Surveys of birds using the Penticton Oxbows, March 2021 through February 2022 Compiled by Rick McKelvey March 2022

Introduction

We have now completed seven plus years of surveys of birds using the Penticton oxbows. In the past the results of those surveys were reported on a calendar basis, January through December. The current report uses a seasonal reporting format which we feel better reflects the value of the oxbows to the birds using them. The winter period has been defined as December through February, the spring, March through May, summer, June through August, and the fall, September through November. Each year of course is slightly different from a climatic point of view, and so the phenology of bird use of the oxbows will vary between years. We believe patterns and trends in usage are made clearer by using a seasonal approach to recording numbers of birds, rather than strictly by annual calendar.

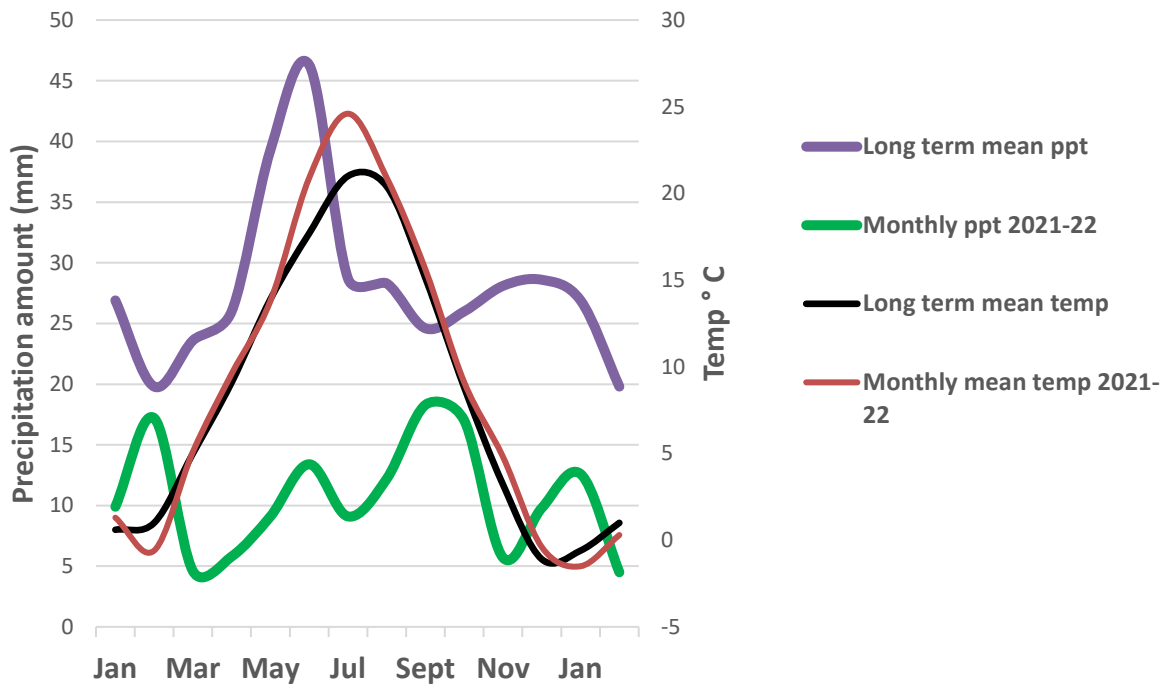
Counts were conducted at monthly intervals from January through December 2021, as in the past, and monthly through February in 2022 for this report. As in 2020 we conducted weekly surveys during May and June, to determine how representative our monthly surveys were.

General procedures and locations have been described previously in other reports, available on the Friends of the Oxbow's website (www.pentictonoxbows.ca). Counts in 2021-22 were conducted by A. Bodden, A. Garland and myself.

Climate in 2021

The weather in 2021-22 was drier and hotter than the long-term averages (Fig. 1). The year started out dry and only approached near normal levels of moisture in the fall, but then resumed the dryness trend over the winter. Average monthly temperatures in mid-summer were about 5 °C higher than the norm, during the so-called heat dome BC experienced last summer. Extreme temperatures, however, were much above the norm at times. The relative dryness of most of the year was also reflected in much lower water levels in the oxbows than had been seen in the past. Although we do not measure water depth, qualitative observations during our bird surveys indicated water levels were well below average heights we have seen in previous surveys.

Figure 1. Climate in Penticton 2021-22 compared to longterm averages*



*Data for Penticton Airport from Environment Canada data base.

