Beaverhill Lake Shorebird Surveys 2025 Report

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Introduction

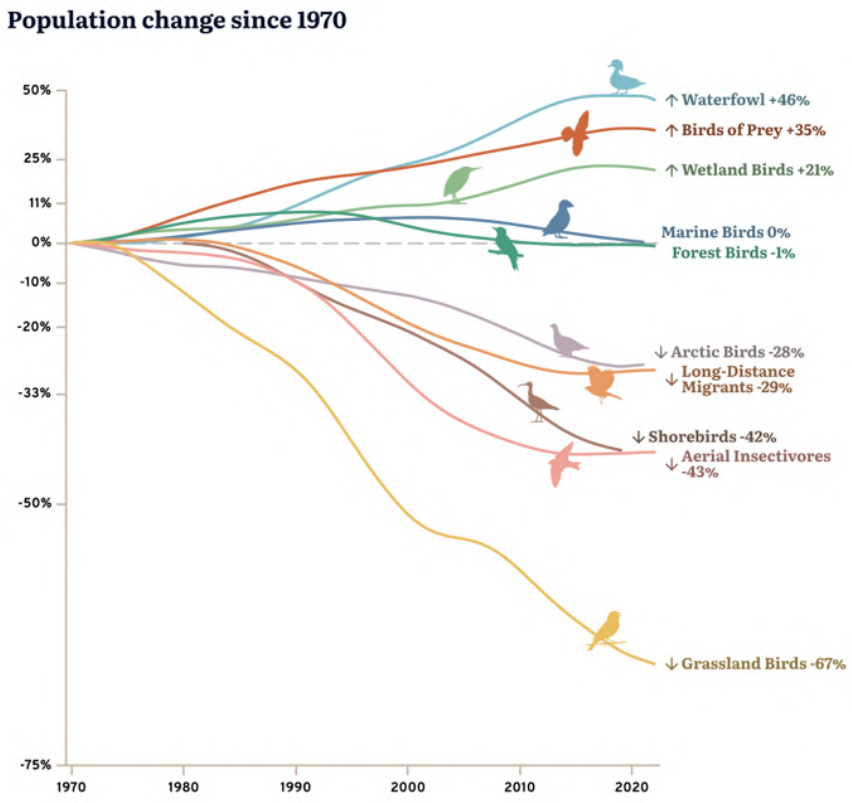

Figure 1. Population trends in Canadian Birds since 1970 (Birds Canada, 2024).

In the last 50 years, bird populations in North America have declined 30%, and declines have been greater among shorebirds at 42% (Birds Canada, 2024). Beaverhill Lake is a large, shallow lake located within the aspen parkland region of central Alberta. When Beaverhill Lake was at its fullest, it was a renowned spot in the province for observing large numbers of migratory shorebirds. The lake was designated as a globally important wetland by RAMSAR in 1987, and as a Key Biodiversity Area in Canada in 1997 due to its importance as a staging area for migratory shorebirds (RAMSAR 2025, Key Biodiversity Areas Partnership 2025).

Beaverhill Lake has dried several times in its recorded history, and the late 1990s marked the beginning of another drying cycle. The lake completely dried up by 2005, and the massive congregations of shorebirds went with it. The lake bed was covered by grasses and forbs, unsuitable for shorebirds. Beaverhill Lake began filling with water again in 2016, however, for many years the shorebird populations went unmonitored. The BBO shorebird survey program was started in 2023 to see if the return of water to the lakebed had also brought back the globally significant numbers of shorebirds the lake was once known for. Surveys took place from May-August in 2023 and 2024, and the survey season was extended until the end of September in 2025 to cover more of the fall shorebird migration.

The 2025 shorebird surveys were complicated by the shoreline of Beaverhill Lake receding significantly throughout the season. This resulted in survey points along the south shore being moved northward into the lakebed throughout the season, and the survey location was changed entirely in early August after the main body of Beaverhill Lake had all but vanished. New survey points were established at Mundare Beach on the east edge of Beaverhill Lake, where water levels were relatively stable until the final survey on October 2.

