PICKHANDLE LAKES HABITAT PROTECTION AREA

AERIAL SURVEYS FOR MUSKRAT PUSH-UPS AND BEAVER ACTIVITY 2010

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Yukon Fish and Wildlife Branch SR-11-01

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Summary

The Pickhandle Lakes wetland complex is found within the traditional territories of the Kluane First Nation (KFN) and White River First Nation (WRFN). The Pickhandle Lakes area will be designated a Habitat Protection Area (HPA) when a management plan for the area and the management recommendations are approved by all representative parties. This study was conducted to assist in informing planning priorities for the area.

The Pickhandle Lakes HPA muskrat population was last surveyed in 1983. There have never been any beaver surveys conducted specific to Pickhandle Lakes Habitat Protection Area though it has been reported that the area is good quality beaver habitat. In 2010 a muskrat push-up survey and beaver survey were conducted to gather more recent information on the distribution and relative abundance of muskrats and beavers in the HPA.

Key Findings

Muskrat

- There were 1,314 muskrat push-ups within the 51 km^2 survey area, giving a density of 24.3 push-ups per km^2.
- These findings were similar to those found in studies conducted in 1978, 1982 and 1983.

Beaver

- There was very little beaver activity observed within the Pickhandle Lakes Habitat Protection Area.
- Pickhandle Lakes HPA does not support a large population of beaver due to low habitat suitability for beaver.

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Introduction

The Pickhandle Lakes wetland complex is found within the traditional territories of the Kluane First Nation (KFN) and White River First Nation (WRFN) (Figure 1.) This area has been designated as a Special Management Area (SMA) under the KFN Final Agreement. The Pickhandle Lakes area will be designated a Habitat Protection Area (HPA) when the steering committee completes a management plan for the area and the management recommendations are approved by all representative parties.

This study, along with other wildlife surveys was done to help inform planning priorities for the area. The wetland complex lies adjacent to the proposed Alaska Highway Pipeline Project corridor and to mineral claims and land dispositions that may have impacts on the HPA in the future.

Past studies conducted in the Pickhandle Lakes HPA were largely completed as part of the environmental impact assessment for the proposed Alaska Highway Pipeline project in the late 1970s as the eastern portion of the area lies within the pipeline right-of-way. Since the mid-1980s little wildlife data has been gathered in the area.

The Pickhandle Lakes HPA muskrat population was last surveyed in 1983 (Slough and Jessup 1984). There have never been any beaver surveys conducted specific to Pickhandle Lakes HPA although it has been reported that the area is good quality beaver habitat. Studies conducted in the late 1970s and early 1980s found that wetlands along the Alaska Highway pipeline route have the capability for low to moderately high beaver production, although Pickhandle Lakes was never listed as critical beaver habitat (Searing et al. 1982).

An intensive muskrat push-up survey and a beaver survey were conducted in 2010 to gather more recent information on the distribution and relative abundance of muskrats and beavers in the HPA.

Area Description

The Pickhandle Lakes wetland complex spans over 54 km^2 and consists of small lakes, pothole lakes, marshes, and bogs with the Koidern River meandering through the complex. The area is found south of the White River, adjacent to the Alaska Highway, making the area easily accessible. The location of the wetland complex within the Shakwak Trench has been reported to be very important to waterfowl, moose, beaver, otter, mink and raptors and has a high density of muskrats. First Nations have been using this area for trapping, hunting and fishing for centuries (Blood and Anweiler 1984).

