Surveys of birds using the Penticton Oxbows, March 2022 through February 2023 Compiled by Rick McKelvey March 2023

Introduction

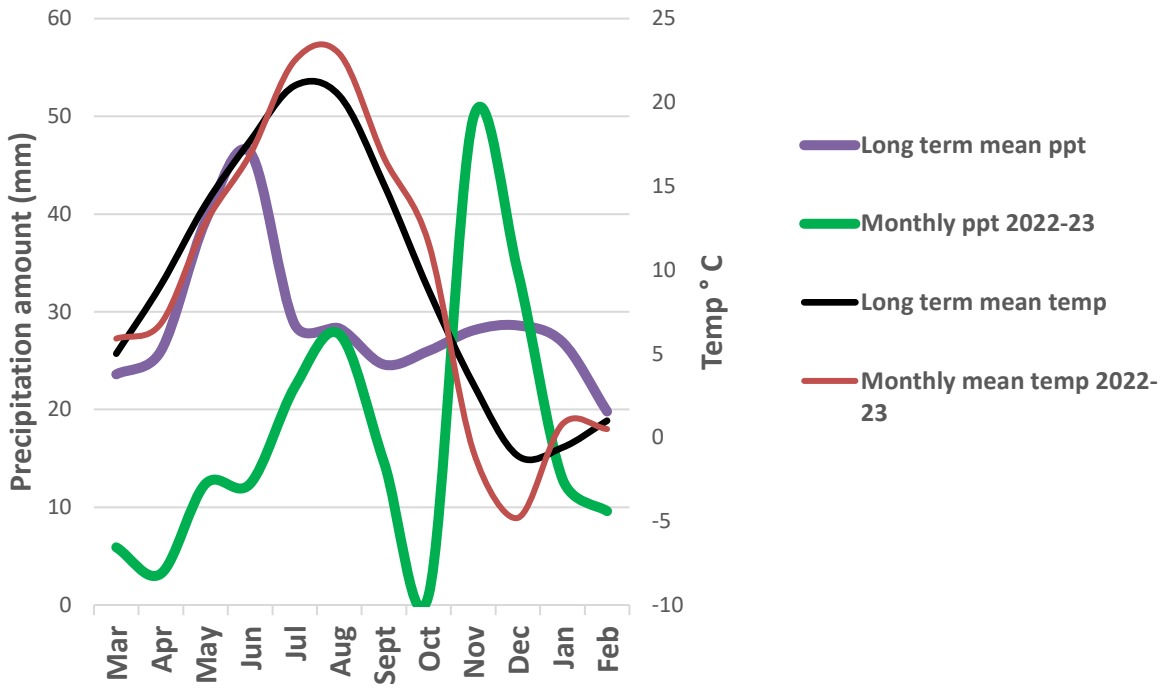
This report marks the eighth year of bird surveys on the Penticton oxbows conducted by the Friends of the Oxbows and the South Okanagan Naturalists' Club. As was explained in last year's report, data have again been summarized over what is considered a more accurate reflection of the seasonal use of the oxbows, namely Spring (March through May), Summer (June through August), Fall (September through November, and Winter (December through February of the next calendar year). The phenology of bird use of the oxbows will vary between years but the importance of the oxbows on a seasonal basis is better reflected with this format. General procedures and locations have been described previously in other reports, available on the Friends of the Oxbow's website (www.pentictonoxbows.ca) or directly from the link below. Counts in 2022-23 were conducted by A. Bodden, A. Garland and R. McKelvey at monthly intervals.

https://pentictonoxbows.ca/wordpress/wp-content/uploads/2017/04/16DecBirdCountReport.pdf

Climate in 2022-23

The weather in 2022-23 was a bit warmer than the long-term average in mid-summer through to mid-fall, and then cooler than normal in early winter (Fig. 1). Although the summer seemed warm, there was no repeat of the so-called heat dome of the previous year. Precipitation was quite different from the norm (Fig. 1). It was much drier in the spring and mid-fall, near normal in the summer, much wetter in late fall/early winter, and then drier than normal through winter. The increased precipitation in early winter combined with colder than normal temperatures resulted in more snow than had been seen in the recent past and longer periods of ice on the oxbows. Whereas water levels in the previous year seemed below normal (qualitative observations only) they seemed to have recovered somewhat this year, though still lower than would be expected judging by the amount of shoreline visible on the oxbows throughout the year.