Methods

Study Area

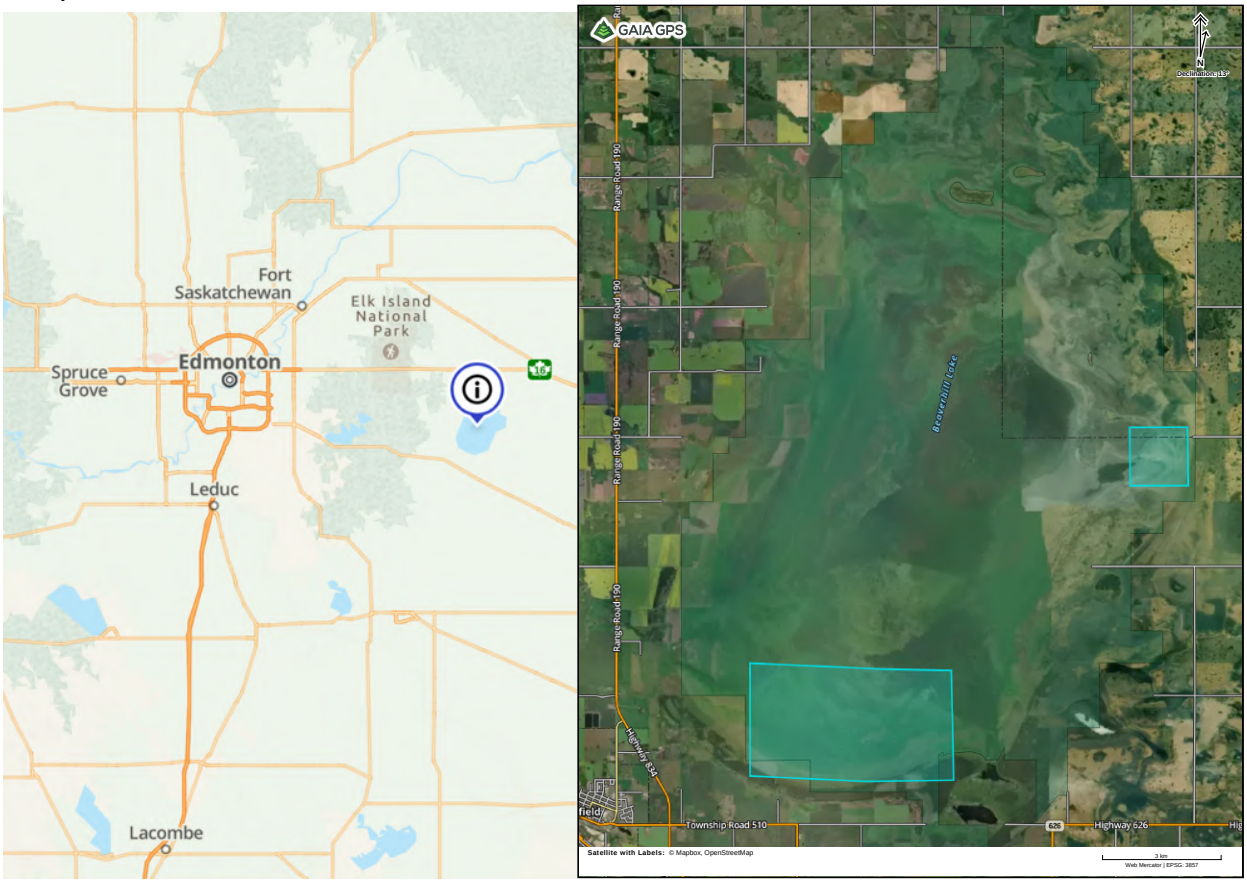

Figure 1. The location of Beaverhill Lake within Alberta and the approximate area covered by the 2025 shorebird survey transects

From April 30 to July 24, surveys were conducted on the south shore of Beaverhill Lake. 4 separate transects were used during this period, shifting northward as the lake's shoreline receded (Figure 2). All points along the transects were spaced roughly 400 meters apart. Relocated survey points were established roughly 100 meters from the edge of the open water and were not established in areas of dense vegetation that would make visual counts impractical.

