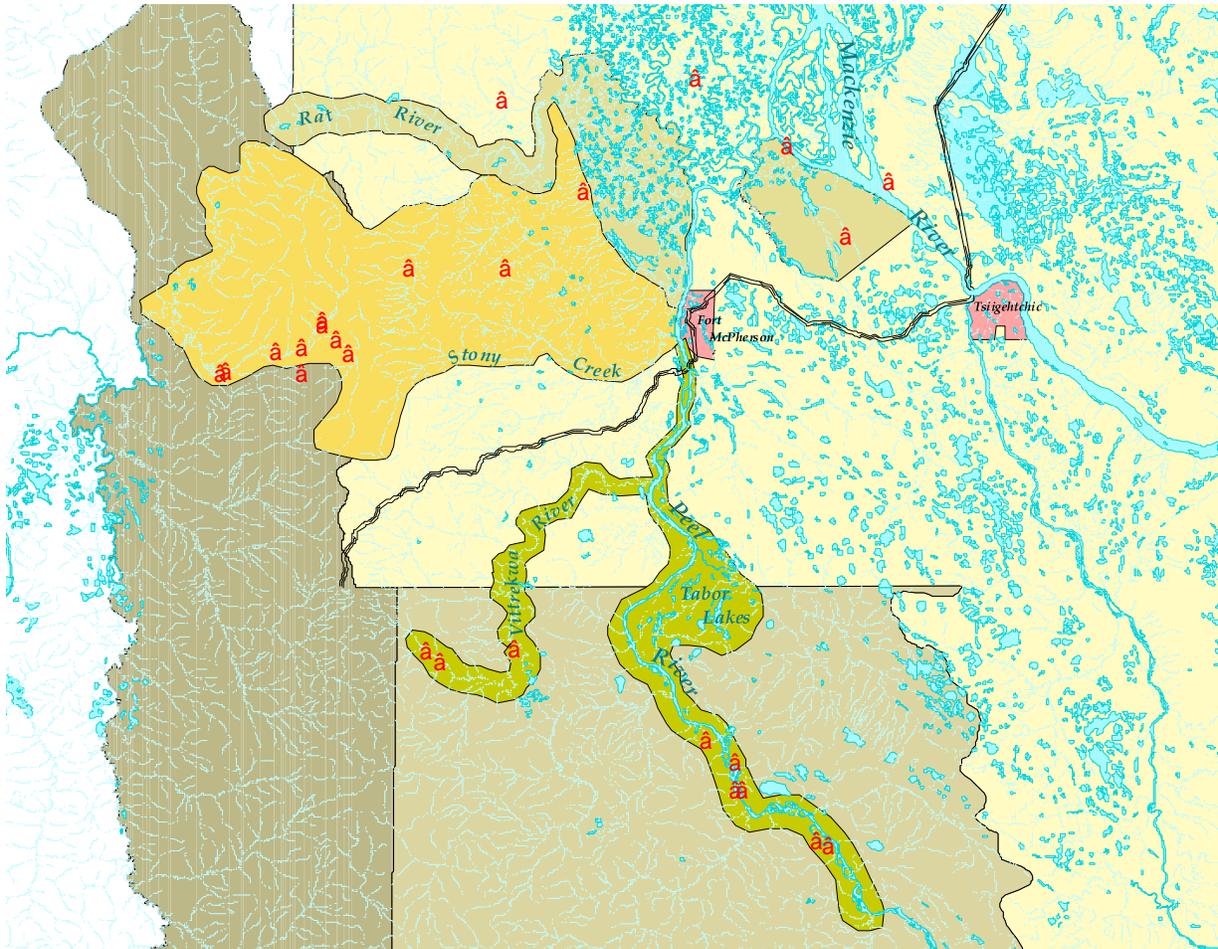
The moose survey area consists of the Peel, Vittrekwa, Stony, Rat, Lachute, and Barrier river valleys, and areas around Husky Lake and Niendo Lake (see Figure 1).

## **METHODS**

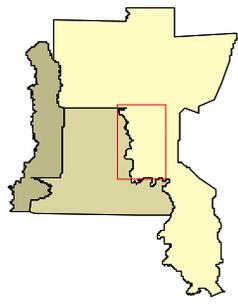
### **Aerial Survey**

River valleys in the study area were flown by helicopter. Height, speed and area covered along rivers were variable as a result of varied and often rugged topography and weather conditions. Sex, age, and locations of observed moose were recorded.