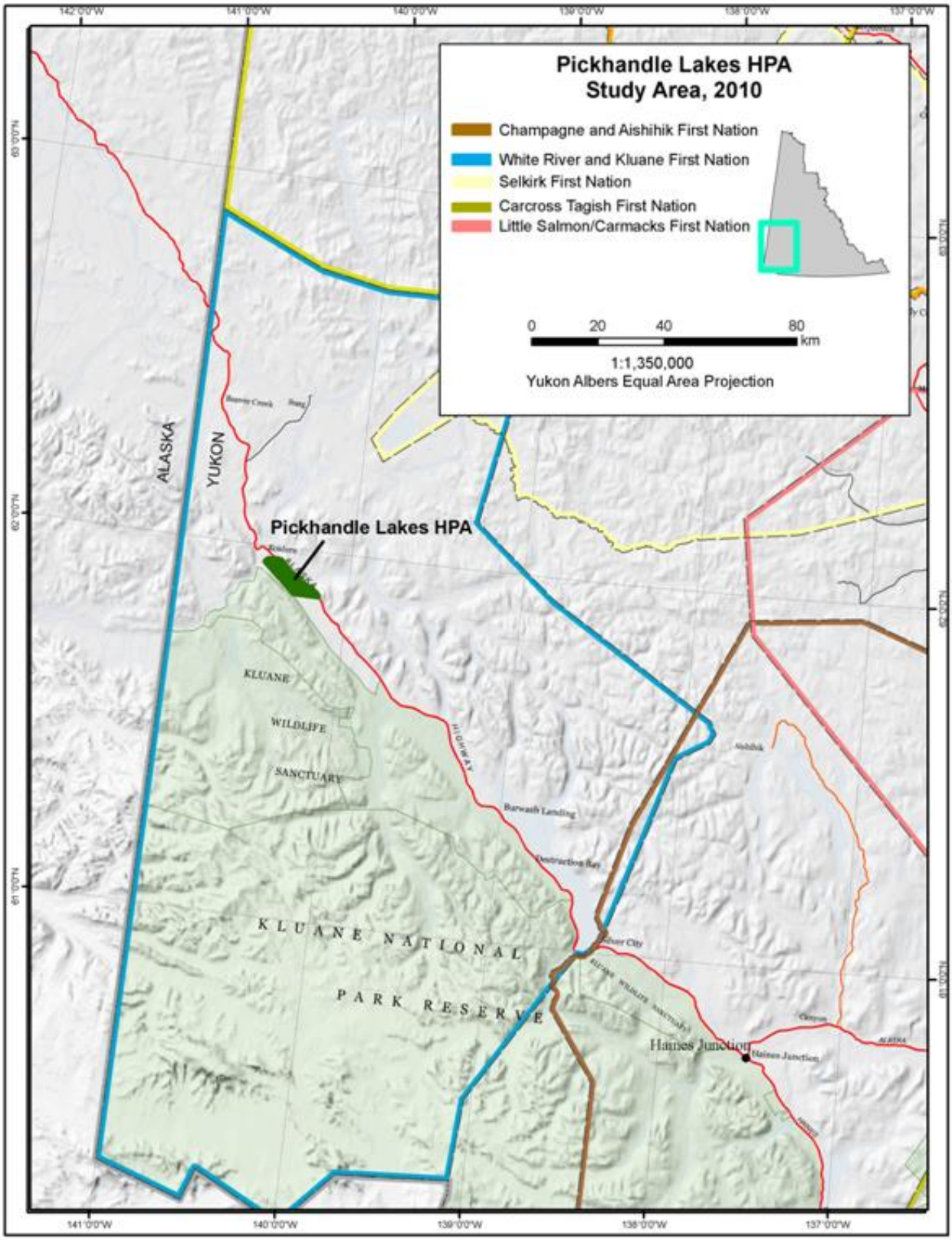

Figure 1. Study Area – Pickhandle Lakes HPA.

Methods

Muskrat (Ondatra zibethica) Survey

The survey was conducted on April 23, 2010. The sky was clear and the temperature was approximately 8°C. The lake, ponds, and potholes within the area were still covered in ice, with some of the smaller ponds no longer shore fast. The survey was timed for the period after the snow has melted from the ponds and potholes but ice was still shore-fast (Cooley 2006). The survey was flown at variable altitudes and speeds in a Bell 206 Jet Ranger helicopter. Transects were flown on a route chosen to intercept selected lakes or watercourses (Figure 2). One observer, located in the front left seat counted muskrat push-ups and helped in navigation while the other observer located in the back left seat noted the locations of the observation in a GPS unit. Ponds or potholes that did not have any push-ups were not recorded.

A 1:50,000 topographic map along with digital maps uploaded to a GPS unit were used to assist in orientation. Push-ups were identified as the presence of a plunge hole and aquatic vegetation on the surface of the ice (Cooley 2006). When a pond or pothole had one or more visible push-ups a waypoint was recorded, one observer would then count the total number of visible push-ups on that waterbody. The survey was completed in approximately 4 hours. All other incidental wildlife observations were recorded (Appendix A).