Transect 1 was established on April 30, paralleling the 2023/2024 survey points roughly 400 meters farther north (Figure 2). At many of these points the open water was behind a wall of cattails, and after some scouting transect 2 was established behind the cattail wall with better visibility and shorebird habitat. 3 points from transect 1 were reused for the new transect. These points were surveyed from May 3 to May 27, at which point the mudflats and water there had complied dried out. Transect 3 was established another 500 meters into the lakebed and shortened to 7 points due to dense cattails making the east portion of the transect unsuitable for surveys. These points dried out by June 18, and transect 4 was established on July 4. This transect was further shortened to only 5 points due to the small remaining area of water. These points were surveyed until August 3, at which point no water could be located in the south end of Beaverhill Lake.

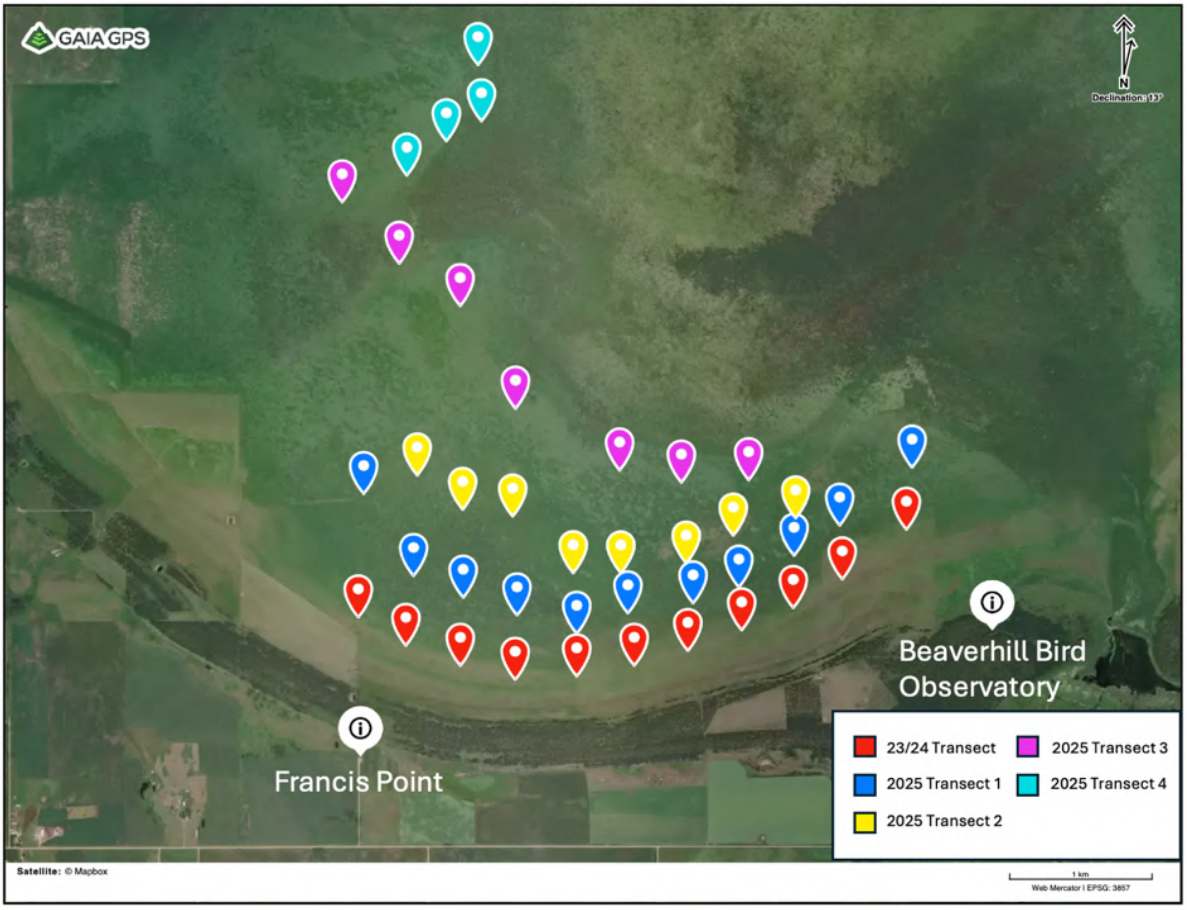

Figure 2. Survey transects on the south end of Beaverhill Lake. Some points are shared between multiple transects, see Appendix 2 for full details.

On August 19, the author found Mundare Beach on the east shore of Beaverhill Lake still had significant water remaining. Transect 5 was established in a horseshoe shape along the edge of this water, and the direction of travel was alternated between surveys (Figure 3). This transect was monitored until surveys ended on October 2. Water levels remained relatively stable along this transect, only receding an estimated 100 meters during the 1.5 months of surveys. Coordinates for all survey points used in 2025 can be found in Appendix 2.

Figure 3. Survey transect 5 at Mundare beach

Survey Methodology

Survey protocols were adapted from those of the International Shorebird Survey (ISS). Surveys were conducted by navigating along the transect and stopping for 3-5 minutes at each point. Only shorebirds were counted as part of the surveys, but the author made an effort to record a separate list of other species observed. Surveys were not run during heavy rain. Surveys were run every 7-10 days, with occasional disruptions occurring due to adverse weather or points being relocated.

