

Valued Component – Other Mammals (Terrestrial) (FINAL DRAFT)

STATE OF KNOWLEDGE – WHAT IS HAPPENING?

A very brief overview of the state of knowledge with respect to terrestrial wildlife other than caribou and 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 terrestrial wildlife?**

▪ There are 69 species of terrestrial mammals in the NWT (WGSNS 2006, Lausen 2006)¹. Many species are important to residents as a significant source of food and as a source of income. Overall, most species in the NWT are in good condition. Population numbers for individual species vary, and many factors influence the abundance and distribution of terrestrial wildlife. Major species are described below.

Wood Bison

▪ Wood bison are found in four main areas south of the treeline in the NWT including the Liard and Nahanni River valleys, the Mackenzie bison range, Wood Buffalo National Park and the Slave River Lowlands. The Mackenzie and Nahanni bison herds are estimated at approximately 2,000 and 350 animals respectively. Both herds are a result of

¹ WGSNS 2006 lists 65 species, based on 63 species already tallied in 2000, to which Elk was added as it was missing by error, and Northern Raccoon was added as a new vagrant species seen for the first time in the NWT in 2003. Since the publication of WGSNS 2006, four additional species of bats were confirmed to occur in the Dehcho, bringing the list to 69 (as of January 2007).

KEY MONITORING INDICATORS

Population size and trend

Age structure

Number harvested

Distribution

Habitat quality

Food availability

Reproductive rates

Presence of contaminants

Presence of diseases and parasites

conservation efforts to establish healthy bison populations that are not infected with bovine tuberculosis and brucellosis. Conversely, bison in Wood Buffalo National Park (ca. 4,000 animals) and the adjacent Slave River Lowlands (ca. 500 animals) are infected with tuberculosis and brucellosis. The Bison Control Area (BCA) was created to prevent contact between the diseased and healthy bison populations; all bison in the BCA are presumed to be disease carriers and must be removed for testing. Ongoing surveillance of the Bison Control Area is important for minimizing the risk of disease transmission to healthy bison. Largely due to the disease issue, wood bison are listed as a threatened species in Canada, and considered at risk in the Northwest Territories. The Mackenzie herd is an important conservation herd because it is the world's largest free ranging wood bison herd. Another important conservation herd is the Hook Lake Wood Bison Recovery Project in Fort Resolution. This project was initiated in 1996, and has resulted in the establishment of a genetically important and disease-free captive breeding herd that will be used for national wood bison conservation efforts. Key indicators for monitoring wood bison herds are presence/absence of disease and population size.

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Muskox

- Muskoxen are found throughout the tundra region and within the northern boreal habitat of the NWT. The muskox population on Banks Island (in the Inuvialuit Settlement Region) has greatly increased since the 1980s to a high of 69,000 in 2002 (after being nearly extirpated in the early 1900s). Substantial numbers of muskox are found in the area north of Great Bear Lake up to the arctic coast. Key indicators are population size, distribution and the presence of disease.

Grizzly Bear

- Grizzly bears are found predominantly north of the treeline and in the Mackenzie Mountains. Population size in the Northwest Territories is estimated at 5,100 bears. The grizzly is a species of special concern in Canada, and considered sensitive in the Northwest Territories. Monitoring by radio collar in the central barrens has shown that grizzlies can have large home ranges (averaging 7,200 km² for males and 2,100 km² for females). Research is also taking place in the ISR. The population of grizzlies is believed to be stable. Key indicators are population size, reproductive rates, habitat quality, and numbers harvested.

Black Bear

- Black bears are relatively abundant below the treeline in the NWT. The population is conservatively estimated at 10,000 and believed to be healthy throughout its range. A key indicator is population size and trend, and numbers harvested.