Species diversity

The number of species seen in 2021-22 was higher than in previous years, as a result of more species of non-waterbirds being recorded (Fig 2). Waterbird species diversity was lower in 2021 than it had been in the previous four years, though that does not appear to be a cause for concern. A core group of species are seen each year, with several other species making an occasional appearance on the oxbows year to year. A summary of waterbird species seen by survey year is shown in Appendix 1.

In previous survey reports the number of species seen per month was graphed together with data from preceding surveys, as in Fig. 3. Now with seven years of data, such a graph is becoming hard to interpret. For the current report the number of species seen per month in 2021-22 was compared to the average numbers seen in previous years (Fig. 4). Species abundance in 2021-22 was comparable to the long-term monthly means for spring, summer, and winter, but with some variation being noted in the fall. There was a decline in abundance in early fall, and a spike in late fall as migrants passed through, and then a decline into December as the weather turned colder. Interestingly, even though the weather remained cool in January and February of 2022 there was an increase in species abundance in those two months after the low diversity seen in December 2021.

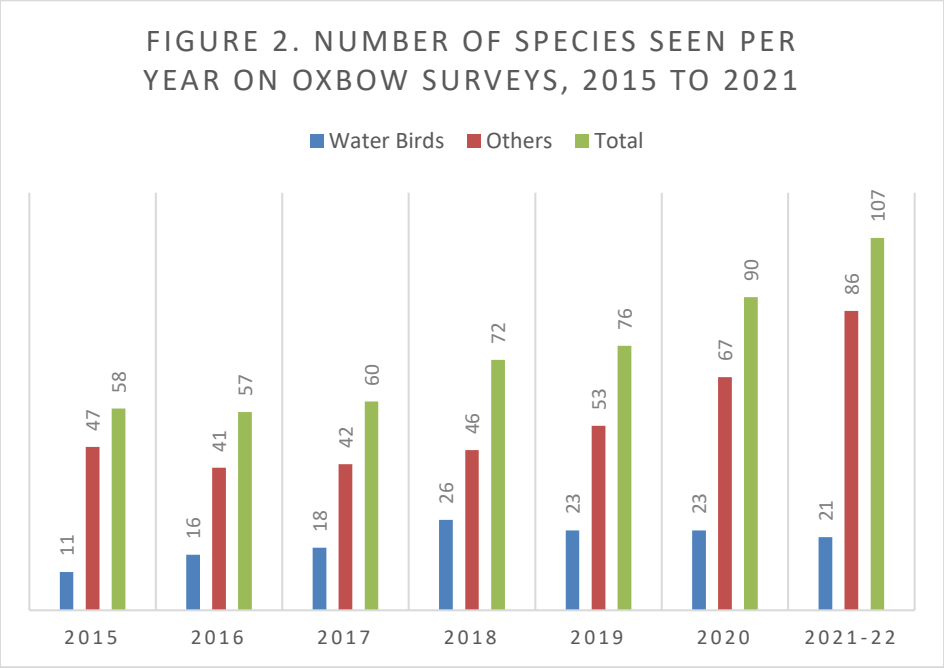


FIGURE 2. NUMBER OF SPECIES SEEN PER YEAR ON OXBOW SURVEYS, 2015 TO 2021
Water Birds
Others
Total
11
47
58
16
41
57
18
42
60
26
46
72
23
53
76
23
67
90
21
86
107
2015
2016
2017
2018
2019
2020
2021-22