Exact counts of birds were made when practical, estimation was used for large flocks of 150+ birds. Flocks of up to 250 individuals were estimated to the nearest 10, flocks up to 1000 were estimated to the nearest 25, and flocks over 1000 were estimated to the nearest 100. Birds that flushed from points prior to a survey beginning were included in counts.

Shorebird counts were tallied and submitted via the International Shorebird Survey Protocol in the eBird app. Observations were aided by binoculars and a spotting scope for all surveys.

Results

Table 1. Summary of 2025 shorebird survey results. ‘Max observed’ refers to the highest number of individuals seen on a single survey. ‘Frequency’ indicates the number of surveys a species was detected on.

Species	*Total Observed*	*Max Observed*	*Frequency*	*First Observation*	*Last Observation*
White-faced Ibis	70	40	4	16-May	03-Aug
Black-necked Stilt	22	9	6	03-May	02-Sep
American Avocet	2401	499	17	30-Apr	02-Oct
Black-bellied Plover	27	9	8	09-May	24-Sep
American Golden-Plover	11	11	1	09-May	09-May
Killdeer	76	18	14	30-Apr	24-Sep
Semipalmated Plover	155	104	6	03-May	02-Sep
Hudsonian Godwit	1	1	1	25-Aug	25-Aug
Marbled Godwit	73	40	9	30-Apr	24-Jul
Short-billed Dowitcher	27	8	6	09-May	25-Aug
Long-billed Dowitcher	6993	3424	12	03-May	02-Oct
Unidentified Dowitcher	938	540	3	24-Jul	11-Sep
Wilson's Snipe	3	2	2	03-May	16-May
Wilson's Phalarope	29	7	6	09-May	25-Aug
Red-necked Phalarope	75	41	3	16-May	25-Aug
Spotted Sandpiper	1	1	1	24-Jul	24-Jul
Lesser Yellowlegs	1615	693	11	30-Apr	02-Sep
Willet	72	27	11	30-Apr	19-Aug
Greater Yellowlegs	161	56	7	30-Apr	02-Oct
Stilt Sandpiper	147	46	7	09-May	02-Sep
Baird's Sandpiper	720	340	5	09-May	02-Sep
Least Sandpiper	1723	725	10	03-May	02-Sep
Pectoral Sandpiper	2855	2080	9	03-May	25-Aug
Semipalmated Sandpiper	835	426	5	03-May	25-Aug
Red Knot	2	2	1	02-Jun	02-Jun
Unidentified Peep	4865	2525	6	03-May	02-Sep

A total of 24030 individual shorebirds of 24 different species were observed during the 2025 shorebirds surveys. 17977 individuals of 23 species were observed at the south shore transects, and 6053 individuals of 20 species were observed at the Mundare Beach transect.

