

Gwich'in Territorial Park Waterfowl Survey 1996

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I. Executive Summary

As the result of a resource management action proposed in the Gwich'in Territorial Park Masterplan, a study was initiated to obtain an estimate of the waterfowl population that inhabit the Park prior to the construction of any Park facilities. Emphasis was placed on determining the annual fluctuation in abundance and distribution of waterfowl (ducks, swans, and geese). Other avian species were recorded as observed.

Ground surveys were conducted within areas of the Park that were identified as having key waterfowl habitat as well as the potential for high recreational usage. The surveys were conducted during: Spring break-up (May); Summer (early July); and, Fall (September). Species observed, their behaviour, numbers and distribution were recorded.

Concentrations of waterfowl were seen staging in large numbers in open water areas in the Campbell Creek and the top of the Reversing Delta in the spring before break-up. A few birds were also observed using the small flood ponds on the tundra and roadside created by snowmelt. In the summer, large flocks of waterfowl used the Reversing Delta and the shallow lakes and creeks in the south central part of the Park. These wetland/marsh lands are ideal nesting habitat. A large number of swans and American Widgeons were observed to be using the area around the entrance to the Tithegeh chi' niilait in the Reversing Delta. These flocks of birds will likely receive the greatest attention from visitors and are the most likely to be impacted by human boating activity. In the Fall, the numbers of birds using the Park declined. Waterfowl seemed to have finished staging in the Park during the survey and large numbers were observed flying overhead.

These data will provide an estimate of waterfowl populations prior to the construction of Park facilities (e.g. boat launch, hiking trails, etc.). They can be used as baseline information for monitoring and assessment programs as the Park development proceeds.

II. Introduction

Gwich'in Territorial Park is located in the Campbell Hills area south of the town of Inuvik, Northwest Territories. In 1992, the Gwich'in Land Claim was settled and this included a mandate to establish a territorial Park along the east shore of Gwi'eekajilchit van (north Campbell Lake) and east and south shore of Tithegeh van (south Campbell Lake) [GTP Masterplan].

In 1995 a Masterplan was developed that outlined the Park's recreational and tourism potential including boating, both motorized and non-motorized, and recommended some resource management actions. The Gwich'in Territorial Park is being developed as an Outdoor Recreation Park and will include such facilities as new campgrounds, hiking trails, a boat launch, bird viewing platform and other visitor facilities.

The Park and surrounding areas were traditionally used as an important route for Gwich'in and Inuvialuit between the Mackenzie Delta and the Arctic Coast and today continues to be used for traditional activities such as fishing, trapping, hunting and harvesting of wood and plants for

domestic use. The area has remained relatively isolated from any major development and environmental destruction as most existing facilities are located by the Dempster Highway.

The Mackenzie Delta is one of the physiographic regions that is represented in the Park particularly in the southern and western areas. The rivers, lakes and creeks and Reversing Delta within this area contain wetland habitat that attracts impressive numbers of geese, ducks and swans. Many southern species find their northern limits here as the Mackenzie Delta is on all four North American migratory flyways. These abundant populations will attract avid bird watchers and tourists interested in seeing the large flocks of waterfowl. The greatest threat to these species from the Park visitors comes from outboard motorized boats [GTP Masterplan]

This report summarizes a census of site-specific waterfowl populations and other avian species in the Gwich'in Territorial Park. The ground surveys were conducted by the Gwich'in Renewable Resource Board prior to the opening of the boat launch as recommended by the Masterplan. These counts will provide Park managers with a census of waterfowl populations which can be used to assess the impact of increased human activity on bird populations.

III. Objectives

1. Identify the waterfowl species (ducks, geese and swans) within the zones identified;
2. Identify any other bird species observed during the study period;
3. Census the waterfowl abundance in the zones identified; and
4. Map the distribution of the waterfowl in the zones during the different seasons.

IV. Method

1. The Study Area

Ground surveys were done in zones identified as having the potential to effect bird populations by increased human activity. These high potential impact areas were identified based on the zoning in the Masterplan for proposed development (i.e. areas where there would be high use of outboard motorized boats, a hiking trail or an attraction to visitors), and on the special management zones (i.e. areas to protect a cultural or natural feature which is deemed to be threatened by recreational activity). These areas were then compared to the known locations of key bird populations. The study areas are outlined below and in Figure 1.

i) The Reversing Delta/Tithegeh van:

This area is considered a major site for recreational bird watching and is an access route to the Tithegeh chi' niilaii (Campbell River Waterway) which is a deep water access route to the East Channel and the Mackenzie Delta from Campbell Lake for motorized boats. This is also a major waterfowl habitat and breeding ground and is a special management zone identified in the Masterplan. It is proposed in the Masterplan that the Reversing Delta Special Management Zone be closed to motorized boating, save the Tithegeh chi' channel and the connecting channel to

