Flat Creek Wetlands
Preliminary Habitat Assessment

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Environment

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SR-12-02

Acknowledgements

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(title page photo credit: Marcus Waterreus)

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Summary

Within the Dawson Land Use Planning Region, the Flat Creek Wetlands are considered a conservation priority due to their ecological importance to various mammals and waterfowl. We conducted 4 aerial surveys (2 in May and 2 in September 2010) to assess wildlife use of the area. Moose, grizzly bear, black bear, beaver, and a wide variety of waterfowl species were observed using the wetlands in both the spring and fall. Ducks were the most common waterfowl observed and appeared equally abundant during both the spring and fall surveys. Swans and snow geese were also observed using the area.

Key Findings

- Flat creek wetlands represent important habitat to mammals and waterfowl during the spring and fall.
- Due to the relative rarity of wetland complexes within the Dawson Land Use Planning Region, the Flat creek wetlands represent a significant staging area for migratory waterfowl.
- Ducks (divers and dabblers) are the most common waterfowl using the wetlands.
- As expected, larger waterbodies support more waterfowl.
- To maintain the ecological value of the Flat Creek Wetlands, connectivity should be maintained among the waterbodies and disturbance should be minimized.

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Introduction

In preparation for the Dawson Land Use Planning process, Environment Yukon identified areas in the Dawson region that were lacking wildlife and habitat data, or that are a conservation priority due to the ecological importance of the area. In particular, wetlands appear to be less common in the Dawson region than other regions of Yukon, especially wetland complexes that incorporate ponds or small lakes. Potential uses of such complexes include staging and breeding for waterfowl, foraging for bears, foraging and rutting for moose as well as year round habitat for muskrat and beaver. The scarcity of these wetland complexes in the region highlights the necessity for their consideration during conservation planning processes.

The Dawson Land Use Planning region covers approximately 10% of Yukon. Within the planning region, wetlands account for approximately 6% of the area. Wetlands in the Dawson region occur mainly in poorly drained sites, on floodplains, and on valley bottoms and lower slopes. Lakes and ponds are generally scattered and small, and are mainly found in valleys, on floodplains, in depressions in glacial deposits, and in cirques in mountainous terrain. Bog-fen complexes are common on older deposits of inactive floodplains. Permafrost underlies bogs and some fens, and the soils are thick organic deposits (McKenna *et al.* 2010).

Flat Creek is located in the Tintina Trench, which is the best known waterfowl migration corridor in Yukon (Yukon Waterfowl Technical Committee 1991). Much of the Flat Creek area was burned in 2004, and since then the burned forest immediately west of the wetland complexes has been a popular location to harvest fuel wood, both commercially and for personal use. A Timber Harvest Plan has been drafted by the Forest Management Branch of Energy, Mines and Resources to supply Dawson City with a sustainable supply of economical fuel wood. Other uses of this area include hunting, trapping, and berry picking.

Methods

Study area

A series of wetland complexes are present in the Tintina Trench in the southeast portion of the planning region, in the vicinity of Gravel Lake (the North Klondike Highway is immediately adjacent to Gravel Lake), and largely associated with Flat Creek (Figure 1). Flat Creek drains into the South Klondike River, after meandering through a portion of the Trench. Scattered in the area are a series of small ponds and lakes, with Barlow Lake (approximately 10 km southeast of Gravel Lake) being the largest. This portion

of the Dawson region is mostly uninhabited, with only a few residences near the highway, and several older cabins and structures visible along Flat Creek. The wetland complexes present are predominantly shallow open water, marshes, and fens (Canadian Wetland Classification System 1997).