The most abundant species were Long-billed Dowitcher (6993 observations), Pectoral Sandpiper (2855 observations), and American Avocet (2401 observations). The most frequently observed

species were American Avocet (17 surveys), Killdeer (14 surveys), and Long-billed Dowitcher (12 surveys).

The survey with the highest diversity of shorebirds was on May 16 with 19 species observed. The highest number of individuals was observed on the May 9 survey, with 9502 estimated individuals being seen on that day. May 9 also had the highest single-survey counts for several species including Long-billed Dowitcher (3424 individuals), Pectoral Sandpiper (2080 individuals), Least Sandpiper (725 individuals), and Semipalmated Sandpiper (426 individuals).

Raptors were regularly observed hunting shorebirds during surveys. Northern Harriers were the most common (20 individuals observed on 13 surveys), followed by Short-eared Owl (11 individuals on 8 surveys) and Peregrine Falcon (10 individuals on 8 surveys). Short-eared Owls were observed in high numbers around Beaverhill Lake for most of 2025, possibly due to the increased grassland habitat created by the lake drying. This is supported by sightings of other grassland species including numerous Sprague's Pipits and an Upland Sandpiper. The Upland Sandpiper sighting was the first at Beaverhill Lake since 2007, and was seen in dry grasses while I walked to one of the survey points on July 24. Other common species included various ducks, Franklin's Gulls, Black Terns, Red-winged Blackbirds, and Marsh Wrens.

Discussion

Perhaps the most noteworthy observation of this year's surveys was the rapid disappearance of Beaverhill Lake. Since the return of the lake in 2016, BBO staff have noticed stable or increasing water levels in the lake but first noted receding water levels in August of 2024. Ethan Denton, the staff member conducting shorebird surveys that year, wrote the following after an August 13 survey: "The Lake has receded significantly, leaving around 8 square kilometers along the southern shore at the perfect water level for shorebirds." 2024 was a dry and hot summer, with the following winter receiving below average precipitation (Canada Weather Stats 2025). The diminished water table after a dry fall combined with the poor spring runoff were likely the driving factors in Beaverhill Lake's decline. No major thunderstorms occurred in 2025 to contribute to filling the lake.

Significant declines in water levels have been noted at several other central Alberta lakes in addition to Beaverhill. Timoney (2024) found that the average level of the studied lakes has declined 3 meters over the last 50 years, with declines being most dramatic among Miquelon, Cooking, and Beaverhill lakes. The analysis found that there was a statistically significant correlation between spring runoff and water levels in these lakes, but that there was not a significant correlation with annual temperature or evaporation. In addition to this analysis of other lakes, BBO staff noted in 2025 that many of the shallow sloughs and marshes around the lake have also dried up. With thousands of shorebirds still relying on Beaverhill Lake as a staging area in migration, the loss of water in the lake is just another issue posing a major threat to shorebird conservation in Canada.