Tithegeh chi' niilaii. Ground surveys from a canoe were conducted along the shorelines and the channels.

ii) Tithegeh chi' niilaii (Campbell River Waterway) and adjacent lakes:

This area has been zoned for outdoor recreation use primarily due to the depth of the water for use by motorized boats. Key habitat for waterfowl exist in adjacent lakes and along portions of channel. Waterway was surveyed by canoe, except for one day in the summer a small 15 hp motorized boat was used along Channel to gain access to the adjacent lakes at the far end of the Park near the East Channel that was unable to be reached with a canoe in the time period allowed. Travel was done at minimal power and engine was cut when shore surveys were done as to have minimal disturbance to birds.

iii) Dempster Highway (Park Boundary):

The Nihtak Campground, Cabin Creek area, and Caribou Creek Campground are zoned as intensive use areas. The areas in between are currently used by people to fish and pick berries. Small ponds exist and suitable habitat for waterfowl often exists in springtime in ponds created by snowmelt and flooding. In the spring the Park boundary; from Campbell Creek to Caribou Creek, along the Dempster Highway was driven slowly using the vehicle as a "blind". All bird species were identified within a visual strip on either side of highway. The east side of highway is not within the Park boundary but numbers were recorded of species spotted there as these birds most likely use the Park as well.

iv) Campbell Creek:

This is an area of intensive recreation use zoning. This is currently the only location for boaters to launch from to access Campbell Lake. The creek and surrounding area contains key wetland/marsh area for nesting and staging waterfowl especially in spring as it is free of ice before the lakes and ponds. It is also an important traditional fishing site in springtime for whitefish. The creek usually gets low in August, making motorboat travel to Gwi'eekajilchit van difficult or impossible. Surveys were conducted by foot in spring and by a canoe in summer.

v) Tithegeh chi' cliffs:

This area is immediately south of the proposed Park hub facilities. A boat launch and hiking trails that lead to the cliffs are proposed in this area. The cliffs are currently accessible from a pull out on the Dempster Highway near Benoit Lake. The tops of the outcrops offer an excellent view for observing the lake, the Reversing Delta, Campbell Hills. These cliffs are also a key Peregrine Falcon nesting location. This area has been classified as a special management zone over the concern that even minimal human disturbance spring time can have an impact on the Peregrine choosing a nesting site. This area presents the greatest challenge for protection because it is located close to the Tithegeh chi' channel and because it is the most scenic look in the Park. A spotting scope was set up at the top of the cliff in spring and fall to observe the waterfowl staging in the open water areas along the shores of the lakes and the Reversing Delta.

2. The Timing of the Surveys

Three surveys were conducted on:

- May 24,1996 during spring break-up to survey migrant birds staging in the Park;
- July 10-12,1996 during the summer; when local summer resident birds; breeders and non-breeders are using the area; and
- September 7,1996 during the fall when migrant birds are returning south.

All trips were conducted mid-week so that there was little or no recreation activity going on in the Park during the time. Dates were chosen when the weather and survey conditions were considered good.

3. The Survey Methods:

Equipment: Binoculars

Spotting Scope

Field Guide to the Birds of North America, Second Edition. 1987. National Geographic Society.

NWT Bird Survey Checklist

Canoe

Identification and counts were done by two observers looking through binoculars and/or a spotting scope. Species were identified, counted and attempts were made to determine social status (breeding pair, flocked, non-breeding birds, brood, nesting etc.). This process was repeating by each observer three times. The average from the six counts was taken and recorded. Most counts had an accuracy of within 2-5 birds. The ability of the observer to detect and identify all species present was estimated as fair (know 50-75%), good (know 76-99%) or excellent (know 100%). Bird sightings were plotted on overlays of a map. If a species was unknown it was described to the other observer who looked up the description in a field guide, looked at unidentified bird then confirmed the species identification with the first observer.

Viewing was from behind natural blinds such as shore grasses, willows or spruce trees along the banks providing minimal disturbance to birds and allowing for more accurate counts. A canoe was used for observing the shorelines with minimal disturbance. Only species that were visible were counted. When flushing out occurred species were identified in flight and the location where they landed was observed so that they were not counted twice in the survey.

The NWT Bird Checklist Survey Form was used to record the numbers of all avian species seen and information including time, weather conditions, snow cover, open water areas, habitat type, locations and general observations. When a new study area was begun a new form was started. Exact locations of species were recorded on a map of the Park to help determine distribution and key habitat areas. Waterfowl identified during survey were totalled according to species as per observed per area or zone.