Polar Bear

- Polar bears inhabit the coast lines of the Inuvialuit Settlement Region and are considered a vulnerable species in Canada. Populations are estimated at 3,200 bears, divided into 3 sub-populations. Two sub-populations are considered

stable, while the other (shared with Nunavut) is recovering. Key monitoring indicators include presence of contaminants, reproductive rates, habitat quality, and numbers harvested.

Lynx

- Lynx are found mainly below the treeline in the NWT. Their population mimics the 10-year population cycle of snowshoe hare (lagging behind 1 or 2 years). Peaks and lows can be predicted using snowshoe hare survey data. Populations in the western Northwest Territories appear to be increasing. Lynx populations are considered to be healthy. Key indicators are numbers harvested and food availability (snowshoe hare).

Fox

- Red fox and arctic fox are abundant in the NWT. Red fox are more abundant in the boreal forest while arctic fox thrive on the tundra. Key indicators are food availability, presence of disease such as rabies and numbers harvested.

Wolf

- Wolves are found throughout the NWT. Tundra and timber (boreal) populations are considered to be healthy. Arctic wolves are found throughout the Arctic Archipelago and populations on Banks, Melville and Victoria Islands are considered healthy. Key indicators are food availability, habitat quality, population size, pup survival, and numbers harvested.

Wolverine

- Wolverine population sizes are not known. They are a species of special concern in Canada, but considered secure in the Northwest Territories. Key indicators are habitat quality, reproductive rates and numbers harvested.

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Dall's Sheep

- Dall's sheep are found in the Mackenzie and Richardson Mountains along the Yukon border. Populations have been estimated at 14,000 to 26,000 based on a compilation of surveys of various mountain blocks. Dall's sheep populations are believed to be stable. Key indicators are population size, composition, reproduction and recruitment rates, harvest data, and the presence of parasites and disease.

Mountain Goat

- Mountain goats are a species that may be at risk in the Northwest Territories and are at the northern limit of their range. They are found only in the southern Mackenzie Mountains and have a limited distribution. Their population is estimated at 600 to 1,000 and population trends are unknown. However, recent evidence in the Dehcho suggests that goat numbers and the extent of their range may be increasing. Key indicators are population size, distribution and habitat quality.

Beaver

- Beavers are found primarily below the treeline in the NWT. They have stable populations and are increasing in some regions. Beavers are vulnerable to water level fluctuations and to localized over-harvest. Key indicators are numbers harvested and the density of active lodges.

Marten

- Marten are found throughout forested areas of the NWT. Population cycles are largely influenced by prey availability, with numbers estimated at 40,000 to 400,000 depending on the stage in the cycle. Marten are harvested for their pelts. Populations are thought to be stable, but habitat loss and potential overharvesting are concerns. Key indicators are numbers harvested, age structure and ratio of females to

males in the harvest, and food availability (index of small mammal abundance).

Mink

- Mink are found throughout the NWT, primarily in aquatic habitats. Their populations are believed to be stable, but are vulnerable to water pollution and localized overtrapping. They are considered to be an indicator of ecosystem health as they can bioaccumulate environmental pollutants. Key indicators are presence of contaminants, population size, and number harvested.

Small Mammals

- Small mammals are distributed widely throughout the NWT. They include snowshoe hare, arctic hare, porcupine and different species of weasels, squirrels, lemmings, mice, shrews and voles. Key indicators are indices of relative abundance (small mammal trapping, hare pellet counts and snow track counts).

Bats

- Seven bat species can be found in the southern part of the NWT. Most species occur in the Dehcho. Bats' ability to move long distances relatively quickly and their climate-regulated physiology suggest that monitoring their distribution, survival and reproductive success at the northern limit of their range in the NWT can provide good early indicators for changes in climate significant for NWT biodiversity (Lausen 2006). Key indicators are species' presence/absence in summer and/or winter (hibernation), changes in distribution (expansions) and indices of reproductive success.

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➤ What are the levels and trends of contaminants in terrestrial wildlife?