Figure 1. Climate in Penticton 2022-23 compared to longterm averages. *



*Data for Penticton Airport from Environment Canada data base.

Species diversity

The number of species seen in 2022-23 was slightly lower than in the previous years, as a result of fewer species of non-waterbirds being recorded (Fig 2). Waterbird species diversity was one species lower in 2022-23 than in the previous year, but much the same as in the last four years (average = 23.25). A core group of species are seen each year, with several other species making an occasional appearance on the oxbows year to year. The frequency of occurrence of waterbirds seen over the eight years of oxbow surveys is shown in Appendix 1.

The number of species seen per month in 2022-23 compared to the average numbers seen in previous years is shown in Fig. 3. Species abundance was above average in spring, late summer and late fall, and below average in mid-summer, mid-fall and throughout the winter. The year was more variable in terms of species seen than what has come to be expected.

FIGURE 2. NUMBER OF SPECIES SEEN PER YEAR ON OXBOW SURVEYS, 2015 TO 2022-23.

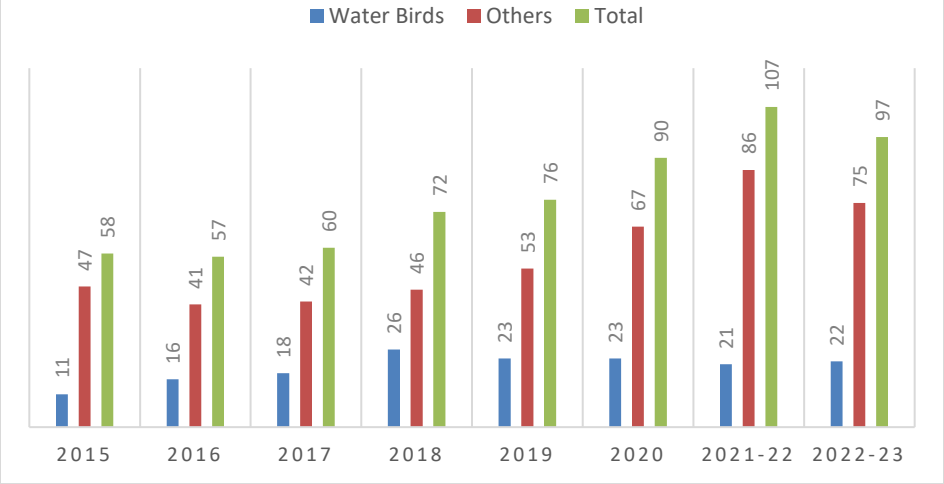
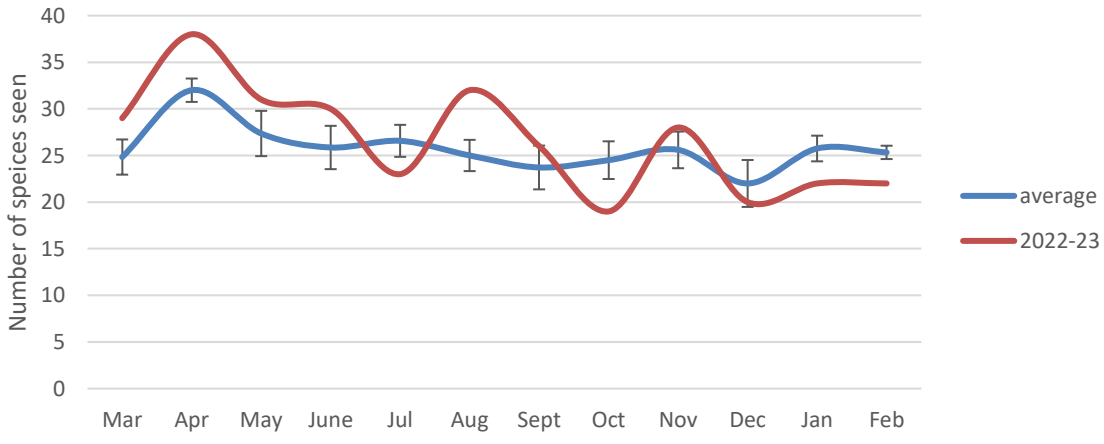


