

MPERG Report 2006-5

Moult and Staging Waterbird Use of the Turner Lake Wetlands in the Yukon Territory: 2005 Aerial Survey Results

By

Ducks Unlimited Canada
Erin K. Spiewak and Amy J. Leach

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Mailing Address:

Box 2703, Whitehorse, Yukon

Y1A 2C6

Phone: (867) 667-5200

Fax: (867) 667-5150

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**MOULTING AND STAGING WATERBIRD USE OF THE TURNER LAKE
WETLANDS IN THE YUKON TERRITORY: 2005 AERIAL SURVEY RESULTS.**

December 2005



**DUCKS UNLIMITED CANADA
WESTERN BOREAL PROGRAM**

Erin K. Spiewak and Amy J. Leach

Ducks Unlimited Canada
P.O. Box 31775, Whitehorse, Yukon, Y1A 6L3
e_spiewak@ducks.ca, Phone 867-668-3824



Canadian Wildlife Service
Environment Canada



Ducks Unlimited Canada
CANADA'S CONSERVATION COMPANY



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ACKNOWLEDGMENTS

Ducks Unlimited Canada (DUC) would like to thank the Canadian Wildlife Service, Yukon Government Energy Mines and Resources, Mining and Petroleum Environmental Research Group, Yukon Energy, and Yukon Development Corporation for financial support. DUC also expresses gratitude to the Canadian Wildlife Service for in-kind support and the Yukon Government Department of Environment for logistical support at the fuel cache. Thank you to Debbie van de Wetering (CWS) and Wally Price (DUC) for assisting with the surveys, as well as Alpine Aviation for their continued expertise.

INTRODUCTION

In 2005, the work of the Peel River Watershed Planning Commission commenced. Representatives from communities that have interest in the Peel Plateau including the Tetlit Gwichin First Nation (TGFN) in the Northwest Territories, Nacho Nyak Dun First Nation (NNDNFN) in Mayo, Tr'ondek Hwech'in in Dawson, Vuntut Gwitchin First Nation (VGFN) in Old Crow, and YTG are involved in this process. In 2002 and 2004, the Yukon Government opened petroleum dispositions in the Peel Plateau region where a large complex of wetlands rich with wildlife and flora, known as the Turner Lakes is located. Turner Lakes was designated as an important wetland area by the Yukon Wetlands Technical Working Group. Little development has occurred on the Peel and the desire to develop land-use objectives by the planning commission before interest from outside land-users escalates, is paramount. In 2002, Ducks Unlimited Canada (DUC), in partnership with other agencies, completed an earthcover mapping project of a four million hectare area of the Peel River watershed (Ducks Unlimited Inc. 2003). The detailed land cover mapping products will be used to help assist the land-use planning process for the Peel Plateau region.

To assist with land-use planning that reflects the values of local Yukon First Nations, Ducks Unlimited Canada conducted a series of moulting and staging surveys on the Turner Lake wetland complex in 2005 to determine the importance of this area for waterbirds at this time of year.

PROJECT AREA

The Peel River watershed is situated in northeastern Yukon between the northern Wernecke and Ogilvie Mountains, and the east slopes of the Richardson Mountains. The area is continuously covered in a layer of permafrost, and sees little precipitation. High sub-arctic vegetation interspersed with sparse black spruce and tamarack dominates the region (Oil and Gas Resource Branch). The Oil and Gas Resource Branch estimates a quarter of the Peel Plateau is covered with wetlands. The Turner Lakes wetland complex

with a topographically flat surface terrain is bordered to the north by the steep Caribou River valley and to the South by the Peel River (Figure 1).



Figure 1. The Turner Lake Wetland complex is located in northern Yukon, adjacent to the Peel river.

METHODS

A total of five surveys were scheduled at approximately two weeks intervals, from mid July - October. Staging surveys were flown in a Cessna 206 fixed wing aircraft. ArcView GIS software was used to randomly select transects within the study area to achieve 15% coverage. In total, 11 transects were flown in a northeast/southwest direction (Figure 2). The aircraft flew at speeds of approximately 100 km/hr and at a height of 100m above ground level. Two observers were present during each staging survey—one that

navigated and was positioned in the front right, while the other sat in the rear left seat. Each observer recorded waterbirds within 200 m on either side of the aircraft totaling 400m wide survey transects. Our flight protocol was based on the standard procedure approved by Ducks Unlimited Canada (2003). Arc View 3.2 software integrated with a customized Tracking Analyst moving map extension was used with a Global Position System (GPS) to precisely follow the predetermined transect route. All observations were recorded using a hand-held tape recorder and associated with synchronized time. All observations including birds of prey, waterbirds and large mammals were recorded.

