



IMPORTANT WATERFOWL HABITAT DURING SPRING MIGRATION: FILLING GAPS IN THE WILDLIFE KEY AREAS DATABASE

Report to Yukon Fish And Wildlife Enhancement Trust

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PROJECT ACTIVITIES

What activities did you complete during your project?

Due to the global pandemic, we refined our activities in 2020 and focused on data analysis. We hired a statistical consultant to analyze our 4-year database for this project. From 2016-2019 we surveyed 52 lakes – 13 surveyed in 3 years; 21 surveyed in 2 years; 15 surveyed in 1 year. We counted ~40,000 individuals of 28 species of swans, geese, ducks, loons, and grebes across all years of the study (Table 1). Preliminary statistical analysis suggests 13 of 52 lakes were important stopover sites for migrating waterfowl. Five lakes were disproportionately important based on use by high numbers of individuals in multiple survey periods and multiple years: Crooked Lake, Fortin Lake, Toobally Lakes, Twin Lakes, and Frances Lake. These results are preliminary pending final statistical analysis. As expected, the number of individuals increased significantly with survey between mid-April and mid-May and trends varied by year, likely influenced both by late winter/early spring weather and lake selection in a given year.

In addition to analysis of the waterfowl spring survey data, we also proceeded with our examination of daily and seasonal phenology of waterfowl use of lakes using remote camera data. Daily phenology is the pattern of waterfowl occupancy at a lake throughout the day (e.g. hourly pattern) while seasonal phenology is the pattern of occupancy across the migration season (e.g. daily pattern). While not directly supported by our 2020 YFWET grant, data collection was through deployment of remote cameras at select lakes during aerial surveys and thus was supported in 2019 by a YFWET grant. This analysis is also in progress and will be published in a scientific journal upon completion.

How did your activities contribute to you goals and objectives?

The goal of this project is to identify and protect critical habitat for migratory waterfowl in Yukon. Our specific objectives are 1) to identify lakes that are of high-value as stopover sites for waterfowl during their spring migration through southeast Yukon and 2) secure an update of Yukon Environment's Wildlife Key Areas (WKA) database based on the results of our study.

Toobally, Twin, and Frances Lakes are currently identified as Wildlife Key Areas (WKA) however the supporting evidence in the database is weak (generally based on a single survey in a single year). Statistical analysis of our large database of spring migration in southeast Yukon is providing scientifically rigorous evidence of the importance of these lakes as spring stopover sites for migrating waterfowl. In addition, our preliminary analysis is identifying additional lakes that may be considered for addition to the WKA database.

The results of the analysis of daily and seasonal phenology of lake use by waterfowl will aid in determining appropriate timing windows for restriction of potentially disturbing activities at high-value stopover lakes.

Note any variances to your goals, objectives or work plan and explain why they occurred.

Our project was impacted by the 2020 COVID pandemic. We had initially proposed a final field season of spring waterfowl surveys at 11 lakes within the Ross River Dena Council Traditional Use Area. Field activities were cancelled and it was decided that we would proceed to the analysis stage of the project.

Explain how the results of your work contributed to the protection, enhancement or restoration of fish, wildlife or their habitat.

The WKA database provides information to government, industry, and other stakeholders for consideration in habitat management, resource and land use planning, and environmental assessment reviews. However, many lakes in the WKA database have not been well studied and, as noted previously, the basis for their notation derives from one or few surveys, often during a single season (i.e. during spring or fall migration or the breeding period), or expert opinion and anecdotal information. In addition, the WKA database is incomplete because there are notable spatial gaps: many parts of the Yukon have not had systematic and comprehensive assessments, including the Kaska Territories in southeast Yukon. Following completion of data analysis and publication of a scientific paper, the results of this project will fill a significant gap in the WKA database and ensure lakes of high value to waterbirds and waterfowl during spring migration are protected from development or activities that would disrupt or diminish their value.

If you were to do the project again what would you do differently?