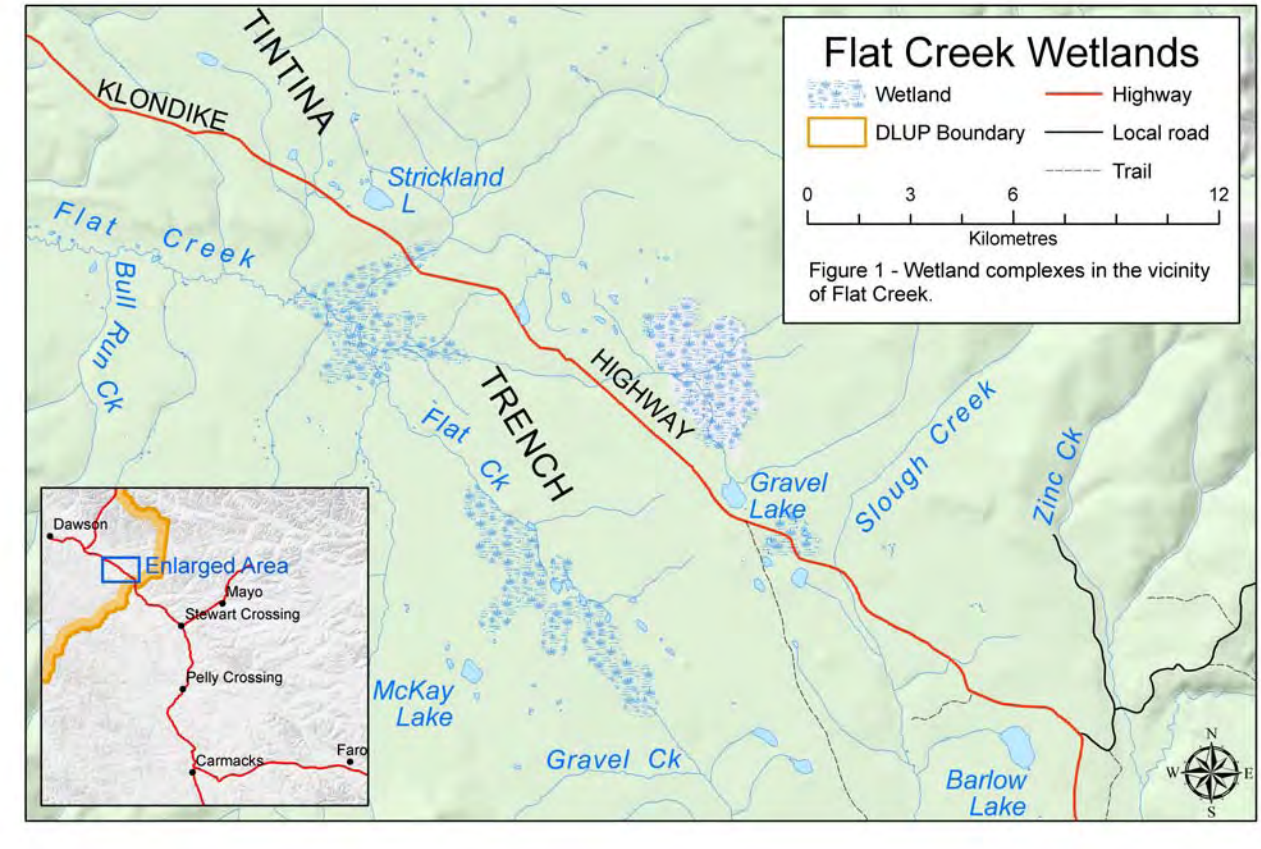

Figure 1. Wetland complexes in the vicinity of Flat Creek.

Data collection

We conducted fixed-wing aerial surveys on 12 and 20 May, and 17 and 23 September 2010. We flew at approximately 100 m above ground level at speeds between 120 and 140 km/h. The timing of the surveys targeted the peak waterfowl migration period to capture information on waterfowl use of the wetlands. The flights in September were also intended to gather information on wetland use by sandhill cranes during migration. We recorded observations of all other species, including raptors, moose, bear, and beaver. We also recorded all observations of habitat features, and counted all waterfowl on each waterbody. To assist in describing habitat features we took geo-referenced photos of all the waterbodies and surveyed wetlands. We used a hand-held GPS to capture the track of the flight, as well as to mark specific observations.

Results

Each of the 4 flights covered similar ground; ponds 25 and 26 were not surveyed in the first flight. The typical flight path and the surveyed wetlands are presented in Figure 2. Example photos of typical wetland waterbodies encountered in the study area are available in Appendix 1.

Over the course of the 4 surveys, various observations of mammals were recorded in the study area, including moose, grizzly bear, black bear, and beaver (Figure 3).We saw no mammals during the 17 September survey. The highest numbers of moose were seen 23 September, as small groups of moose were observed during rutting season.

We observed a wide range of waterfowl abundance during the 4 surveys. We counted the most waterfowl on 20 May (691 birds). Ducks accounted for 96–98% of all waterfowl seen on all surveys. We counted the fewest waterfowl on 12 May (274 birds). Our attempts to classify the ducks into divers or dabblers were largely unsuccessful. On average, we saw a similar number of waterfowl during the spring (485.5 birds) and fall surveys (490 birds). Larger waterbodies in the area appeared to have higher waterfowl counts, with the highest count being 230 birds at Barlow Lake on 20 May. Average waterfowl counts per pond are depicted in Figure 4 (May) and Figure 5 (September).

