

Valued Component – Moose (FINAL DRAFT)

STATE OF KNOWLEDGE – WHAT IS HAPPENING?

A very brief overview of the state of knowledge with respect to moose in the NWT is presented below. This overview is preliminary and not intended to be exhaustive.

- **What are the baseline conditions with respect to moose?**
 - The Northwest Territories is the northern edge of the range for moose, and as such densities are low (1 to 17 moose per 100 km²) compared to other areas in North America. In the NWT, moose are widely distributed south of the treeline, and more scattered near the treeline and on the tundra. Two subspecies exist, the Alaska-Yukon moose (*Alces alces gigas*) in the Mackenzie Mountains and the northwestern moose (*Alces alces andersoni*) in the rest of the territory.
 - The estimated moose harvest is 1,000 to 2,000 per year, with hunting levels remaining relatively constant since the 1990s for both resident and non-resident hunters. It is estimated that the subsistence harvest accounts for 80 to 90 percent of the total annual moose harvest. Non-resident sport hunters harvest an average of 40 to 45 moose per year in the Mackenzie Mountains.
- **Have the numbers of moose decreased, increased or remained stable?**
 - Increases have been reported in the Sahtu Settlement Area due to extensive forest fires in the 1990s (moose densities within burns tend to be at their highest between 10 and 30 years post burn).

KEY MONITORING INDICATORS

<i>Population size and trend</i>	<i>Age structure</i>
<i>Number harvested</i>	<i>Calf/cow ratio</i>
<i>Twinning estimates</i>	<i>Adult sex ratio</i>
<i>Areas of recent forest fires</i>	<i>Presence of contaminants</i>
<i>Presence of diseases and parasites</i>	

- In the Gwich'in Settlement Area moose densities are quite low therefore results of population surveys are highly variable. In the Deh Cho, biologists began extensive surveys in 2003 along the Mackenzie Valley (23,000 km² area). The impression is that moose populations in this area are stable. A monitoring program has been proposed that would be based out of Wrigley, Fort Simpson, Jean Marie River, Nahanni Butte, and Fort Liard using aerial surveys and sample collections for animal health, condition, and contaminant levels.
- In other regions of the Northwest Territories there is limited information on moose populations. In the Fort Providence area the population of moose is believed to be declining.
- **Have the locations of moose changed?**
 - Changes are not apparent; however, moose tend to move into burned areas.
- **Have the conditions of moose declined?**

Valued Component – Moose (FINAL DRAFT)

- It is biologically unknown if the conditions of moose have changed.

- **What are the levels and trends of contaminants in moose?**

- Contaminant levels in moose are generally low in the NWT, and are not a concern from human food consumption or animal health perspectives. A long-term monitoring program on contaminants in moose has been proposed for the Deh Cho.

RECENT AND CURRENT MONITORING

Ongoing monitoring programs with respect to moose in the NWT are found below.

- NWT species status rank infobase (Government of the Northwest Territories since 2000).
 - This infobase monitors the general status of species in the Northwest Territories. It is a significant source of information for assessing future monitoring of wildlife species such as moose. The infobase is a searchable catalogue of information used to rank the status of species, thereby prioritizing them for further assessment and monitoring. The following biological indicators are used to rank species status: population size, number of occurrences, distribution, trend in population, trend in distribution, threats to population and threats to habitat. The general status ranks are published every 5 years (see references for 2005 Status Ranks report).

- Moose monitoring - Gwich'in Settlement Area (Gwich'in Renewable Resource Board since 1996)

- Moose population surveys - Tulita area (Government of the Northwest Territories and Sahtu Renewable Resources Board, 1993, 1999)

- Moose population surveys - Norman Wells area (Government of the Northwest Territories and Sahtu Renewable Resource Board, 1984, 1989, 1995, 2001)

- Moose population surveys - Fort Good Hope area (Government of the Northwest Territories and Sahtu Renewable Resources Board, 1984, 1992, 1998)

- Gwich'in Settlement Area harvest study (Gwich'in Renewable Resource Board since 1995)