- Contaminant levels in terrestrial wildlife are generally low in the NWT, and are not a concern from animal health or human food consumption perspectives.

RECENT AND CURRENT MONITORING

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

Overall monitoring

- 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 terrestrial wildlife. 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 will be published every 5 years (see references in WGGSNS 2006, methods in Carrière and Lange 2002).
- West Kitikmeot Slave Study 1996 –2001 (West Kitikmeot Slave Study Society)
 - WKSS was a trans-boundary program with GNWT, Federal, Nunavut and mining industry funding –

focused on scientific and traditional knowledge studies in the Slave Geological Province area to gather baseline information for species such as caribou, grizzly bears, wolves and wolverine, as well as other ecological information. See Appendix A for more information on the WKSS.

- Traditional ecological knowledge research in the Kache Kue study region (Lutsel K'e Dene First Nation 1998-2001)
 - Traditional knowledge of Chipewyan elders will be recorded about the Kache Kue study region. The main focus is on the habitat of key species and potential effects of resource development in the Slave Geological Province. Information was synthesized onto maps and indicators for ecosystem health were developed. Funding was provided through the WKSS.
- Northwest Territories wildlife disease and parasite monitoring (Government of the Northwest Territories since 1990)
- Northwest Territories commercial wildlife harvest monitoring (Government of the Northwest Territories since 1993)
 - Monitors the commercial harvest of wildlife. Data collected includes the species and numbers harvested, date and location.
- Monitoring of non-resident and non-resident alien harvest from the Mackenzie Mountains (Government of the Northwest Territories since 1965)
 - Documents sport hunt harvest of big game species in the Mackenzie Mountains.

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- Northwest Territories fur harvest monitoring (Government of the Northwest Territories since 1957)
 - Monitors the harvest of furbearers. Data collected includes the number of pelts of each species sold per trapper.
- Northwest Territories resident sport harvest monitoring (Government of the Northwest Territories since 1981)
 - Monitors sport harvesting activities. Data collected includes species harvested, date and location by hunter.
- Gwich'in Settlement Area harvest study (Gwich'in Renewable Resource Board since 1995)
- Sahtu Settlement Area harvest study (Sahtu Renewable Resources Board 1998 - 2003)
- Inuvialuit Settlement Region harvest study (Inuvialuit Joint Secretariat 1986 - 2003)
- Harvest Data collection in Paulatuk, Holman, Sachs Harbour – since 2001 (DFO, GNWT, and CWS)
- Harvest Data Collection in Aklavik – (YTG)
- Wildlife Effects Monitoring Program (BHP Diamonds Inc. since 1994).
 - The program monitors caribou, grizzly bears, wolves, wolverines and foxes that pass through or live in the BHP claim block and may be affected by the EKATI diamond mine.

- Wildlife Monitoring Program (Diavik Diamond Mines Inc. since 1999)
- Wildlife/habitat monitoring at Snap Lake (DeBeers since 2002)
- Enbridge pipeline wildlife observation (Government of the Northwest Territories since 1999)
- Arctic Borderlands Ecological Knowledge (Cooperative)

Wood Bison

- Recovery of wood bison – ongoing population and disease monitoring (Government of the Northwest Territories)

Muskox

- Muskox mainland population surveys – ISR / Sahtu (Government of the Northwest Territories)
- Muskox island population surveys – ISR includes Banks and NW Victoria Islands. (Government of the Northwest Territories)
- Muskox population surveys – Yukon (Parks Canada/YTG)
- Information on muskox health gathered during commercial harvest and urine/fecal collections (Government of the Northwest Territories)

Grizzly Bear

- Continued monitoring of impacts from diamond mines in the Slave Geological Province (Government of the Northwest Territories since 2000)

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- Grizzly bear harvest and occurrence databases, (Government of the NWT since 1977)

Black Bear

- Populations are monitored using harvest statistics as an indicator of population health.
- Monitoring of black bear diseases and parasites in the Dehcho. (Government of the Northwest Territories since 2002)