We observed nesting swans at 4 ponds in May (ponds 11/12 (high water in spring combined these waterbodies), 14, 16 (Gravel Lake), and 21(Strickland Lake)).It appears that successful broods were produced at only 2 of these ponds (12 and 14) as no swans were observed at Gravel or Strickland lakes during the fall surveys. Brood sizes were 4 (pond 12) and 5 (pond 14) during the 17 September survey, but both broods were reduced by one juvenile by the 23 September survey. We observed 20 snow geese flying over ponds 11 and 12 during the 20 May survey.

It can be difficult to identify waterfowl to species during aerial surveys, especially in the fall when birds are displaying non-breeding plumage. We did ground surveys at Gravel Lake (easily accessible from the Klondike Highway) the day before and the day of each aerial survey in May to gather information about which species were present (Table 1). Although this data is not necessarily representative of all wetlands in the Flat Creek area, it does provide information about the diversity of species likely to be found in the area.

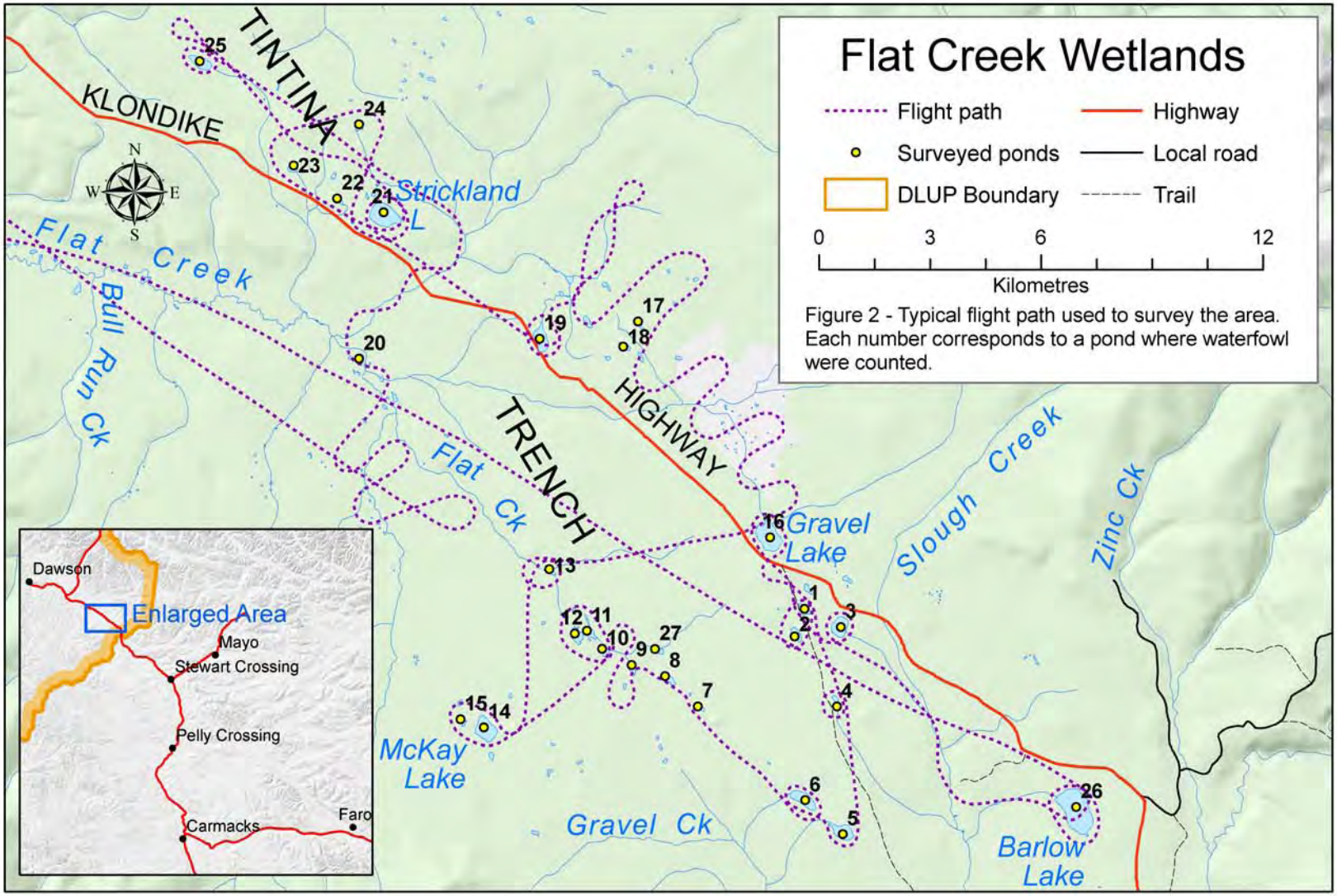

Figure 2. Typical flight path used to survey the Flat Creek Wetlands.