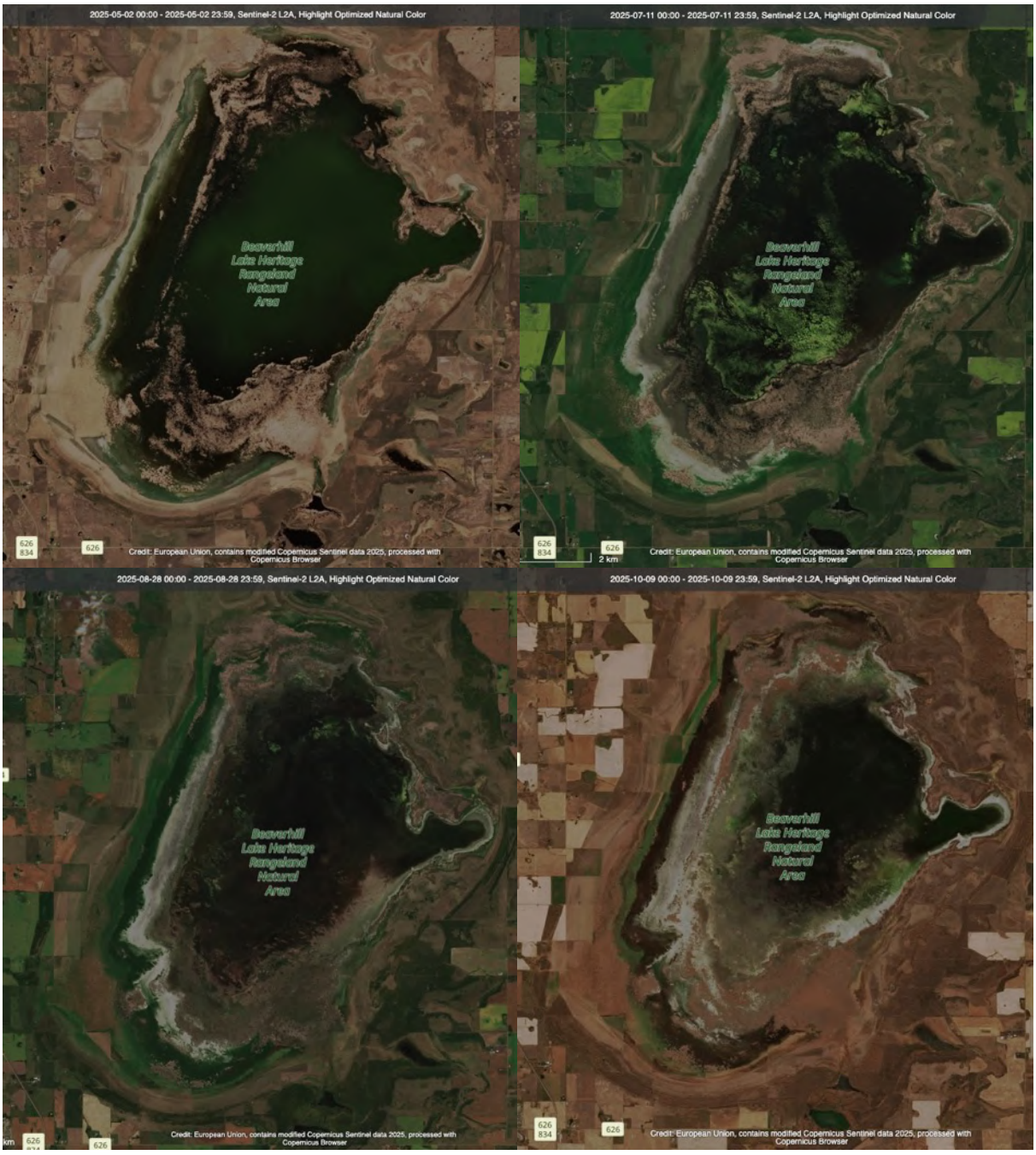

Figure 4. Satellite imagery showing the decreasing extent of water in Beaverhill Lake. Image dates from left to right, top to bottom: May 2, July 11, August 28, October 9 (Copernicus Sentinel Data 2025).

Because survey points were not standardized with previous year's surveys or within the 2025 season itself, limited inferences can be made from this year's data about trends in shorebird populations. 3 species observed in previous years were not observed during the 2025 surveys: Dunlin (2023 and 2024), Sanderling (2023), and White-rumped Sandpiper (2024). These species

not observed in high numbers (<10 individuals) and their absence this year can likely be attributed to low water levels.

Red Knots have been observed during all 3 years of shorebird surveys. This species is scarce in central Alberta and has experienced significant declines in Canada, with populations declining by 90% in the last 30 years (COSEWIC 2020). The persistence of this species at Beaverhill Lake, even if in small numbers, suggests that the area is still a highly productive staging area for migratory shorebirds.