Beaver (Castor canadensis) Survey

The beaver survey was conducted on October 1, 2010. The sky was clear, it was windy and the temperature was approximately 14°C. Most lakes, ponds and potholes were free of ice and visibility was high. The survey was timed for the period between leaf-fall and freeze-up, as this time period provides optimal visibility of fresh feed piles on and near lodges (Jung and Kukka 2008). The survey was flown at variable altitudes and speeds in a Bell 206 Jet Ranger helicopter. One observer, located in the front left seat counted beaver sign and helped in navigation while the other observer located in the back left seat noted the locations of the observation in a GPS unit.

A 1:50,000 topographic map, along with digital maps uploaded on to the GPS unit were used to assist in orientation. Beaver sign was identified as feed piles, lodges, or dams. All beaver sign was categorized as active or inactive. All feed piles (with fresh leaves) were considered active. Lodges next to feed piles and/or lodges with fresh mud on top were deemed active. Dams were deemed active if they held up water levels. Inactive lodges included lodges that had no fresh sign of lodge maintenance and/or were not located in vicinity of an active feed pile. Inactive dams included dams that were overflowing or did not affect water levels (Jung and Kukka 2008). The survey was completed in 1.5 hours and all other incidental wildlife observations were recorded (Appendix A).

Results and Discussion

Muskrat (Ondatra zibethica)

We found 1,314 push-ups with in the 54 km^2 area giving a density of 24.3 push-ups per km^2. Push-ups were evenly distributed throughout the HPA (Figure 3). Our results were similar to those found in studies conducted in 1978, 1982, and 1983. In February 1978 surveyors (Beak Consultants 1978) counted 1,138 push-ups (21.1 push-ups) per km^2. Slough and Jessup (1984) conducted 2 surveys in a small fixed-wing aircraft. They found 20.2 push-ups per km^2 in 1982 and 11.7 push-ups per km^2in 1983.

Muskrat population size can be difficult to determine because the species inhabits both terrestrial and aquatic environments and is often inconspicuous. Therefore, aerial surveys of muskrat push-ups are used to provide an index of population size (i.e., not the true abundance). Rather than providing an estimate of the actual population size, an index is useful in monitoring variation of relative population abundance trends and population cycles (i.e., are there more or fewer muskrat than before?). Push-up surveys do not provide an actual population size because the number of muskrats using a single push-up is variable (Simpson et al. 1989). A more accurate projection of actual muskrat population size can be determined if survey data are used in conjunction with live-trapping studies (e.g., Old Crow flats, (Cooley 2006) or Mackenzie Delta (Cowan 1948)). Overall, I found that Pickhandle Lakes HPA provides excellent habitat for muskrats: the wetland complex is made up of streams, marshes, shallow lakes, and potholes and has readily available aquatic plant food.

Beaver (Castor canadensis)

Beaver activity in the Pickhandle Lakes HPA was very low. I observed only one active lodge with a feeding pile and 3 active dams (Figure 4). All other sign of beaver in the area was minimal and appeared to be aged and not maintained.

An examination of the habitat available in the HPA suggests why beaver density may be low. The HPA is a complex of lakes, ponds, pothole lakes, bogs, and marshes surrounded primarily by black spruce forest. The northern section of the HPA contains a mixture of wet sedge meadow, spruce forest, and willow and birch (Wetland Technical Committee 2007). The active lodge and dam observed during our survey was found in the northern section of the HPA where there is access to willow and birch. Willow and birch habitat types are not abundant with in the HPA; the small amount of beaver activity in the Pickhandle Lakes area may be due to availability and quality of woody deciduous vegetation. Other important habitat needs of beaver include adequate water depths to permit access to banks dens, lodges, and food caches during the winter (Foothills Pipeline 1977). No further studies on beavers are recommended at present as our results indicate Pickhandle Lakes HPA does not provide high quality habitat for beavers.