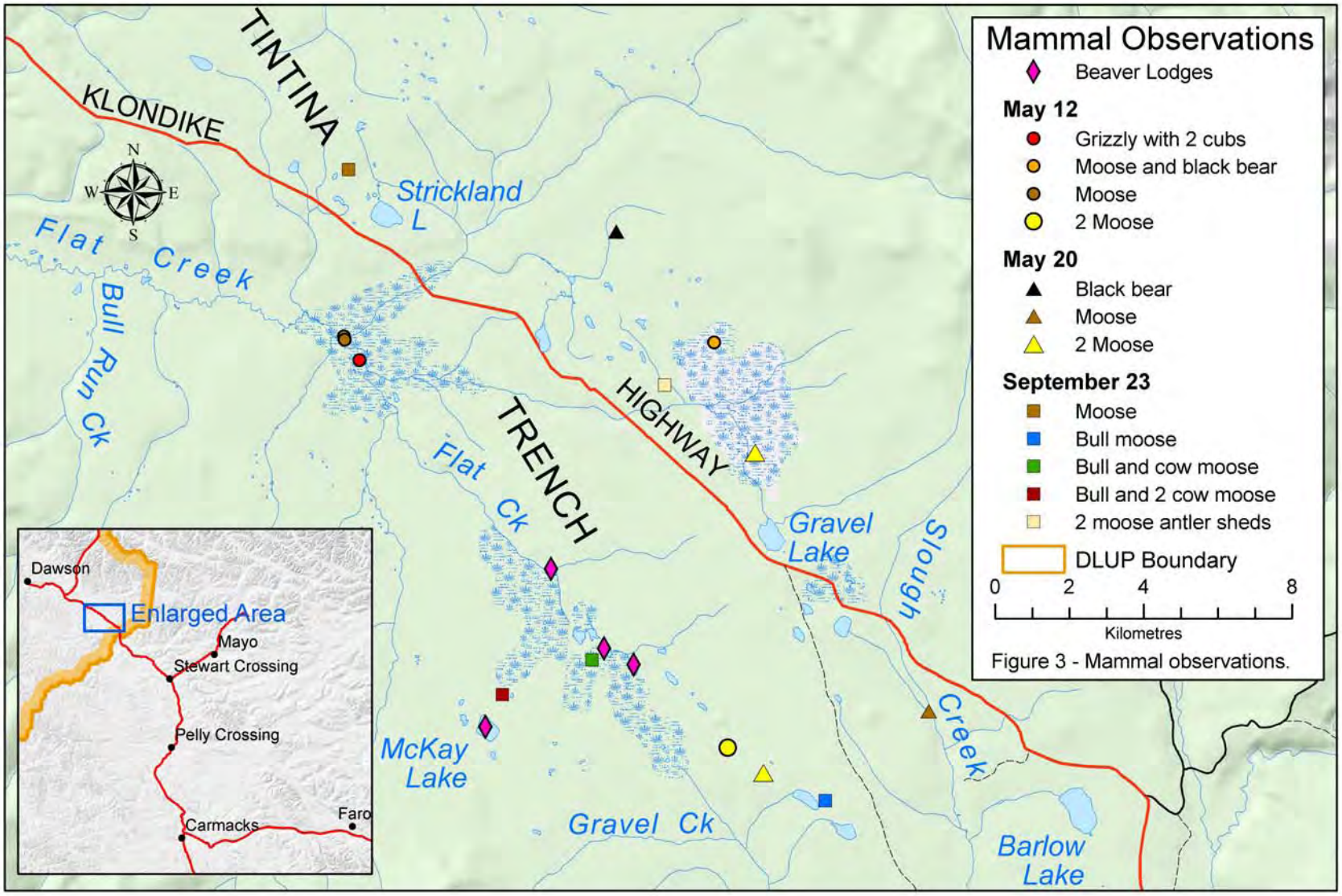

Figure 3. Mammals seen during Flat Creek Wetlands surveys.