Figure 3. Number of species seen per month in 2022-23 compared to the 7-year average (+/- SE) number of species seen per month.



Numbers of birds seen

As mentioned previously there is much variation in the numbers of birds seen both between months and between years. Such variation was again evident in the numbers seen in 2022-23.

Numbers of waterbirds and non-waterbirds seen per month in 2022-23 compared to the mean numbers seen per month in previous surveys are shown in Figs. 4 and 5. Actual numbers of those two groups seen this year can be found by month in Appendix 2.

Waterbird numbers in 2022-23 were similar to the mean numbers recorded in the previous seven surveys with some remarkable swings in numbers during the winter period (Fig. 4). Numbers were low in December and February as a result of cold weather freezing most of the water on the oxbows. Where open water was observed, ducks in particular were crammed into those areas. Numbers of non-waterbirds seen (Fig. 5) were similar to the long-term average for spring and early summer, higher than average in late summer, and lower than average in fall and winter periods. What seemed to have happened this survey period was a very early migration of small birds (late summer) and an almost non-existent fall migration. Numbers began to increase slightly in late winter but remained below the average for most of the winter.

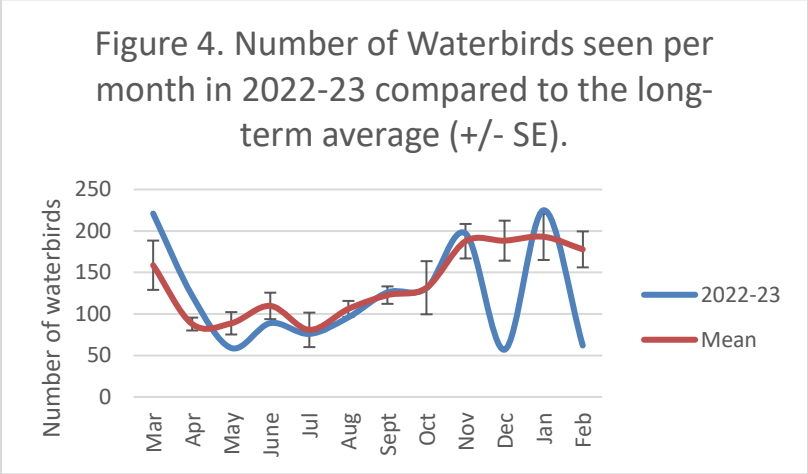


Figure 4. Number of Waterbirds seen per month in 2022-23 compared to the long-term average (+/- SE).