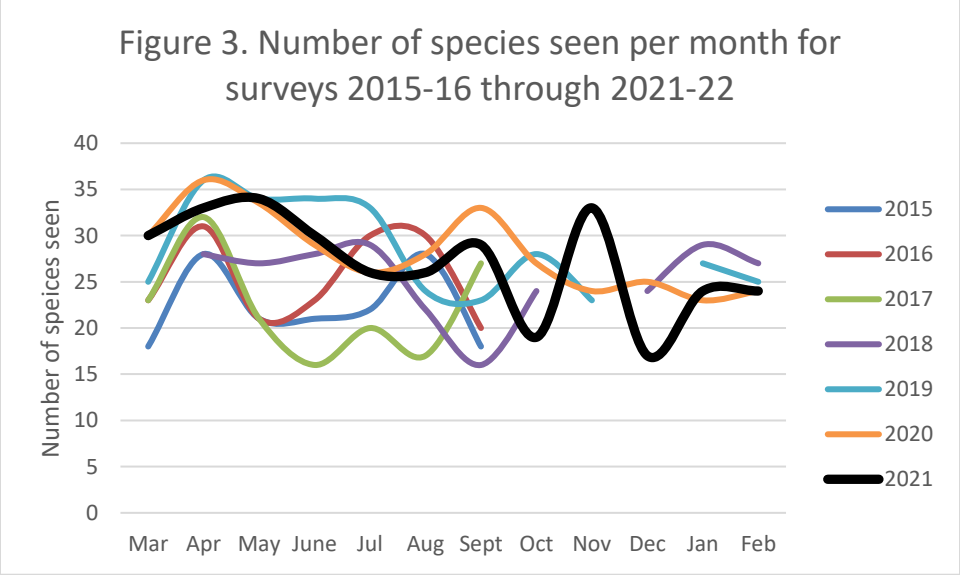
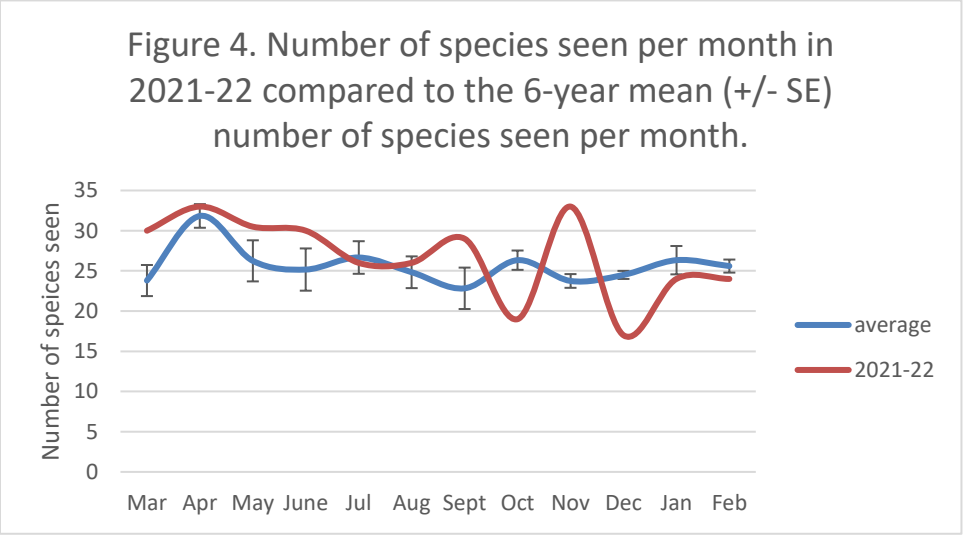


Figure 3. Number of species seen per month for surveys 2015-16 through 2021-22
Number of speices seen
40
35
30
25
20
15
10
5
0
Mar
Apr
May
June
Jul
Aug
Sept
Oct
Nov
Dec
Jan
Feb
2015
2016
2017
2018
2019
2020
2021