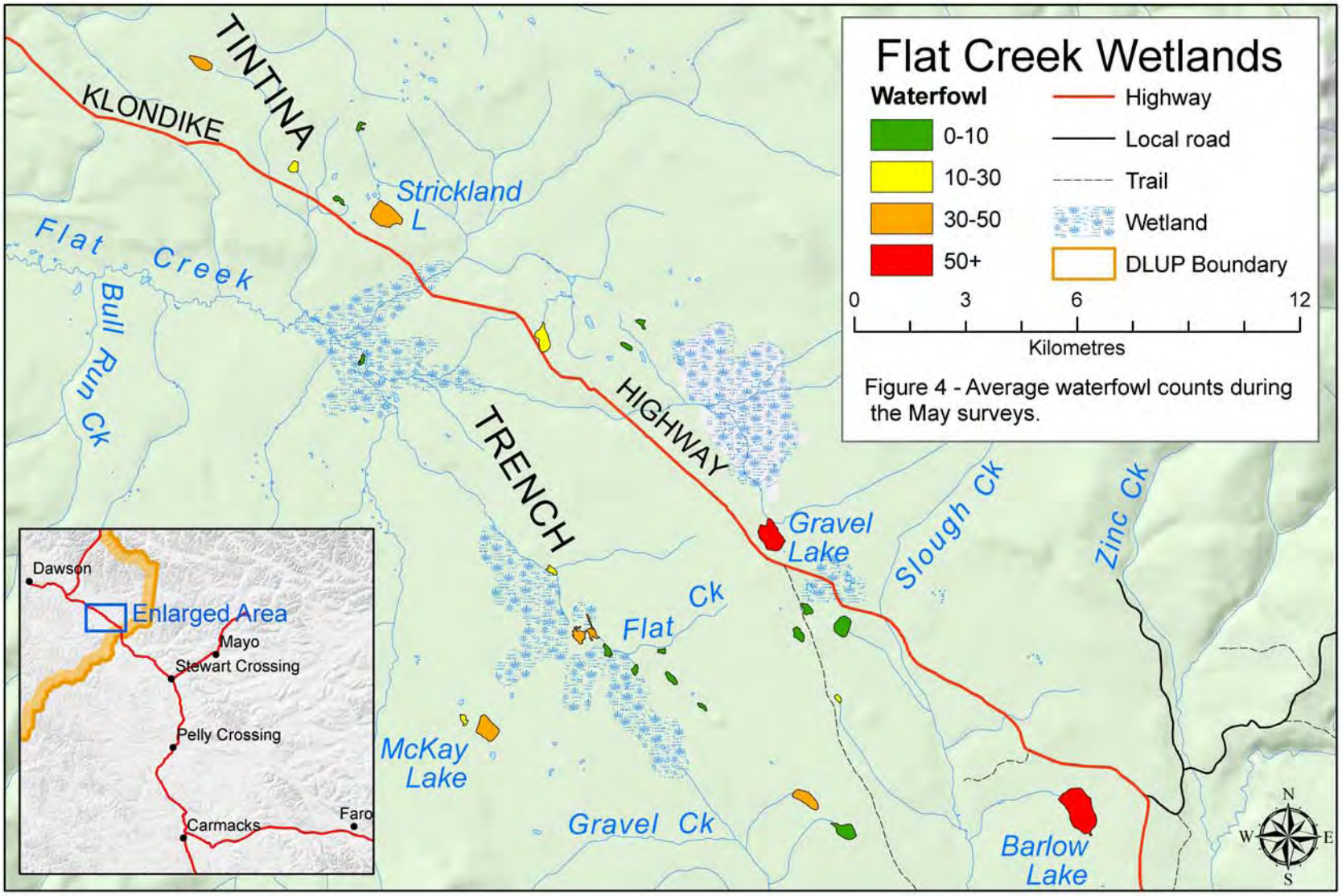

Figure 4. Average waterfowl counts during May Flat Creek Wetlands survey.