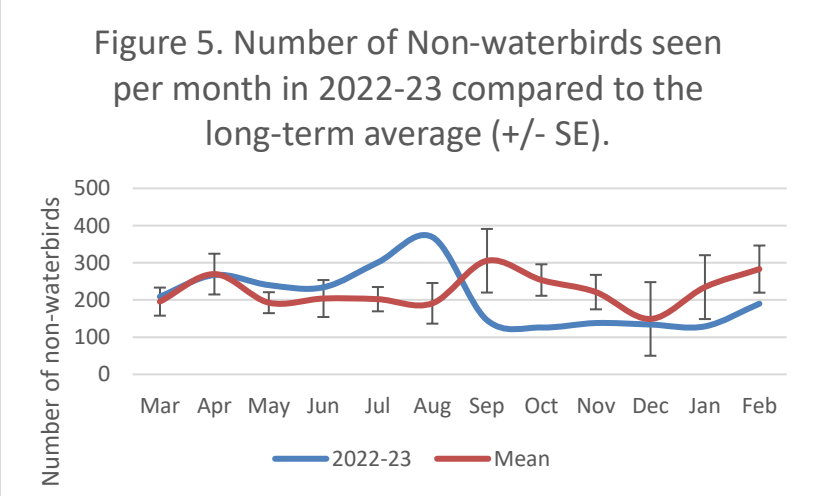
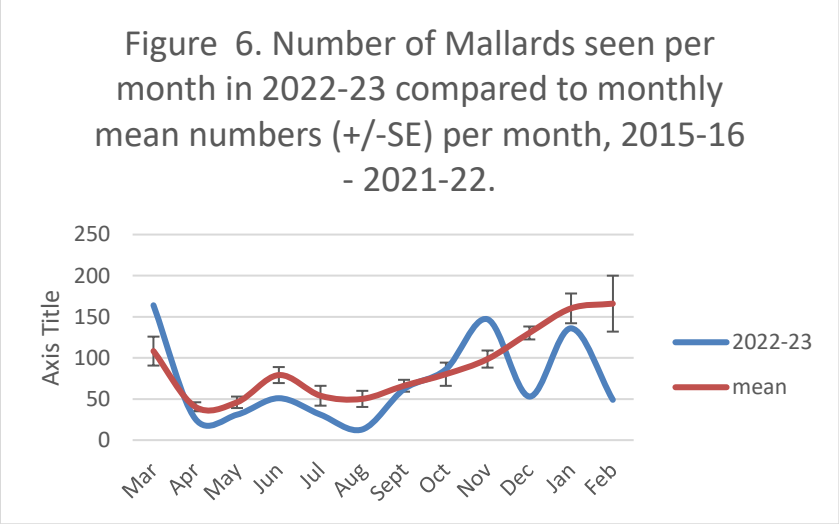


Figure 5. Number of Non-waterbirds seen per month in 2022-23 compared to the long-term average (+/- SE).

Resident Waterfowl and Productivity

Mallards, Wood Ducks and Canada Geese were seen throughout the year on the oxbows. The numbers of Mallards and Wood Ducks seen per month for 2022-23 compared to mean numbers seen in previous surveys are shown in Figures 6 & 7, respectively. Mallard numbers were slightly below average in spring and summer and above average in fall. Numbers were more variable during the winter than the average, presumably as a result of the freezing and thawing of the ponds this winter. Wood Duck numbers were near average in the spring and well above average in the summer. Fall numbers were close to average, and winter numbers were varied in relation to the weather, as with Mallard numbers. Productivity was low this year compared to previous years, with only a maximum of two Mallard and five Wood Duck broods being recorded (Table 1.).

Canada geese were seen on the Warren Avenue and the Yorkton Avenue oxbows regularly this year, and once on the Brandon Avenue oxbow. Breeding has occurred on the former two, but has not been recorded on any other oxbow, likely as a result of their rather small wetland area. This year no broods were recorded during the surveys, so if geese were successful this year (highly likely) broods must have been relocated away from the survey area by the adults. There are no records of eggs being addled on the oxbows under the auspices of the Okanagan Valley Goose Management Program.