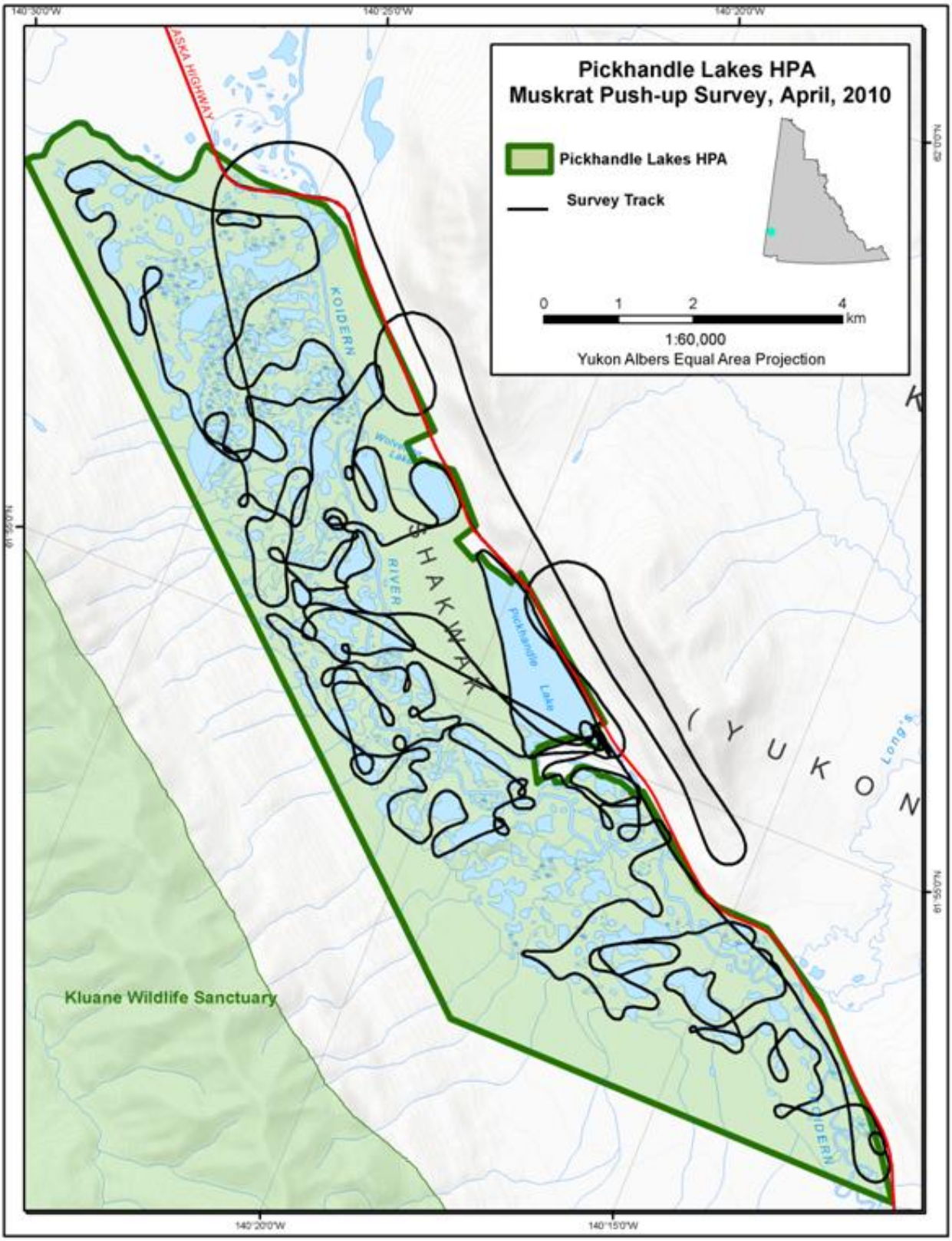

Figure 2. Flight path from the survey of muskrat push-ups in the Pickhandle Lakes Habitat Protection Area.