This was a 4-year project and many of the logistical and methodological challenges were addressed following the 1st year of field work. However, in hindsight, given the large geography covered during our aerial surveys and our frequent visits to multiple lakes over multiple years, we could have taken advantage of the opportunity to collect additional environmental information either for this or other projects, including with collaborators, e.g. songbird migration and breeding activity (using acoustic recorders); large mammal occupancy (using remote cameras or hair snags); water quality, weather data, etc.

COMMUNICATIONS

What did you do to ensure your results were shared with the appropriate groups, people or governments?

In previous years of this project we have prepared and distributed a report of field activities to relevant governments and other interested groups. We will share the final results of the project once published in a scientific journal.

This project was presented as part of broader presentations on strategies and research programs for advancing avian conservation in Yukon to a diverse audience of Yukon and British Columbia biologists as part of the B.C. Wildlife Society webinar series and to a land use planning class at Yukon University.

Describe how you recognized the Enhancement Trust and/or its mandate.

YFWET was acknowledged during presentations both verbally and through use of the logo on a funder acknowledgement slide. YFWET is also acknowledged in all WCS Canada reporting, including to other funding groups.

Identify any communication materials, strategies or techniques that you used to promote your project and its objectives.

Throughout the project we have promoted it through various media – WCS Canada newsletters, reports, social media, and blogs; public and scientific presentations; and in meetings with any relevant groups, including territorial, federal, First Nation governments and ENGOs.

Include photos of the project in action or the finished product.

See Photos at end of report.

Table 1. All species observed during aerial surveys 2016-2019.

Species	Scientific Name	2016	2017	2018	2019
American Wigeon	<i>Mareca americana</i>	x	x	x	x
Barrow's Goldeneye	<i>Bucephala islandica</i>	x	x	x	x
Blue-winged Teal	<i>Spatula discors</i>		x	x	x
Bufflehead	<i>Bucephala albeola</i>	x	x	x	x
Canada Goose	<i>Branta canadensis</i>	x	x	x	x
Canvasback	<i>Aythya valisineria</i>	x	x	x	x
Common Goldeneye	<i>Bucephala clangula</i>	x	x	x	x
Common Loon	<i>Gavia immer</i>	x	x	x	x
Common Merganser	<i>Mergus merganser</i>	x	x	x	x
Greater White-fronted Goose	<i>Anser albifrons</i>		x	x	x
Green-winged Teal	<i>Anas crecca</i>	x	x	x	x
Harlequin Duck	<i>Histrionicus histrionicus</i>			x	x
Horned Grebe	<i>Podiceps auritus</i>	x	x	x	x
Long-tailed Duck	<i>Clangula hyemalis</i>	x	x	x	x
Mallard	<i>Anas platyrhynchos</i>	x	x	x	x
Northern Pintail	<i>Anas acuta</i>	x	x	x	x
Northern Shoveler	<i>Spatula clypeata</i>	x	x	x	x
Pacific Loon	<i>Gavia pacifica</i>	x	x	x	x
Red-breasted Merganser	<i>Mergus serrator</i>	x	x	x	x
Red-necked Grebe	<i>Podiceps grisegena</i>	x	x	x	x
Red-throated Loon	<i>Gavia stellata</i>		x	x	x
Ring-necked Duck	<i>Aythya collaris</i>	x	x	x	x
Scaup sp. (Greater & Lesser)	<i>Aythya marila/affinis</i>	x	x	x	x
Snow Goose	<i>Anser caerulescens</i>	x	x	x	x
Surf Scoter	<i>Melanitta perspicillata</i>	x	x	x	x
Trumpeter Swan	<i>Cygnus buccinator</i>	x	x	x	x
Tundra Swan	<i>Cygnus columbianus</i>	x	x	x	x
White-winged Scoter	<i>Melanitta fusca</i>	x	x	x	x

Photo 1. Spring migration at Fortin Lake. Photo credit: Hilary Cooke/WCS Canada



Photo 2. Spring migration at Frances Lake Outlet. Photo credit: Hilary Cooke/WCS Canada