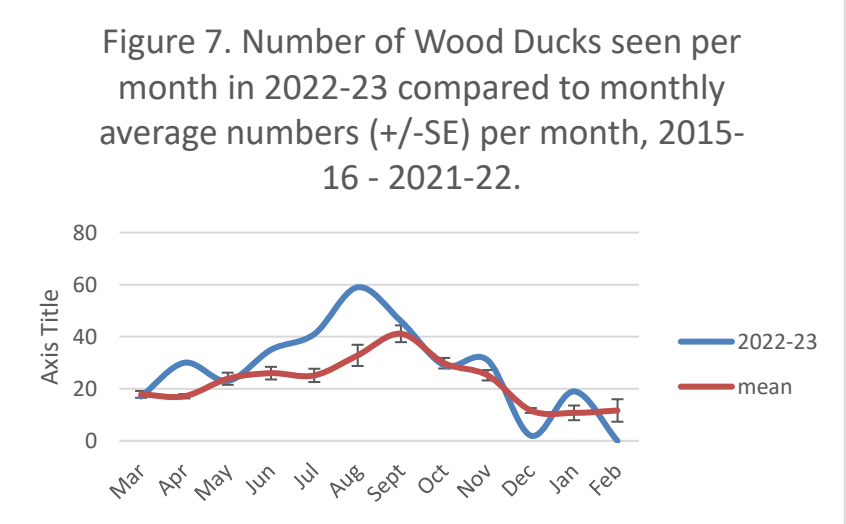


Table 1. Number and size of broods seen on oxbows in 2022.

Date	18 May	22 June	20 July	28 July	24 Aug
MALL					
Broods	1	2	2		
Young	1	6	2		
WODU					
Broods	1	2	5	3	
Young	4	15	12	7	
CAGO					
Broods					
Young					

Rates of use of oxbows by birds

As in the past the rate of use of each oxbow by waterbirds and non-waterbirds is reported here as a function of the area of each oxbow as determined by measurements on Google Earth. Although non-waterbird use of the oxbow environs is more likely a function of the area of the surrounding riparian habitat, it has not been possible to delimit and measure that habitat area. Many non-waterbirds will use habitats in the surrounding neighbourhoods as well as those close to the oxbows; riparian vegetation and neighbourhood habitats blend together and remain ill defined. For this report, rates of use of the oxbows by non-waterbirds also uses the area of open water as a surrogate for the actual, unmeasured habitat base.

In this report the rates of use of the wetland habitats are reported as bird-use months per hectare, corrected for unequal number of months of surveys each year, and all data are again reported from March through February. Relative rates of use of each oxbow for waterbirds and non-waterbirds are shown in Figs. 8 & 9, respectively. These data are further summarized in table form in Appendix 3.

The rates of use of the oxbows by waterbirds are somewhat similar one oxbow to the other, though variable between years, except for the Falcon Avenue oxbow. That oxbow appears to get disproportionately high use by both waterbirds and non-waterbirds. That is likely because the habitat on that oxbow is quite varied on both sides of the waterbody, and because there are several back yard bird feeders near the wetland. In some years, some landowners have also grain-feed the ducks, which keeps the numbers of waterbirds high even in the coldest parts of the winter. Feeding of the ducks was not evident this winter, however.

Figure 8. Rates of use of waterbodies (bird-use months / ha) by Waterbirds for surveys from 2015-16 to 2022-23.

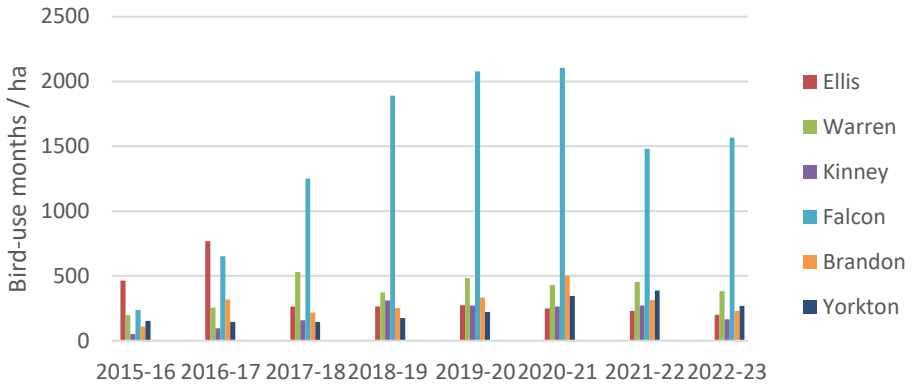
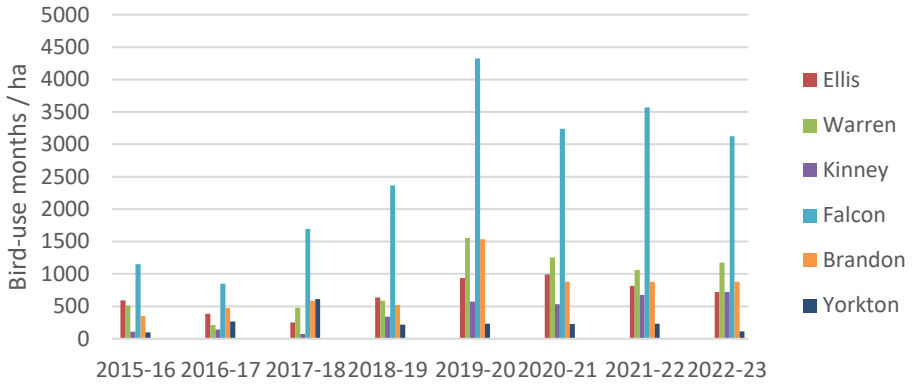