Piping Plovers were notably absent for all 3 years of shorebird surveys. This species has bred in Beaverhill Lake previously, with 7 breeding pairs found during the 1996 Piping Plover census (Prescott 1997). The Piping Plover is classified as 'Endangered' in Alberta, populations are declining and the species no longer breeds at many of the lakes it did historically. The absence of this species suggests Beaverhill Lake is another such site that the species has disappeared from.

The high counts of shorebirds observed during the 2025 surveys suggest that Beaverhill Lake is still a highly important staging area for migratory shorebirds. One of the factors contributing to Beaverhill Lake's Key Biodiversity Area status is the large congregations of Long-billed Dowitchers using the lake annually. The threshold for a site of national significance for this species is 500 individuals, and 4 surveys in 2025 had at least that many observations (Appendix 1). Multiple species were observed in greater numbers on the surveys than anywhere else in Alberta during 2025. These species were Pectoral Sandpiper, Least Sandpiper, Lesser Yellowlegs, Long-billed Dowitcher, and Semipalmated Plover.

Beaverhill Lake's status as a Key Biodiversity Area and RAMSAR wetland is well supported by the consistent large shorebird congregations observed even in a year where water levels were diminished. Further study of shorebirds in the area is needed in future years to better understand the effects of declining water levels on shorebird populations at Beaverhill Lake.

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Appendix 1. Full Survey Results

Survey Date	*30-Apr*	*03-May*	*09-May*	*16-May*	*27-May*	*02-Jun*	*09-Jun*
Transect #	1	2	2	2	2	3	3
# of points Surveyed	11	11	11	11	5	9	9
White-faced Ibis				1			40
Black-necked Stilt		6		3		9	
American Avocet	3	28	2	13	47	76	44
Black-bellied Plover			2	4			
American Golden-Plover			11				
Killdeer	2	3	2	3		9	18
Semipalmated Plover		14	104	12			
Hudsonian Godwit							
Marbled Godwit	2	7	2	7		1	4
Short-billed Dowitcher			2	2			
Long-billed Dowitcher		145	3424	372			111
Wilson's Snipe		1		2			
Wilson's Phalarope			5			6	1
Red-necked Phalarope				20			
Lesser Yellowlegs	487	693	128	10			4
Willet	2	1	9	9	5	27	9
Greater Yellowlegs	56	3					
Stilt Sandpiper			9	5			
Baird's Sandpiper			33	340			
Least Sandpiper		561	725	356		1	10
Pectoral Sandpiper		138	2080	489			14
Semipalmated Sandpiper		24	426	307			
Red Knot						2	
Unidentified Peep		845	2525	1401			3

Survey Date	18-Jun	04-Jul	24-Jul	03-Aug	19-Aug	25-Aug	02-Sep
Transect #	3	4	4	4	5	5	5
# of points Surveyed	9	5	5	1	7	7	7
White-faced Ibis			23	6			
Black-necked Stilt		2		1			1
American Avocet	59	6	2		123	308	478
Black-bellied Plover		1	1	9	2	6	
American Golden-Plover							
Killdeer	9	7	11	3	2	2	2
Semipalmated Plover					19	5	1
Hudsonian Godwit						1	
Marbled Godwit	8	40	2				
Short-billed Dowitcher			6	1	8	8	
Long-billed Dowitcher	23		550	78	557	994	392
Unidentified Dowitcher			540		380		
Wilson's Phalarope			4		7	6	
Red-necked Phalarope		14				41	
Spotted Sandpiper			1				
Lesser Yellowlegs		5	21	11	166	69	21
Willet	6	2	1		1		
Greater Yellowlegs		2			56	5	36
Stilt Sandpiper			22	1	33	46	31
Baird's Sandpiper					186	128	33
Least Sandpiper		34	7		14	9	6
Pectoral Sandpiper		29	46	27	30	2	
Semipalmated Sandpiper					55	23	
Unidentified Peep						36	55