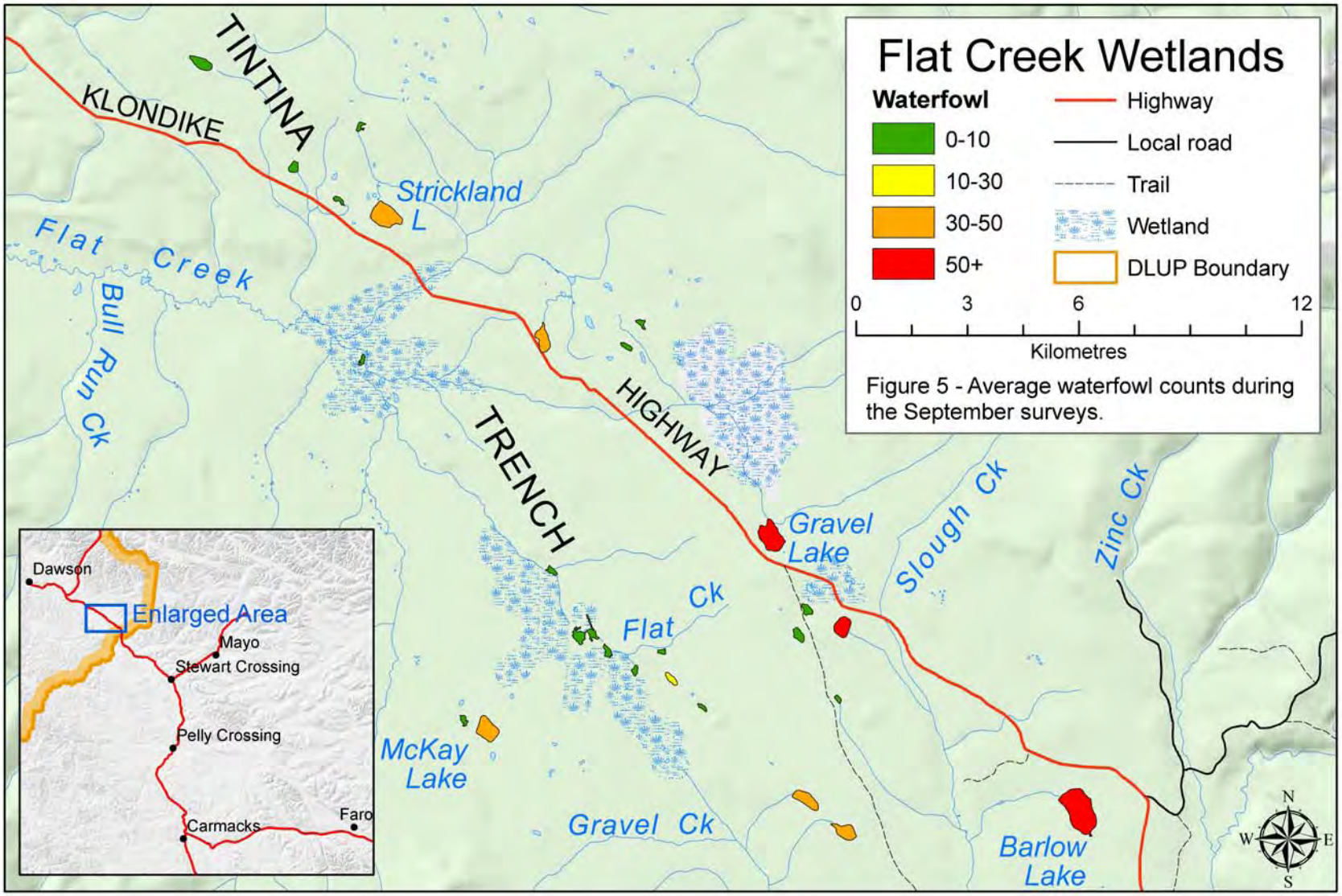

Figure 5. Average waterfowl counts during September Flat Creek Wetlands survey.

Table 1. Waterfowl abundance observed at Gravel Lake the day before and the day of each aerial survey in May.

Species	11 May	12 May	19 May	20 May
Dabblers				
Northern pintail	1			
American widgeon	3	2	31	24
Green-winged teal	1			
Blue-winged teal				1
Northern shoveler			4	2
Gadwall			1	
Divers				
Redhead				4
Canvasback			1	
Lesser scaup	20	52	38	41
Ring-necked duck	5		12	2
Seaducks				
Bufflehead	10	1	7	10
Surf scoter	8		4	10
White-winged scoter				10
Swans				
Trumpeter swan		2		2
Other birds				
Horned grebe	7		7	4
Red-necked phalarope				21
Lesser yellowlegs			1	3
Unidentified duck			7	6

Discussion

The Tintina Trench, like the Shakwak Trench in western Yukon, is a major migratory corridor for waterfowl. However, little information is available about the use of wetlands by waterfowl in either of these flyways. Recent fall surveys of Pickhandle Lakes, Scottie Creek, and Wellesley Lake (all in the Shakwak Trench), counted fewer birds at each respective wetland complex than was counted in the Flat Creek wetlands (Ducks Unlimited Canada 2010). Both the Scottie Creek and Wellesley Lake complexes are considerably larger than the area surveyed near Flat Creek, while Pickhandle Lakes is of similar size. Although wetland density appears to be higher in these Shakwak trench wetland complexes, a higher abundance of waterfowl at the Flat Creek Wetlands may be attributed to study design. The survey work in the Shakwak trench used a systematic transect methodology across the wetland complex (which intersected ponds as well as the terrestrial habitat between the ponds), while the Flat Creek surveys targeted open water wetlands. Despite the differences in methodology, wetlands are sparse in the vicinity of Flat Creek,

and the number of waterfowl counted in the study area demonstrates the regional importance of these wetlands to migratory birds.