Figure 9. Rates of use of waterbodies (bird-use months / ha) by Non-waterbirds for surveys from 2015-16 to 2022-23.



A question frequently coming up concerning bird surveys on the oxbows relates to whether the numbers of birds in the area are increasing or decreasing. Trends in rates of use of the oxbows, if all years of the surveys are included are not clear (Figs. 10 & 11). That may be a result of variable rates of survey effort and the capability of those involved, however, as the earlier surveys may not have been as consistent or as thorough as the more recent surveys. Earlier surveys were conducted by up to 20 people at a time, and were often curtailed in inclement weather. Since 2019-20 the same three people have conducted the survey, so from the point of view of effort they are much more consistent than surveys before that time.

In May and June of 2020 and 2021 weekly surveys were conducted to provide some measure of error in the single monthly counts. The results of the weekly counts, when averaged over each month, showed that the single monthly counts were comparable to the means of the weekly counts, providing a measure of error to monthly counts. It's believed therefore that the monthly counts conducted since 2019 are as accurate and representative of the actual numbers of birds present.

In the first year of the current effort (2019) counts were not conducted in December. Previously, counts were not made when the oxbows were frozen, usually in December. Missing the count in December of 2019 was a hold-over from the protocol followed in counts before 2019, when counts weren't conducted in poor weather. Since 2019 counts have been made each month regardless of weather.

With the provisos above concerning the quality of the counts over the last eight years, it is still possible to infer some sort of trend in rates of use of the oxbows if earlier counts are not included. Figures 10 and 11 also show the trends in those surveys for the last four years, for waterbirds and non-waterbirds, respectively.

Waterbird use of the oxbows has strongly declined over the last four years, as has the rate of use by non-waterbirds, but slightly less strongly. The reasons for those declines are speculative but certain factors should be considered. One may simply be the overall decline in bird numbers noted on a global scale over the past years. If that is the reason for the decreasing rates of use of the oxbows similar trends should be seen in other habitats locally and regionally. Such analysis could be undertaken in the future if comparable data sets can be located. Other reasons for apparent declines in rates of use likely have to do with changes in landuse, disturbance and diminishing quality of habitat. Use of the treed areas adjacent to the oxbows by transients and homeless people has increased over the years the oxbow surveys have been conducted. That has resulted in direct deterioration of the upland habitats adjacent to the oxbows, and much increased disturbance on the wetlands. Other uses of the oxbow environs include increased foot traffic, use of motor bikes and mountain bikes near the oxbows and continued trespass use of crown lands adjacent for dumping of yard waste. As the human population in Penticton continues to increase those factors are likely to continue to play a role in diminishing rates of use of the oxbows by birds.