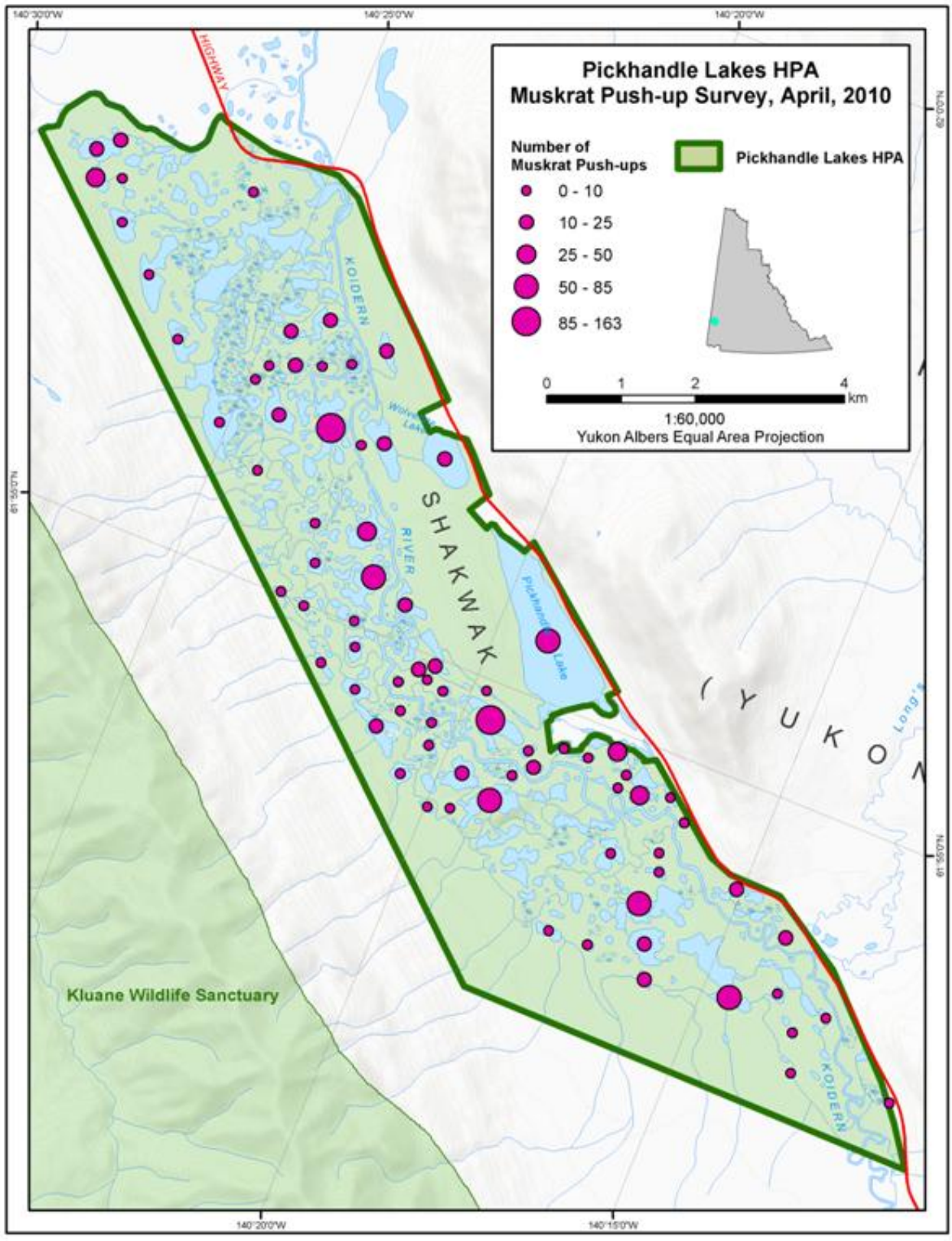

Figure 3. Locations of water bodies in the Pickhandle Lakes Habitat Protection Area with one or more muskrat push-up.