Waterbird estimates for each survey were derived from survey counts based on the 15% coverage obtained and then extrapolated to the entire study area. Our estimate of total waterbird-use days represents the sum of the number of days for each waterbird estimated to be using the Turner Lake wetlands over our survey season. This number was calculated, by first, averaging the total number of waterbirds between two consecutive surveys and multiplying it by the number of days between those surveys. This was repeated for each set of consecutive surveys (i.e. survey 1 and 2; survey 2 and 3; survey 3 and 4). These totals were summed to estimate the total waterbird-use days over the 59 day survey season.

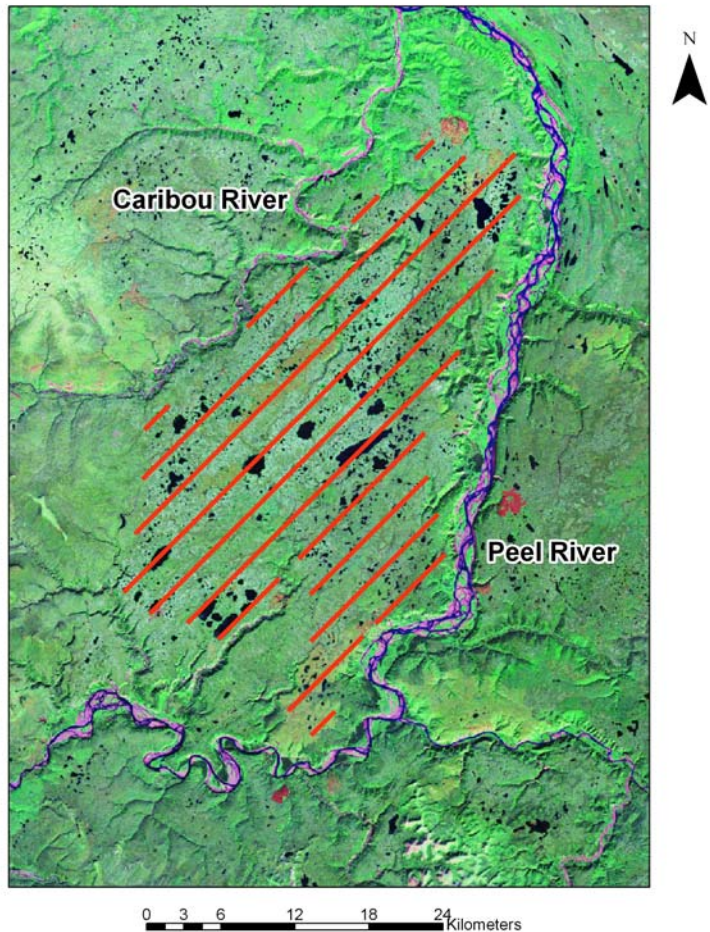


Figure 2. Transects surveyed on Turner Lakes, Peel Plateau by fixed-wing aircraft in 2005.

RESULTS

During the Turner Lakes surveys, 15 species of waterbirds, including 9 waterfowl species were observed in 2005. Of the waterfowl identified to species, the highest abundance throughout the surveys was scaup and scoter, accounting for almost 40% of all birds recorded (Table 1). The highest concentration of waterfowl peaked in mid July at 10,929 estimated waterbirds. Waterbird numbers remained fairly constant from August through to September (Table 1). We estimated **483,717** waterbird-use days over a period of 59 days (July 13th - Sept 10th) for the Turner Lake area.

Dabbling ducks appeared to increase slightly on the Turner Lake wetlands towards the end of the season (specifically mallard, American wigeon, and unidentified dabbling ducks), while diving duck numbers remained high throughout the entire survey period, representing up to 72% of the total waterbirds on a single survey (Table 1, Figure 3).

Other waterbird species observed using the area included swans, Canada goose, common loon, pacific loon, and red-throated loon (Table 1).

Table 1. Waterbird estimates on the Turner Lake Wetland Complex during 4 fixed-wing moulting and staging surveys in 2005.

