Valued Component – Other Wildlife (Avian) (FINAL DRAFT)

STATE OF KNOWLEDGE – WHAT IS HAPPENING?

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

- **What are the baseline conditions with respect to avian wildlife?**

▪ There are over 235 species of birds which migrate through or live in the NWT. The majority of these birds spend only the breeding season in the NWT. Increased mining, oil and gas exploration, as well as forestry and an expansion of road networks that always accompanies development, are significant concerns with regards to alteration or loss of habitat. Potential effects of climate change on habitat and distribution are also a concern.

▪ The four main categories of avian wildlife – waterfowl, waterbirds, shorebirds and landbirds – are all found throughout the NWT. These categories are part of the classification used by the North American Bird Conservation Initiative. They are described below.

Waterfowl and Waterbirds

▪ Waterfowl and waterbirds include gulls, terns, loons, ducks, geese, swans, cranes and rails. Generally, they are abundant and widespread in the NWT. Baseline information is lacking for most species; however, some information is available through monitoring programs and surveys for specific species (mostly in key breeding areas). Populations of some species of duck (e.g. long tailed duck, lesser scaup, surf scoter, white-winged scoter, and northern pintail) have declined over the long term. Large-scale continental surveys are taking place. However, they cannot provide quality, local monitoring information. Two species of waterbirds may be at risk in the Northwest Territories: the yellow rail and American white pelican.

KEY MONITORING INDICATORS

Population size and trend	*Age structure*
Number harvested	*Habitat quality*
Distribution and abundance	*Food availability*
Rate of breeding success	*Presence of contaminants*
Presence of diseases and parasites	

Shorebirds

▪ Shorebirds include species such as sandpipers and plovers. They are widespread in the NWT; however, baseline information is lacking and only general distribution can be described. Density estimates are available for a few locations only. Overall, there appears to be a negative population trend in many shorebird species that are present in the NWT. An arctic shorebird monitoring program is now operational. It will determine current population levels of 17 species, and provide long-term trends in populations on the arctic breeding grounds. Testing is currently underway to develop a similar program in the boreal portion of the Northwest Territories. In the Northwest Territories, the eskimo curlew is an endangered species (it has not been seen since the 1980s).

Landbirds

- Landbirds include songbirds, woodpeckers, cranes, owls and raptors. Some very preliminary information is available on population trends for forest/songbirds, but it is not statistically rigorous. The endangered whooping crane (found only in Wood Buffalo National Park) is monitored and has a population size of 200 birds (2004 fall estimate). Two other species are designated as at/may be at risk: gray-headed chickadee and rusty blackbird.

- Baseline information is available for some raptor species, such as the threatened *anatum* subspecies of peregrine falcon (81 nesting pairs were observed in 2000 throughout the Mackenzie River valley). Raptors tend to nest at historical nest sites from year to year. Monitoring raptors includes documenting nest site occupancy, reproduction rates (i.e. number of fledglings per nest) and production of fledglings within a geographic area. With the reduced use of organochlorine-based pesticides in North America over the last 20 years, populations of raptors, including peregrine falcons, are stable or increasing and are considered to be healthy.

- Species-specific or area-specific research is being conducted as resources permit. Examples include work on the rusty blackbird in 2006 and baseline data collection from near Fort Simpson, Norman Wells, and Colville Lake.

- Additional data for landbirds is being collected as part of biological assessments of protected areas such as Edéhzhíe, Ts'ude'hliline-Tuyetah, and others.

➢ **What are the levels and trends of contaminants in avian wildlife?**

- Baseline levels of contaminants in aquatic birds were evaluated in the late 1980s/early 1990s as part of a national contaminants survey. Contaminant levels in birds which are harvested were found to be low. However, other surveys of species higher in the food chain such as seabirds and gulls suggest that contaminant levels in some of these species are relatively high. Monitoring of contaminants in raptors in the NWT does not occur routinely; therefore, levels and trends are not available.

RECENT AND CURRENT MONITORING

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

Overall monitoring

- Northwest Territories/Nunavut bird checklist survey (Canadian Wildlife Service since 1995)
  - This survey is volunteer-based and serves to provide distribution and trend information for all bird species. Much of the data collected is historic (prior to 1995). This broad monitoring program will continue to be improved upon and expanded.

- North American breeding bird survey (Canadian Wildlife Service since 1966)
  - This survey is undertaken throughout North America mainly by volunteers using road based routes for data collection. The technique is reliable for some land birds

(mainly songbirds). There are five active routes in the NWT and others available for skilled observers.

- Christmas bird counts (Volunteer-based since 1971).
  - Counts take place in Yellowknife, Hay River, Norman Wells, Fort Simpson and Fort Smith and provide data on winter bird populations.

- 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 avian 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).

- Wildlife effects monitoring program (BHP Diamonds Inc. since 1994).
  - The program monitors bird species, migrants or residents, found on the BHP claim block that may be affected by the EKATI diamond mine.

- Migratory bird and wildlife monitoring program for Fort Liard development project (Shiha Energy Transmission Ltd. since 2000).
  - Birds and signs of other wildlife (tracks, pellet groups, etc.) are surveyed along the right-of-way. The right-of-way is treated as a disturbance feature, so information is collected in a way to show use of the feature, use of the edge, and use of the (undisturbed) surrounding habitat. This project was completed in 2004.

- Bird monitoring along the Chevron pipeline right-of-way, Fort Liard, Northwest Territories (Chevron Ltd. since 2000).
  - Point counts for bird species are conducted on the pipeline right-of-way and in adjacent habitats to compare use of the area by migratory birds. This project was completed in 2005.