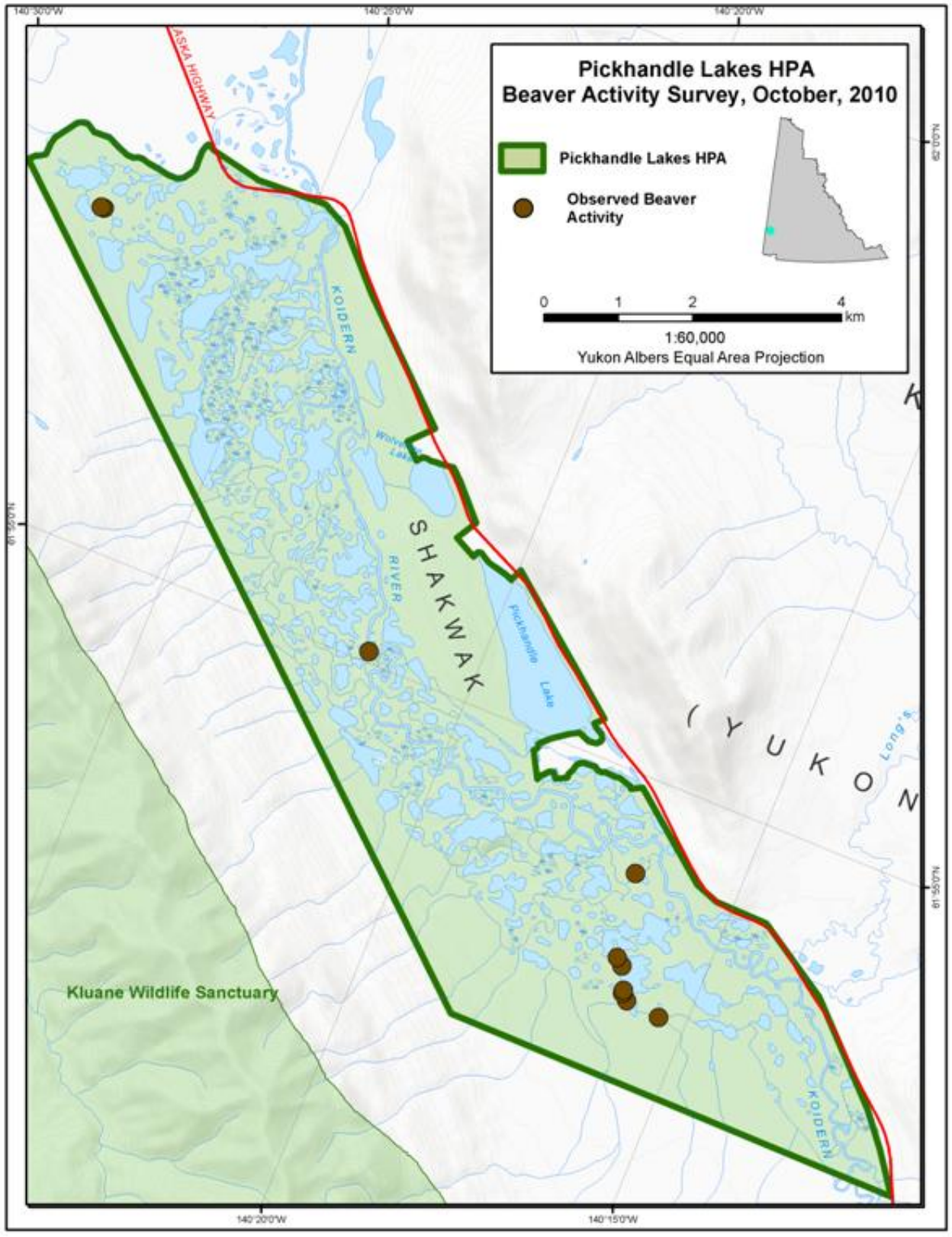

Figure 4. Beaver Activity with in the Pickhandle Lakes Habitat Protection Area.

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APPENDIX A – Incidental Wildlife Observations

Incidentals/comments from Muskrat Push-up Survey April, 2010

Waypoint ID	Incidental Data
8	2 Swans;
	1 Bald Eagle
13	2 Swans
24	2 Swans
25	2 Swans;
	1 Coyote
26	2 Moose
32	2 Swans
46	2 Swans
49	2 Swans
55	2 Swans; 2 Moose
62	2 Swans; 7 Moose > 20 mallards
71	2 Moose
	(cow and yearling)
72	Area very dried up, shallow water
78	2 Moose

Incidentals from Beaver Activity Survey October, 2010

Waypoint ID	Incidental Data
19	2 Swans
20	2 Swans
21	2 Swans
22	3 Swans
24	2 Swans
25	3 Swans
26	100 Swans
27	72 Swans
28	8 Swans
29	3 Swans
34	2 Bald Eagles
35	2 Swans