- Sahtu Settlement Area harvest study (Sahtu Renewable Resources Board since 1998)

- Inuvialuit Settlement Region harvest study (Inuvialuit Joint Secretariat since 1986)

- Fort Providence moose census (Government of the Northwest Territories)

- Fort Resolution moose census (Government of the Northwest Territories)

- Fort Smith moose census (Government of the Northwest Territories)

Valued Component – Moose (FINAL DRAFT)

- Deh Cho annual population monitoring (proposed) in Wrigley, Fort Simpson, Jean Marie River, Nahanni Butte, and Fort Liard (Government of the Northwest Territories)
- Moose populations are monitored through resident hunter harvest statistics and non-resident hunter harvest and observation data (Government of the Northwest Territories)

GAPS AND RECOMMENDATIONS FOR MONITORING

A list of monitoring gaps and recommendations for future monitoring under the NWT Cumulative Impact Monitoring Program is found below.

Gaps

- Population estimates (i.e. status and trends) for moose in all regions of the Northwest Territories
- Productivity and health of moose populations in the NWT
- Harvest levels of moose populations
- Habitat inventory and status
- Contaminants, parasites, and health

Recommendations

- Determine population status and trends in selected regional populations of moose
- Determine cow:calf ratios and monitor for health and disease
- Work with communities to obtain harvest data, particularly in South Slave, North Slave, and Dehcho regions.
- Monitor changes in habitat (i.e. forest base) and assess potential impacts on moose distribution and abundance.

REFERENCES

Relevant monitoring reports, past monitoring programs, research documents, and scientific publications are found below.

Brackett, D. (1981). **Moose in the Inuvik region: A preliminary survey of heavily hunted areas.** Government of the Northwest Territories, Department of Renewable Resources, Inuvik, NT. Unpublished Report. 13 pp.

Brackett, D., W. Spencer, G. Baird, J.A. Snowshoe, E. Krutko, L. Males and P. Latour (1985). **Moose surveys in Mackenzie River Delta, valley and tributaries, 1980.** Government of the Northwest Territories. 15pp.

Bradley, M., L. Kearey and Troy Ellsworth. (1996). **Fort Resolution moose census November/December 1995.** Government of the Northwest Territories. Manuscript Report. 14 pp.

Valued Component – Moose (FINAL DRAFT)

Bradley, M., T. Ellsworth and L. Kearey (1998). **Fort Providence moose census, November/December 1994**. Government of the Northwest Territories. Manuscript report. 15 pp.

Bradley, M. and F. Johnson (1998). **Fort Providence moose census, November/December 1997**. Government of the Northwest Territories Manuscript Report. 20 pp.

Bradley, M. and L. Kearey (1998). **Fort Smith moose census, November/December 1996**. Government of the Northwest Territories. Manuscript report. 14 pp.

Case, R. and R. Graf (1992). **A moose survey stratified by using Landsat TM data, north of Great Slave Lake, NWT, November 1989**. Government of the Northwest Territories. Manuscript report. 19pp.

Chetkiewicz, C.L., B.D. Villeneuve, M. Branigan, J. Nagy, and J.P. Marshal (1998). **Population composition and abundance of moose in the Inuvik-Tsiighetchic region**. Gwich'in Renewable Resources Board Report 98-04, Inuvik, NT. 22 pp.

Decker, R. and J. Mackenzie (1980). **Population, distribution and density of moose in the Liard Valley 1978**. Government of the Northwest Territories. 22 pp.

Donaldson, J.L. and S. Fleck (1980). **An assessment of potential effects of the Liard Highway on moose and other wildlife populations in the lower Liard Valley**. NWT Wildlife Service Contract Report No. 2, Yellowknife, NT. 36 pp.

Government of the Northwest Territories (2000). **NWT Species 2000: General status ranks of wild species in the Northwest Territories**. (see Current Monitoring for description).

Graf, R.P. (1992). **Status and management of moose in the Northwest Territories**. Alces Suppl. 1: 22-28.