Duck diversity at Gravel Lake was similar to that described in the Yukon Waterfowl Management Plan 1991–1995 for this area of Yukon (Yukon Waterfowl Technical Committee 1991). However, we did not encounter mallard, ruddy duck, common or red-breasted merganser, common or Barrow's goldeneye, or harlequin duck during our surveys. One species, gadwall, was observed at Gravel Lake but is not listed in the Waterfowl Management Plan.

Although the design of this survey was not intended to calculate population indices, it is obvious from the mammal observations that the Flat Creek wetlands are frequented by bear (grizzly and black) and moose. Emergent and aquatic vegetation are important food sources for bear and moose, particularly in the spring when these animals replenish nutrients that were unattainable at other times during the year. These wetlands also appear to be important rutting grounds for moose, as the most moose were observed in late September, and were largely observed in bull-cow groups.

We assume that beavers are using the wetland complexes, given the 4 lodges that were observed during the aerial survey. We saw no evidence of recent beaver activity though, and none of the 4 lodges appeared to be recently built or actively maintained. More detailed investigations are required to determine the use of these wetlands by beaver and other semi-aquatic mammals.

A previous study of factors affecting fall staging at the Nisutlin Delta (Yukon Department of Renewable Resources 1984) recognized that there are a number of large sites used for fall staging in the southern portion of the Yukon River basin. The study suggested alternate sites used for fall staging, including Flat Creek wetlands. In essence, the Flat Creek wetlands have been recognized for almost 30 years as potentially important habitat for fall staging. The data collected in 2010 confirms the high use of the area by staging waterfowl.

Conclusion

The Flat Creek wetlands are valuable to migrating waterfowl. There is a general lack of wetland complexes with open water in the region and large numbers of waterfowl make use of what is available in the Flat Creek wetlands. At present, disturbance in the area is largely associated with the Klondike highway right-of-way, small scale forestry west of the study area, and a few rural residences. No quartz claims are active in the area, but there is one small block of active placer claims on Slough Creek, just west of Barlow Lake. Although the status of these placer claims is active, we did not observe any activity in 2010. Maintaining comparable low levels of development in the area will assist in maintaining the quality of the wetlands.

Ponds adjacent to Flat Creek are well-connected. Maintaining this hydrometric connectivity within this watershed will assist in maintaining the dynamics of the wetland complex. Although there currently are no known developments proposed in this area, it is important that the planning commission recognize the value of the Flat Creek wetlands to waterfowl and mammals in the region.

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APPENDIX 1. Example photos of wetland waterbodies in the Flat Creek area.

Figure 1.1. Wetland 1 – No open water, colonized by trees and shrubs.

Figure 1.2. Wetland 3 – Lots of emergent vegetation, distinct marginal zone around perimeter.