Species	July 13	August 02	August 29	September 10	Total
Scaup	165	2,660		4,983	7,808
Scoter	1,663	2,574	66	132	4,435
Surf Scoter	66	363		33	462
Mallard	92	40	33	251	416
White-winged Scoter	198	165			363
American Widgeon	26			145	171
Ring-necked Duck				132	132
Green-winged Teal				66	66
Bufflehead	7	40			47
Long-tailed duck		33			33
Unidentified Duck	7,504	205	1,432	1,228	10,369
Unidentified Diver	1,069	1,709	4,019	891	7,688
Unidentified Dabbling	139	139	733	680	1,691
Grand Total	10,929	7,928	6,283	8,541	33,681
Unidentified Swan	139	145	231	59	574
Canada Goose	139				139
Pacific Loon	26	92	7		125
Common Loon		26			26
Unidentified Loon	59	40	16	7	122
Red-throated Loon		13			13
Grand Total	363	316	254	66	999

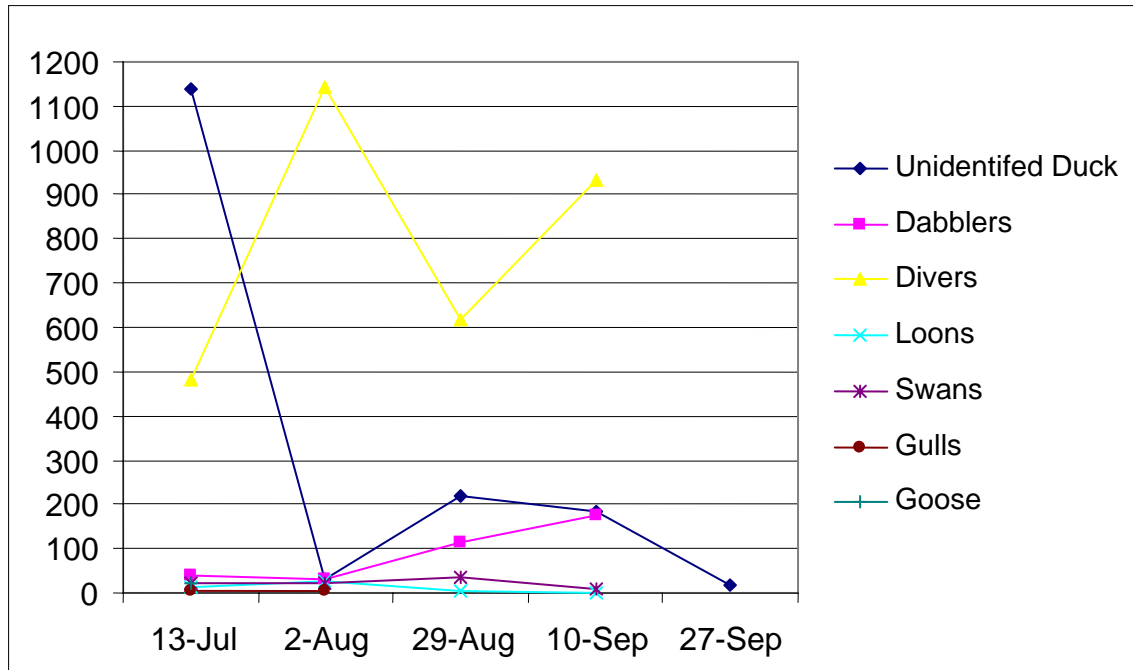


Figure 3. Seasonal abundance of waterbirds on the Turner Lakes complex during 4 fixed-winged surveys in 2005.

During staging periods, large groups of waterfowl utilized the large wetlands within the region (Figure 4). Three large groups of ducks between 600- 700 birds were recorded, representing 39% of the waterbirds counted over the entire study period. During each survey, waterbirds in groups of 50 or more individuals accounted for 65%-89% of all waterbirds recorded on each respective survey. However, waterbirds in groups of 50 or more only accounted for 3-7% of the total observations recorded (Figure 4).