Graf, R. and R. Case (1992). **Abundance and distribution of moose in the North Slave River Lowlands, NWT, November 1987 and 1988**. Government of the Northwest Territories. Manuscript Report. 17 pp.

Jingfors, K., R. Bullion and R. Case (1987). **Abundance and population composition of moose along the Mackenzie River, November 1984**. Government of the Northwest Territories. 39pp.

Jingfors, K. and L. Kutny (1989). **Moose population characteristics in the Kugaluk and Miner River area, 1988**. Wildlife Management Advisory Council (NWT) Technical Report No. 5, Inuvik, NT. 27 pp.

Larter, N.C. and D. Allaire. 2005. **Mackenzie Mountain non-resident and n on-resident alien hunter harvest summary, 2005**. Government of the Northwest Territories Manuscript Report. 62 pp.

Larter, N.C., H.D. Cluff, D.G. Allaire, and D.G. Johnson. 2004. **Geospatial surveys for baseline population estimation of moose in the Northwest Territories**. Alces.

Latour, P. (1992). **Moose distribution along the lower Mountain and Hume Rivers during oil drilling, winter 1989/90**. Government of the Northwest Territories, Department of Renewable Resources, Norman Wells, NT. Manuscript Report No. 43. 18 pp.

Latour, P. (1992). **Population size and composition of moose west of Norman Wells**. Government of the Northwest Territories, Department of Renewable Resources, Norman Wells, NT. Manuscript Report No. 42. 17 pp.

MacLean, N. (1994). **Population size and composition of moose in the Fort Good Hope area, NWT, November 1992**. Government of the Northwest Territories. Manuscript Report. 18 pp.

MacLean, N. (1994). **Population size and composition of moose in the Fort Norman area, NWT, November 1993**. Government of the Northwest Territories. Manuscript Report. 17 pp.

Valued Component – Moose (FINAL DRAFT)

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 Report 98-05, Inuvik, NT. 15 pp.

Marshal, J.P. (1999). **Co-management of moose in the Gwich'in Settlement Area, Northwest Territories.** *Alces* 35: 151-158.

Marshal, J.P. (1999). **Composition survey of moose in the Inuvik-Tsiigehtchic region, Northwest Territories, November 1998.** Gwich'in Renewable Resource Board Report No. 99-04, Inuvik, NT. 11 pp.

MacDonald, C. B. Elkin, and A. Gunn (2005) **Analysis of the elemental composition of tissues and faecal ash in a moose (*Alces alces*) exposed to tailings at the abandoned Colomac gold mines, NWT.** Government of the Northwest Territories Manuscript Report. 39 pp.

Shank, C.C. (1992). **Fort Providence moose survey - November 1991.** Government of the Northwest Territories. Manuscript report No. 55. 41 pp.

Stenhouse, G.B. and L. Kutny (1988). **Abundance and composition of moose in the Rengleng River area, November 1986.** Government of the Northwest Territories, Department of Renewable Resources, Inuvik, NT. Unpublished report. 29 pp.

Stenhouse, G.B., P.B. Latour, L. Kutny, N. MacLean, and G. Glover (1995). **Productivity, survival, and movements of female moose in a low-density population, Northwest Territories, Canada.** *Arctic* 48: 57-62.

Swallow, M., R. Popko, and A. Veitch. (2003). **Tulita area moose survey, January 1999.** Government of the Northwest Territories Manuscript Report. 20 pp.

Treseder, L. and R. Graf (1985). **Moose in the Northwest Territories - A discussion paper.** Government of the Northwest Territories, Department of Renewable Resources, Yellowknife, NT. Manuscript Report. 41 pp.

Veitch, A.M., R.A. Popko and N. McDonald (1996). **Size, composition, and harvest of the Norman Wells area moose population, November 1995.** Government of the Northwest Territories. Manuscript Report. 32 pp.

Walton-Rankin, L. (1977). **An inventory of moose habitat in the Mackenzie Valley and northern Yukon.** Mackenzie Valley Pipeline Investigations, Canadian Wildlife Service, Ottawa, ON. 39 pp.