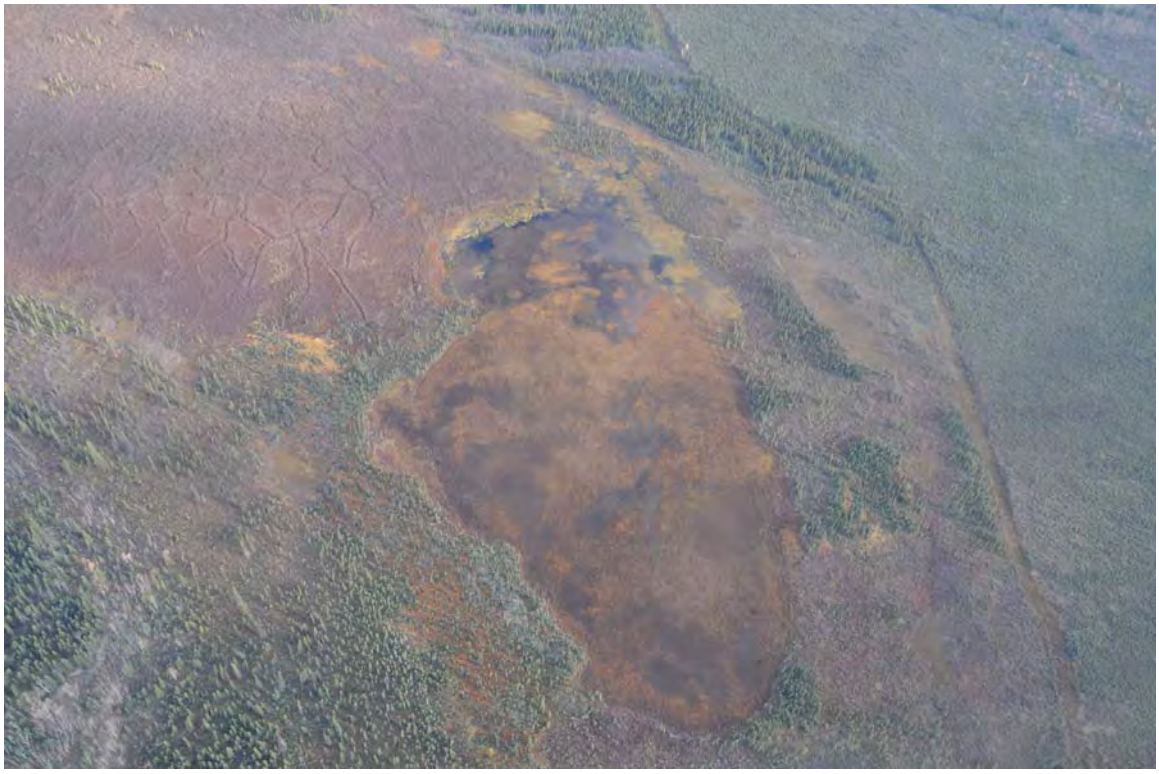

Figure 1.3. Wetland 9 – Limited amount of open water, largely covered by vegetative mat.

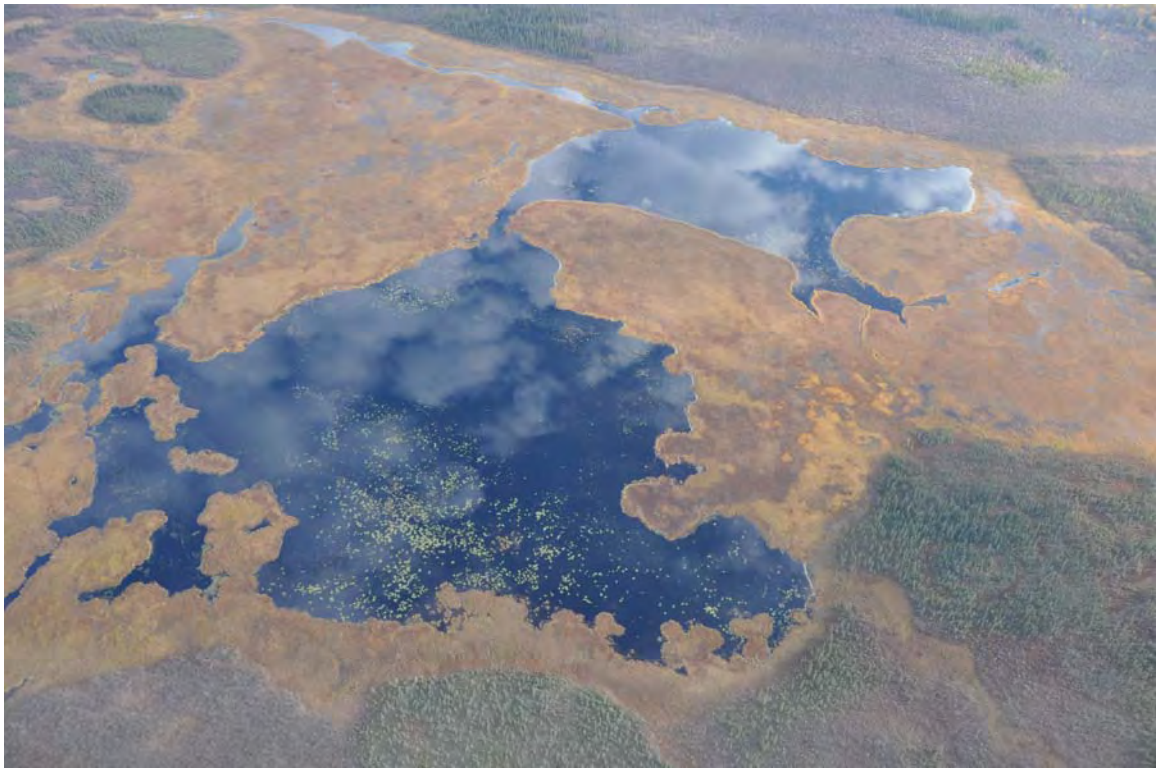

Figure 1.4. Wetland 11 (top)/12 (bottom) – Some emergent vegetation, large marginal zone.

Figure 1.5. Wetland 13 – Minimal emergent vegetation, one side of pond is treed resulting in a narrow marginal zone.

Figure 1.6. Wetland 14 – Lots of emergent vegetation, most of the perimeter is treed.