- Harvest study at Holman, Sachs Harbour, and Paulatuk (Canadian Wildlife Service and Wildlife Management Advisory Council) (since 1986)

Aquatic birds

- Duck banding projects (US Fish and Wildlife, Government of the Northwest Territories and Canadian Wildlife Service since 1995)
  - Duck banding occurs at Willow Lake, Mills Lake, and Stagg River, and is part of a continental duck banding program to monitor shifting distributions, survival (longevity) and harvest rates.

- Inventory of snow geese in western arctic (Canadian Wildlife Survey since 1976)
  - The inventory occurs at 5-year intervals in the Inuvialuit Settlement Region, but is of relevance to the NWT as birds migrate through and are harvested by residents.

- Monitoring Populations of waterfowl and other aquatic birds in the Inuvialuit Settlement Region
  - The Mackenzie Delta, Tuktoyaktuk Peninsula, and neighbouring parts of the mainland Inuvialuit

Settlement Region are one of the most important breeding areas for waterfowl and other aquatic birds in North America. Objectives of this long term monitoring study are to (1) document changes in numbers of several species of waterfowl in one of the most important arctic breeding grounds; (2) evaluate the impacts of gas and oil development on migratory bird populations in the Inuvialuit Settlement Region; and (3) guarantee that sustainable and high numbers of waterfowl are maintained in the Mackenzie Delta region for the use of Inuvialuit and other Canadians.

- Evaluation effects of gas and oil development using tundra swans as an indicator species
  - The Mackenzie Delta is one of the most important areas for nesting swans and other waterfowl in North America. The goal of this study is to determine the cumulative effects of oil/gas development and other environmental stressors on tundra swan populations and productivity, and the Mackenzie River delta ecosystem.

- Productivity of boreal forest duck and grebe populations (Canadian Wildlife Service since 1985)
  - Long-term population trends and productivity of waterfowl in the boreal forest are being monitored along with factors which might limit population growth, habitat preferences and requirements of northern waterfowl, and methods for surveying northern aquatic birds.
- Annual spring aerial surveys of waterfowl breeding areas in North America (US Fish and Wildlife in cooperation with Canadian Wildlife Service since 1955)
  - The NWT is included in this survey as an important breeding area.
- Five-year surveys of trumpeter swans (Canadian Wildlife Service since 1985)
  - Range wide surveys for swans are repeated at 5 year intervals to assess the population of this species.

Shorebirds

- Arctic and boreal shorebird monitoring programs. (Since 2004. Canada-USA joint program).

- PRISM
  - The Program for Regional and International Shorebird Monitoring (PRISM) is being carried out in NWT and Nunavut. Arctic PRISM is operational and uses a double-sampling methodology to estimate arctic-wide populations of 17 shorebird species. The entire arctic is sampled on a 10-year rotating basis; eventually, trends in populations will emerge from this data. Information on habitat association and use is also being collected. Boreal PRISM is in the testing phase. Various survey methods will be tested in order to select the best methods for surveying the five priority species that breed in the boreal forest regions of Canada.

Land birds

- Distribution and abundance of forest songbirds with relation to forest cover type in the Liard Valley (Canadian Wildlife Service 1998-2002, 2005, periodically resampled)
  - The abundance and distribution of forest bird species in the Liard Valley was assessed as little was known about forest bird communities in this area. The potential for forest and petroleum development in the Liard Valley is high and such local studies provide baseline data for future reference.

- Ecology of whooping cranes – Annual surveys (Canadian Wildlife Service, Wood Buffalo National Park, and University of Alberta since the 1960s)

- Five year peregrine falcon surveys (Government of the Northwest Territories since the 1970s)
  - Peregrine falcon surveys (*anatum* and *tundrius* subspecies) are conducted every five years throughout the NWT. Surveys were conducted annually from the early 1970's to 1990 when a five-year cycle was introduced. Historical peregrine nest sites are surveyed by air and ground to obtain information on occupancy rates, productivity and production of fledglings.

- Raptor monitoring at Daring Lake, Northwest Territories (Government of the Northwest Territories since 1995)
  - Raptors, including peregrine falcons, gyr falcons and rough legged hawks, are monitored annually in the Daring Lake area. A productivity survey is conducted by helicopter in July to document occupancy, productivity and production of young birds.

- Raptor monitoring (Diavik Diamond Mines Inc. since 2000)
  - Annual surveys of peregrine falcons began to determine the effects of mine development on nesting peregrines.

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

- Large gaps in monitoring of distribution, abundance, population size, breeding success and condition/health for most bird species; most information is site specific and many studies cannot be combined to obtain any regional population trends.

- Significant gaps for waterfowl and waterbirds which have been declining such as scaups, scoters and long tailed ducks

- Many monitoring programs are carried out sporadically from year to year due to lack of consistent core funding

- Too few breeding bird survey routes for reliable population trend analyses

- Abundance, distribution and population size of raptors is unknown in many regions which have never been surveyed

Recommendations

- Species-specific long-term monitoring of distribution, abundance, population size and breeding success, particularly for declining species

- Monitoring changes in bird communities and their habitat in relation to possible climate-induced changes

- Evaluation of baseline contaminant levels in aquatic bird species to compare them to results from late 1980s/early 1990s

- A community-based seasonal monitoring program to document bird phenology (arrival, departure, nesting dates), distribution (presence/absence) and breeding status, for both game and non-game species in a similar format to harvest studies

- A community-based program to monitor qualitative changes in bird condition, including body fat indices, parasites and diseases (mainly for game species – similar to harvest studies)

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