# Fort McPherson - Peel River Moose Survey, November 2000



Survey Area:

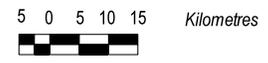


Map Features

- Moose Sitings
- Dempster Highway
- Survey Areas (By Date)
  - Nov 15
  - Nov 17
  - Nov 18
- Gwich'in Settlement Regions
  - Gwich'in Settlement Area
  - Primary Use Area
  - Secondary Use Area
  - Community Boundaries



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**Figure 1.** Fort McPherson moose survey area and point locations of moose observations, November 2000.

## Mortality Assessment

I assessed the annual human-caused moose mortality by counting the number of moose harvested in the study area by resident hunters and subsistence harvesters for the past 6 years. I used data from resident harvest files (DRWED, Inuvik Region) and the Gwich'in Harvest Study (GRRB unpublished data). Natural moose mortality was not assessed.

## RESULTS

### Aerial Survey

Seventy moose were observed in the entire study area (see Figure 1). There were 41 (59%) bulls, 20 (29%) cows, and 9 (13%) calves. This gave ratios of 205 bulls:100 cows and 45 calves:100 cows. Nine cows were observed with single calves. There were no twins observed (see Table 1 for breakdowns by drainage).

**Table 1.** Moose observations by drainage in the Fort McPherson study area, November 2000.

Drainage	adult	lone adult	adult females		total #
	males	females	with calves	calves	
Peel R. south					
of Road R.	15	2	4	4	25
Vittrekwa R.	1	1	1	1	4
Lachute R. and					
Barrier R.	15	5	3	3	26
Niendo L.	10	3	1	1	15
Total	41	11	9	9	70

## Mortality Assessment

During the past 6 years, 37 moose (22 bulls, 5 cows, 8 juveniles, 2 unknown) were reported killed by subsistence harvesters in the study area (Gwich'in Harvest Study). There were no resident sport hunting kills recorded in the study area. Two moose were recorded killed by wolves (Marshall and Snowshoe 1999). Within the study area, the average annual harvest was 6.2 moose/year. As no population estimate could be calculated, I could not calculate a harvest mortality rate.

## **DISCUSSION**

All moose found in November were in river valley habitats. These same results were found up the Arctic Red River (Benn 1999). Moose appeared to congregate more in certain drainages in winter than others. Habitat assessments of all the drainages surveyed have not been done, so there is no explanation for this habitat use pattern. I did not attempt to calculate a density estimate for the moose population because of the clumped distribution of moose.

The 13% calves and high calf:cow ratios are good indicators that the moose population in this part of the GSA is productive. The bull:cow ratio is higher than expected but may simply be the result of a small sample size. It may also be the observer's inability to distinguish young animals from the air. Veitch (1998 unpublished data) observed 145 bulls per 100 cows in his study area of the Mackenzie River valley and tributaries. Westover (2000, unpublished data) noted that the 75 bulls per 100 cows that they observed was normal for a lightly hunted population. The harvest is not responsible for the high number of bulls as most animals in the harvest are adult males. A ratio of 30 bulls and 30 calves per 100 cows is considered sufficient to maintain a stable population (YTG 1996).

## **ACKNOWLEDGEMENTS**

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## **LITERATURE CITED**

Benn, Bryon. 1999. Moose abundance and composition survey in the Arctic Red River region of the Gwich'in Settlement Area, Northwest Territories, November, 1999. Gwich'in Renewable Resource Board, Inuvik, Northwest Territories. Report 99-10.

- 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.
- 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.
- Marshal, J. and N. Snowshoe. 1999. Data report: characteristics of harvested moose. Gwich'in Settlement Area, NWT. September 1998 to June 1999. Gwich'in Renewable Resource Board, Inuvik, Northwest Territories. Report 99-08.
- Stenhouse, G. and L. Kutny. 1988. Abundance and composition of moose in the Rengleg River area, November, 1986. Unpublished results. Department Resources, Wildlife and Economic Development. Inuvik.
- Veitch, A. 1998. Summary-Fort Good Hope moose survey, February, 1998. Unpublished results. Department Resources, Wildlife and Economic Development. Wildlife Management.
- Westover, S. 2000. Summary of 2000 north Richardson Mountains moose survey results. Unpublished data. Yukon Renewable Resources. Fish and Wildlife Branch. Whitehorse.