V. Results and Discussion:

The surveys were conducted during spring break-up (May), in summer (early July) during the breeding season and in the fall (September) within areas of the Park identified as having key waterfowl habitat as well as the potential for high recreational usage. Detailed tables and maps are in the appendix which describe the study areas and the species observed, their abundance and distribution. It is emphasised that results tabled are from unaltered actual waterfowl counts.

1. Spring

The spring survey was to count the numbers of waterfowl staging in the Reversing Delta and any open water areas within the Park. The largest numbers of waterfowl were observed during the spring migration period. Most waterfowl were spring migrants and are on their way north or to other places in the Delta. The first appearance of migrant waterfowl coincided with early signs of ice deterioration and break-up (Poston 1977). Waterfowl concentrations were associated with the earliest open water, particularly Campbell Creek and pond/shore interfaces around the Reversing Delta. Flooding caused by melt water proved additional "pond" habitat along the roadside and in the low areas of the tundra. Ducks and Mergansers were seen using this habitat. Figure 1 outlines the distribution of waterfowl, and identifies the ice free areas and habitat being used for staging during the spring.

Generally waterfowl were not abundant in Campbell, Cabin or Caribou creeks except during spring break up where they are a staging areas for hundreds of ducks and geese, as they are the first to clear of ice. Large numbers of waterfowl can be viewed from the side of the highway using a vehicle as a "blind".

The large areas of open water near Reversing Delta attracted hundreds of waterfowl. The most common species observed Scaups, American Widgeons and Tundra Swans. Over one hundred swans were observed feeding on the west side of the delta in Daaraii k'it (a place for swans).

The Tithegeh chi' channel area was ice free in May and large numbers of waterfowl were staging in this area along the shoreline near the cliffs. This ice free area extended to where the proposed boat launch is to be built. In most years ice blocks the channel until June. If this icefree area occurs in future years most boaters would not put a boat in because they are restricted in the areas of travel until full break up in the middle of June and therefore there is little risk to the waterfowl staging in the area.

June is the critical time for birds to pick a nesting site in the Reversing Delta area. The cliff face is also critical a critical nesting area for the Peregrine Falcon. Boat traffic during the last two weeks of June and the first two week of July could disturb the nests [GTP Masterplan]. The management action proposed is for the month of June and for the first two weeks of July, boats travelling between Gwi'eekajilchit van and Tithegeh van will be encouraged to use the old river channel located a km to the west of the cliffs and boaters will be informed it is poor boating because of shallow nature of the lake. This will discourage boaters from entering channel between lakes reducing number of boats disturbing nest. Another resource management action proposed by the Materplan is for Park staff to patrol the cliff area for signs of nest disturbance,

limiting access during nesting period and placing appropriate signage to warn/educate visitors.

2. Summer

This survey was done to determine the numbers and species (breeders and non-breeding birds) using different areas of the Park during the summer months. This is also the time when the peak tourist season is and the most boat traffic to cause disturbance.

In July when the tourists have arrived the bird activity falls off sharply. Declines in waterfowl numbers from the spring migration were noted since many birds in the spring were transients and went to breed elsewhere in the Mackenzie Delta lakes and northern lakes and ponds. Those birds that remain have established breeding and nesting areas or are non-breeders feeding [Frisch 1994].

A canoe was paddled following the shoreline of Tithegeh van and through all channels in the Reversing Delta along the Tithegeh chi' niilaii (Campbell River Waterway) and along Campbell Creek at the far north end of the Park. The small interior lakes adjacent to Tithegeh chi' niilaii were observed by setting up a spotting scope behind a natural bind of grasses, willows or spruce to observe the large groups of waterfowl to obtain a more accurate count without disturbing them. Most birds tried to "hide" from canoe approaching but did not fly away until approached really closely.

Few species of birds and nesting sights were seen along the main channel of Tithegeh chi' niilaii and in those areas that were capable of motorized boat traffic. Goldeneye, Green-winged Teals and

Oldsquaw were seen with four-six young along shores of Tithegeh chi' niilaii. Most of the waterfowl observed in this area were in key nesting habitat and were feeding in the smaller lakes adjacent to the waterway. Access to most of these lakes is unpleasant due to thick scrub willow, high steep embankments or just the bugs.

Large numbers of Widgeons, Teals and Swans were seen in summer along the channels of the Reversing Delta and in the marshy grasslands along the shores. There is prime nesting habitat in the delta but only one female Green-winged Teal was observed with young. Large numbers of swans and ducks were seen at the entrance to the Tithegeh chi' niilaii. These swans will be the most attractive to tourists and could be viewed from the viewing platform proposed. These swans are also at a high risk to disturbance from motorized boat traffic entering Tithegeh chi' niilaii.

Key feeding habitat exists around the Tithegeh Chi' channel on east side of delta where there is a large shallow grass area where ducks and swans were observed feeding. Another large shallow grass area exists on west side of delta where no access is available to Tithegeh chi' niilaii.