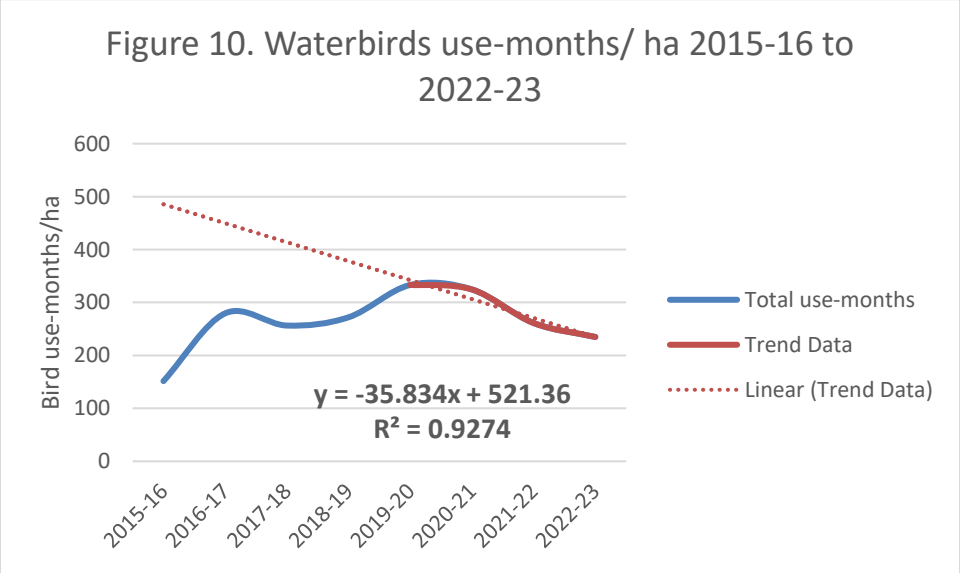
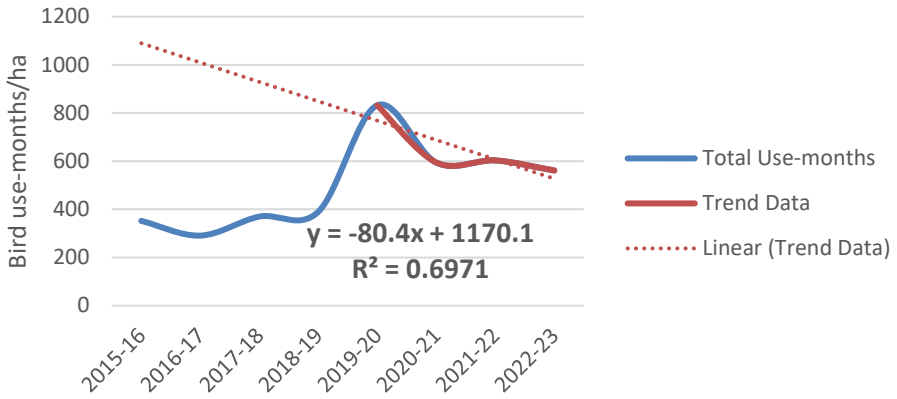


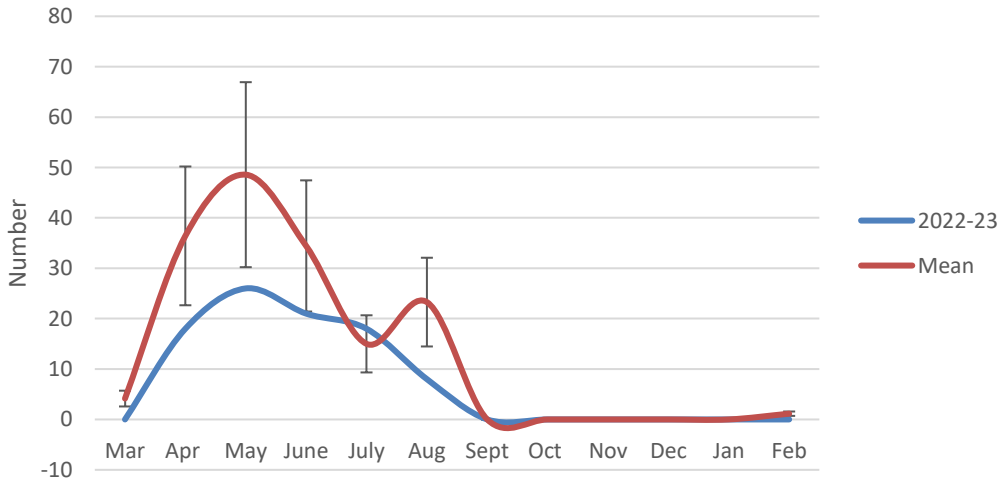
Figure 11. Non-waterbird use-months/ha 2015-16 to 2022-23 showing trend line for data from 2019-220 onwards.