Survey Date	11-Sep	18-Sep	24-Sep	02-Oct
Transect #	5	5	5	5
# of points Surveyed	7	7	7	7
American Avocet	145	375	499	193
Black-bellied Plover			2	
Killdeer			3	
Long-billed Dowitcher		23		324
Unidentified Dowitcher	18			
Greater Yellowlegs				3

Appendix 2. 2025 Survey Point Coordinates

Transect 1 (South Shore)	Transect 2 (South Shore)	Transect 3 (South Shore)	Transect 4 (South Shore)	Transect 5 (Mundare Beach)
Point ID: SS1_2025_T1 Lat: 53.38932 Long: -112.59395	Point ID: SS1_2025_T1 Lat: 53.38932 Long: -112.59395	Point ID: SS1_2025_T3 Lat: 53.40797 Long: -112.59622	Point ID: SS1_2025_T3 Lat: 53.40797 Long: -112.59622	Point ID: MB1_2025 Lat: 53.44135 Long: -112.45902
Point ID: SS2_2025_T1 Lat: 53.38730 Long: -112.54348	Point ID: SS2_2025_T1 Lat: 53.38730 Long: -112.54348	Point ID: SS2_2025_T3 Lat: 53.40405 Long: -112.59019	Point ID: SS2_2025_T4 Lat: 53.40968 Long: -112.58937	Point ID: MB2_2025 Lat: 53.44356 Long: -112.45241
Point ID: SS3_2025_T1 Lat: 53.38537 Long: -112.54832	Point ID: SS3_2025_T2 Lat: 53.38776 Long: -112.54816	Point ID: SS3_2025_T3 Lat: 53.40134 Long: -112.58373	Point ID: SS3_2025_T4 Lat: 53.41187 Long: -112.58519	Point ID: MB3_2025 Lat: 53.44537 Long: -112.44683
Point ID: SS4_2025_T1 Lat: 53.38333 Long: -112.55416	Point ID: SS4_2025_T2 Lat: 53.38665 Long: -112.55477	Point ID: SS4_2025_T3 Lat: 53.39477 Long: -112.57786	Point ID: SS4_2025_T4 Lat: 53.41316 Long: -112.58146	Point ID: MB4_2025 Lat: 53.44811 Long: -112.44308
Point ID: SS5_2025_T1 Lat: 53.38233 Long: -112.55902	Point ID: SS5_2025_T2 Lat: 53.38486 Long: -112.55976	Point ID: SS5_2025_T3 Lat: 53.39082 Long: -112.56681	Point ID: SS5_2025_T4 Lat: 53.41675 Long: -112.58183	Point ID: MB5_2025 Lat: 53.45136 Long: -112.44549
Point ID: SS6_2025_T1 Lat: 53.38168 Long: -112.56592	Point ID: SS6_2025_T2 Lat: 53.38424 Long: -112.56669	Point ID: SS6_2025_T3 Lat: 53.39005 Long: -112.56028		Point ID: MB6_2025 Lat: 53.45214 Long: -112.45138
Point ID: SS7_2025_T1 Lat: 53.38038 Long: -112.57135	Point ID: SS7_2025_T2 Lat: 53.38425 Long: -112.57174	Point ID: SS7_2025_T3 Lat: 53.39020 Long: -112.55313		Point ID: MB7_2025 Lat: 53.44989 Long: -112.45698
Point ID: SS8_2025_T1 Lat: 53.38155 Long: -112.57769	Point ID: SS8_2025_T2 Lat: 53.38787 Long: -112.57816			
Point ID: SS9_2025_T1 Lat: 53.38268 Long: -112.58339	Point ID: SS9_2025_T2 Lat: 53.38831 Long: -112.58346			
Point ID: SS10_2025_T1 Lat: 53.38408 Long: -112.58865	Point ID: SS10_2025_T2 Lat: 53.39050 Long: -112.58828			
Point ID: SS11_2025_T1 Lat: 53.38932 Long: -112.59395	Point ID: SS11_2025_T1 Lat: 53.38932 Long: -112.59395			