Large groups of Scoters (black) ducks seen on open water of lake. Scaups and Shovellers were seen on smaller lakes. Loons were observed along the shoreline and open water areas of the large lakes. The marshy areas and small ponds around Campbell Creek are used as a breeding area during the summer months for ducks and loons.

3. Fall

By the end of August/ beginning of September the numbers of bird within the Park are dropping off. Few birds were seen staging on lakes and ponds but large numbers of ducks, geese and swans were observed flying overhead moving south along the flyway in large flocks. Identification of species was difficult due to height of flight. Only birds that were seen staging were recorded.

In the fall the area is still used by motorized boats by Gwich'in to hunt geese and ducks in the area.

4. Winter

Winter bird populations were not observed during this study. Winter is the longest season and there are few birds which remain in the area all year long. The most common winter residents are the common raven, ptarmigan and grouse. Winter activities such as snowmobiling will probably have little impact on the bird populations. At the end of winter/beginning of spring there will be minimal impact on the waterfowl as you can no longer snowmobile due to thin ice and open water. Snowshoeing on the hiking trails on the cliffs above the reversing delta will provide an excellent opportunity to view waterfowl (hundreds of ducks, geese and swans) staging in the open water areas of the lake but may disturb Peregrines who are looking to nest.

5. General

The reversing delta is an important site for migratory birds during all seasons. Surveys in the delta and adjacent lakes revealed a large number and high density of waterfowl species along shorelines that were too shallow or inaccessible to motorized boat traffic. There was a low abundance of most species of birds along Tithegeh chi' niilaii which may indicate that most waterfowl avoid these areas due to lack of suitable habitat or disturbance. It is probably likely that increased motorized traffic will have little effect in this area. The greatest impact from motorized traffic will be in the Reversing Delta especially during higher water years where there may be the potential for a large impact due to accessibility of motorized craft to new channels that are key feeding and nesting areas for the waterfowl.

It is very difficult to interpret the results of this data. This study only covers "one day" pictures of an area during each season. This data is useful in that it provides an estimate of the numbers of birds that used the area this year and where their general locations were prior to opening the boat launch. The data however is only for one year, and probable does not reflect the true numbers of bird that use the Park in a given year. Ducks and waterfowl drift from one area to the next depending on food supply and there are yearly variations in the migration routes. Several years of studies and taking the estimates are needed to obtain an accurate reflection of the numbers of birds that use the Gwich'in Territorial Park and to determine if increased usage is having an effect on the birds.

Several factors may bias the results of the study. These factors include observer skill, possible movement of birds in and out of area, movement of birds within large flocks (the larger and the denser the flock the more difficult it was to obtain an accurate number), weather (counts were lowest when the conditions were not favourable (windy, cold).

This year may also not have been your typical year for natural Park conditions. The Summer weather was cooler than normal and there were snowfalls beginning in early August. This may account for the small number of birds observed staging in the area in late summer/early fall. Most birds did not stage in Park or had already headed south due to cold weather.

In most years it would be difficult to navigate Tithegeh van, Campbell Creek, the channels in the Reversing Delta and Gull Creek (not in Park but an access to Tithegeh chi' niilaii) with a motorized boat. This year was an high water year and these areas were easily navigable during the entire season. No motorized boats were seen or heard on any of the surveys dates so the numbers observed on those dates were likely not effected by previous human disturbance.

VI. Conclusions and Recommendations

Although the ground survey did not cover all areas in the Park, it provided an estimate of the waterfowl and other avian species that were in areas that are currently the most accessible to humans and will continue to be used in the future with possible increased usage due to Park development. This survey establishes a baseline for any follow-up surveys to monitor changes in the bird community and their use of the Park due to human disturbance.

A bird survey check-list for the Gwich'in Territorial Park has been developed for visitors to fill

in (See Appendix). This checklist would not only fulfill the Park objective for educational and participatory activities but would help the Park managers monitor all avian species, their abundance and locations in the Park over the long-term. Interpretive displays should be developed on the birds that migrate into the area, their different habitats, traditional usage and the dangers of human disturbance. The establishment of the viewing platform in the Reversing Delta will aid in resource monitoring and management and will provide a place for people to view the waterfowl and Peregrine Falcons decreasing harassment of the birds whether intentional or unintentional.

Several years of monitoring prior to the establishment of any Park development are needed to establish natural fluctuations in the number of birds, in order to assess any possible changes/impacts to the bird populations as result of Park development. It is recommended that a survey be conducted for the next few years. Further native traditional environmental knowledge studies should also be done to enhance the physical science studies on abundance of bird populations in the Park in the past.

VII. References Cited

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