Turtle counts.

Turtles were not seen until April in 2022, reached peak numbers in May, and were not seen again after the August survey (Fig. 12). The impact of the unusually hot weather the previous summer was a source of concern in terms of survival of the turtles from the previous year. However, a range of sizes of turtles was seen this year (size data not recorded), as in past surveys, from probable young of the year (appr. 6 cm in length) to adults (>30 cm in length estimated). Some reproduction therefore occurred after the heat dome, and a range of sizes of turtles survived. Overall, turtle numbers were below the average seen in each month in previous surveys, except for the mid-summer count in July, which was within the norm. Non-indigenous Red Slider Turtles are seen at times but have not been recorded separately for this survey.

Figure 12. Number of turtles seen per month in 2022-23 compared to the mean numbers (+/- SE) seen from 2015-16 to 2021-22.



Appendix 1. Frequency of occurrence of waterbird species, 2015 to 2022-23.

Waterbird species	Number of years seen at least once	Annual frequency of occurrence (%)
American Coot	6	75%
American White Pelican	1	13%
American Wigeon	5	63%
Belted Kingfisher	8	100%
Blue-winged Teal	4	50%
Bufflehead	7	88%
California Gull	6	75%
Canada Goose	8	100%
Canvasback	1	13%
Cinnamon Teal	3	38%
Common Goldeneye	2	25%
Common Merganser	7	88%
Gadwall	8	100%
Glaucous-winged Gull	2	25%
Great Blue Heron	8	100%
Greater Scaup	3	38%
Greater Yellowlegs	1	13%
Green-winged Teal	6	75%
Herring Gull	2	25%
Hooded Merganser	8	100%
Killdeer	6	75%
Lesser Scaup	2	25%
Mallard	8	100%
Northern Pintail	1	13%
Northern Shoveler	6	75%
Red-headed Duck	2	25%
Ring-billed Gull	7	88%
Ring-necked Duck	7	88%
Ruddy Duck	2	25%
Snow Goose	1	13%
Solitary Sandpiper	1	13%
Sora	2	25%
Spotted Sandpiper	6	75%
White-fronted Goose	1	13%
Wilson's Snipe	1	13%
Wood Duck	8	100%

Appendix 2. Number of waterbirds, non-waterbirds and turtles seen each survey month on Penticton oxbows in 2022-23.

Month	Waterbirds	Non-waterbirds	Turtles
Mar	221	209	0
Apr	122	267	18
May	59	240	26
June	89	234	21
July	76	301	18
Aug	96	369	8
Sept	126	146	0
Oct	131	126	0
Nov	197	138	0
Dec	57	134	0
Jan	225	129	0
Feb	62	190	0

Appendix 3. Bird-use months/ha summaries by survey year for each oxbow surveyed, corrected for number of surveys per year.

Waterbirds

1	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Surveys per year	8	9	7	11	11	12	12	12
Ellis	58	96	26	22	25	21	19	17
Warren	25	32	53	31	44	36	38	32
Kinney	6	12	16	26	25	22	23	14
Falcon	30	81	125	157	189	175	123	131
Brandon	13	40	22	21	30	42	26	19
Yorkton	19	18	15	15	20	29	32	23

Non-Waterbirds

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Surveys per year	8	9	7	11	11	12	12	12
Ellis	74	48	25	53	85	83	68	60
Warren	64	26	48	49	141	105	89	98
Kinney	14	18	7	28	52	44	56	60
Falcon	144	106	169	197	393	270	297	261
Brandon	44	59	59	44	140	73	73	73
Yorkton	12	33	61	18	21	19	19	9