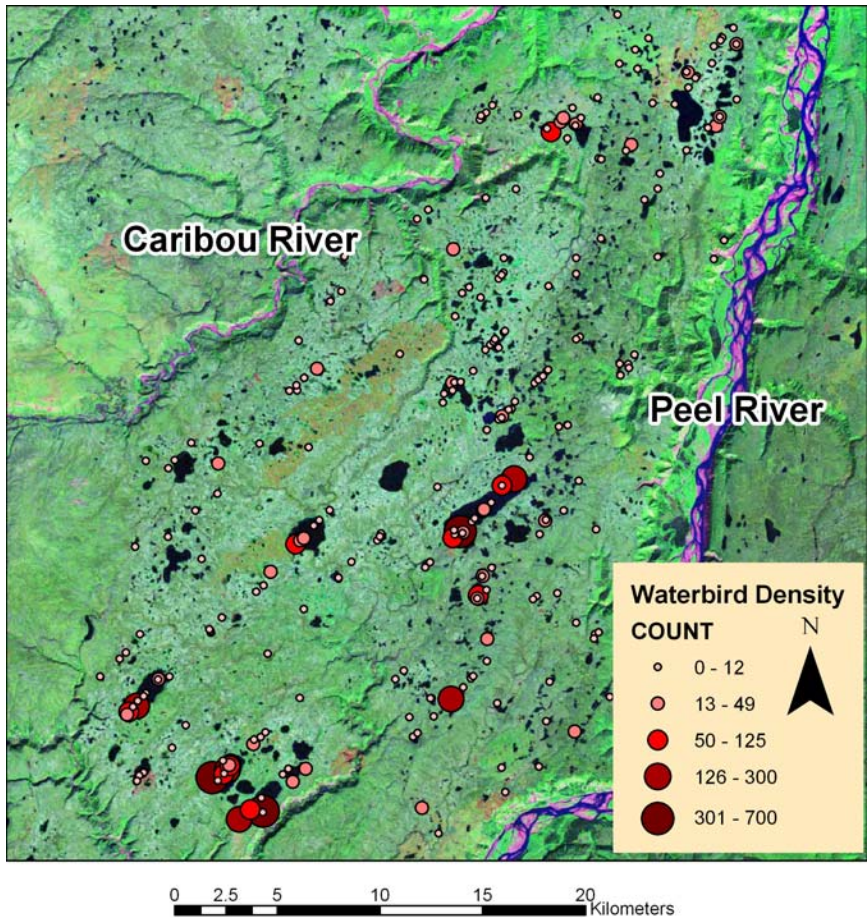


Figure 4. Density of waterbirds found on wetlands surveyed in the Turner Lakes during 4 fixed-winged surveys in 2005.

DISCUSSION

A total of five surveys were scheduled to be flown at approximately three weeks intervals; however, severe winter weather conditions prevented the last survey from occurring. Two transects were completed before snow flurries forced the aircraft to turn back. . During staging and moulting periods, waterbirds are typically non-descript making it more difficult to accurately identify to species. The majority were categorized into major species guilds such as dabbler, diver, or unidentified duck.

The Turner Lakes complex provides valuable habitat for moulting and fall staging waterfowl particularly diving ducks. Our observations demonstrate the propensity of waterbirds to concentrate in great numbers on the large lakes in the region before and during migration. Groups of birds observed on large lakes represented the majority of

waterbirds observed; relatively few individuals used the small wetlands at this time of year. Yukon Waterfowl Management Plan (1991-1995) reported the Peel Plateau was significant for diving ducks during breeding and the summer moult, and DUC also found this area to be important during the staging period.

Despite the limitations in waterfowl identification during the moulting phase, our observations showed a similar diversity of waterbirds compared to the Yukon Waterfowl Management Plan report (1991-1995) which documented 13 different species of waterfowl including both Greater and Lesser Scaup, Surf Scoter, Long-tailed Duck, Northern Pintail and Blue-winged Teal.

Turner Lakes has been classified as ecologically significant by the Yukon Waterfowl Management Plan (1991-1995). The almost 500,000 estimated waterbird-use days calculated for our 59 day study period on the Turner Lake wetland complex is impressive considering its isolated location relative to other significant wetland complexes and rivers, as well as its northern latitude.

The unusual hot and dry summer of 2004 caused an increase in the number of forest fires by ten times the annual average over a 50 year period in the Yukon (Wildland Fire Management 2004). A large, intense fire swept through the peel plateau during 2004 and burnt a portion of the Turner Lake study area. It is unknown whether the mosaic of burnt trees, spruce and exposed soil inherently impacted waterfowl numbers in the study area.

Turner Lakes complex should be considered for special management during land-use planning as development issues arise, particularly, for the scaup and scoter species found here in large numbers, which are of international conservation due to significant continental declines (Afton and Anderson 2001, Traylor et al 2004). Austin and Fredrickson (1986) found that non-breeding or unsuccessful breeding scaup began to moult in mid-July, while successful breeders moulted in August after rearing broods. Scaup are known to be late- breeders; therefore, the brood period often does not end until September (Austin and Fredrickson 1986). By mid September, Austin (1987) found that

scaup remained flightless and selected habitat in areas of least disturbance. Prior to wetland freeze-up, groups of scaup concentrated on large numbers of considerable sized wetlands (Austin 1987). Large wetlands in the Turner Lakes complex, Peel Plateau provide key staging habitat for waterbirds. This study shows the importance of large lakes to staging and moulting waterfowl in the Turner Lakes area. More waterfowl data is needed for the Peel plateau to further enhance our knowledge of the area to ensure responsible land use decisions.

FUTURE WORK

DUC is planning on conducting breeding waterbird surveys in 2006 to further increase our knowledge of waterbird use of the Peel Plateau region at different life cycle stages.

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