Polar Bear

- Polar bear harvest database (Government of the Northwest Territories since 1979)
- Monitoring and research studies on population boundaries and abundance through tagging programs (Canadian Wildlife Service and Government of the Northwest Territories)

Lynx

- Lynx population monitoring of harvest levels and pelt length measurements from pelts turned in for auction (Government of the Northwest Territories since 1985)

Fox

- Populations are monitored using harvest statistics and disease monitoring for rabies (Government of the Northwest Territories since 1957)

Wolf

- Wolf dens and pup counts on the central barrens (Government of the Northwest Territories since 1972)

- Wolf harvest monitoring the on Banks Island (Sachs Harbour) and NW Victoria Island (Holman) (Government of the Northwest Territories since 1990)

- Diet and morphometric measurements of Arctic wolves 1993-2002 (Government of the Northwest Territories)

Wolverine

- Populations are monitored using harvest statistics. (Government of the Northwest Territories since 1957)
- NWT wide wolverine carcass collection to improve monitoring of harvest patterns and health, age and sex composition (Government of the Northwest Territories starts in 2005)

Dall's sheep

- Dall's sheep - population size monitoring for Mackenzie Mountains, North Richardson Mountains, Canyon Creek sub-population, Mount Cronin sub-population - Southern Richardson Mountains (Government of the Northwest Territories since 1970's)
- Parasite and disease studies of Dall's sheep in the Mackenzie Mountains (Government of the Northwest Territories since 1997)
- Population size monitoring in the Richardson Mountains (Government of the Northwest Territories)
- Monitoring growth rate pattern of harvested Dall's sheep rams in the Dehcho (Government of the Northwest Territories since 2002)

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- Monitoring hunter-reported observations of sex ratios in Mackenzie Mountains (Government of the Northwest Territories since 1995)
- Collecting DNA samples from goats harvested in the Dehcho, (Government of the Northwest Territories since 2002)

Beaver

- Beaver population monitoring - Sahtu (Government of the Northwest Territories since 1989)

Marten

- Marten carcass collection in select areas (for sex, age and population composition) (Government of the Northwest Territories)

Small Mammals

- Monitoring abundance of small mammals (Government of the Northwest Territories since 1990)
 - This program is designed to monitor the populations of small mammals across the Northwest Territories. Estimates of population size are based on the number of animals caught using snap and live traps.
- Studies of environmental effects of disturbances in the subarctic (SEEDS) - Small mammals (University of Alberta since 1985)
 - The program was established to investigate impacts of various disturbances associated with simulated transport corridors within upland subarctic ecosystems. The research site is 10 km north of Tulita, Northwest Territories. In 1995 a forest fire burned much of the site. Efforts to monitor post-fire ecosystem recovery

continued until 2000. The microclimate installations have been removed. Small mammal and vegetation monitoring have also been discontinued.

- Snowshoe hare monitoring (Government of the Northwest Territories since 1989)

GAPS AND RECOMMENDATIONS FOR MONITORING

Monitoring gaps and recommendations for future monitoring under the NWT Cumulative Impact Monitoring Program.

Given the range of species under consideration, decisions on monitoring gaps still require further review amongst biologists, co-management boards and government agencies. Although few specific monitoring priorities have been established, several broad issues and recommendations are provided below:

1. Improve baseline information on wildlife distribution and abundance, and understanding of natural variability in populations.
2. Insufficient attention to cumulative effects relative to oil and gas exploration, pipeline construction, mining activity and anticipated increase in level of development activity in the north.
 - a) Require better habitat and land-use mapping and understanding of how wildlife utilize available habitat.

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b) Requirement for standardized, broad multi-species survey techniques, collaborative monitoring efforts and data sharing

c) Absence of information to discriminate between effects of environmental variation and human activities.

3. There is uncertainty about the potential impact of global warming on northern wildlife species.

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