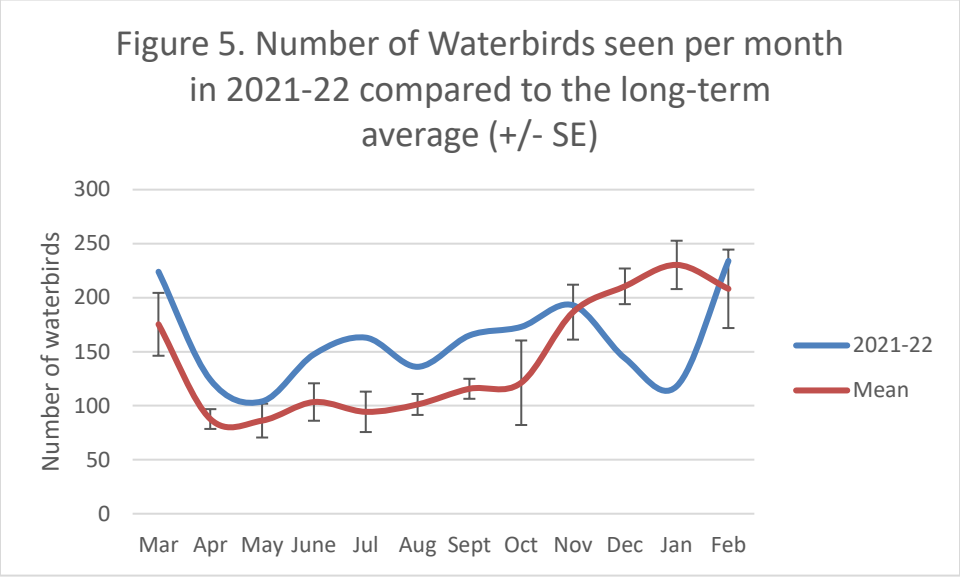


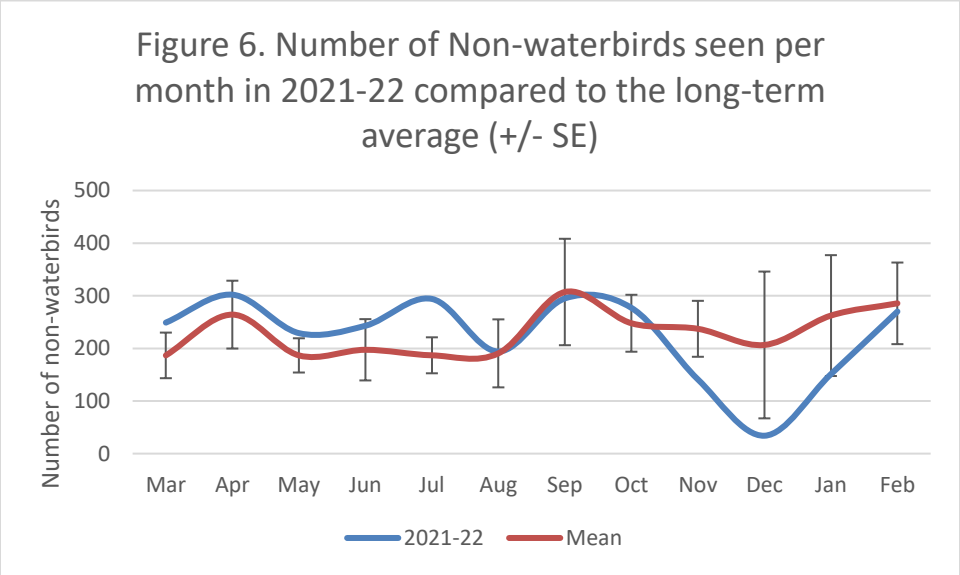
Total numbers of birds seen

As mentioned in last year's survey report 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 2021-22.

Numbers of waterbirds and non-waterbirds seen per month in 2021-22 compared to the mean numbers seen per month in previous surveys are shown in Figs. 5 and 6. As the original intention of the oxbow surveys was to record the numbers of birds that might be directly dependent on the oxbow wetlands, as well as those dependent on the adjacent habitats, data are not presented on the total numbers of birds seen. The actual numbers of those two groups seen this year can be found by month in Appendix 2, and in previous reports, should totals be of interest.

Waterbird numbers in 2021-22 were highest in the winter period, and lowest in the summer, when just a few species and numbers remain to breed (Fig. 4). High counts in the winter indicate the importance of the oxbow wetlands as wintering habitat but those counts are to some extent influenced by adjacent backyard bird feeders. Non-waterbird numbers continue to be highest in spring and fall, during the migration periods, with lower but more stable numbers during the summer breeding season, and lowest in early winter (Fig. 5).





Resident Waterfowl and Productivity

Mallards, Wood Ducks and Canada Geese were seen throughout the year on the oxbows. The mean numbers of Mallards and Wood Ducks seen per month for all survey years and for 2021-22 are shown in Figures7 & 8, respectively. Canada geese were seen in some numbers on the southernmost oxbow in fall this year, and with broods on that oxbow in the spring. Geese were not seen regularly on other oxbows, and what breeding is occurring on the oxbows seems to be confined to the above-mentioned waterbody.

Data were collected again in 2021-22 on the number and size of broods seen of the above three species and are summarized in Table 1.

Figure 7. Number of Mallards seen per month in 2021-22 compared to monthly mean numbers (+/-SE).

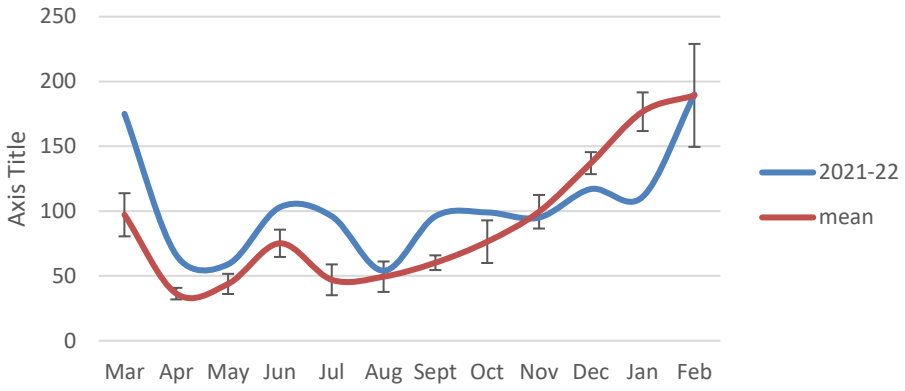


Figure 8. Number of Wood Ducks seen per month in 2021-22 compared to monthly average numbers (+/-SE).

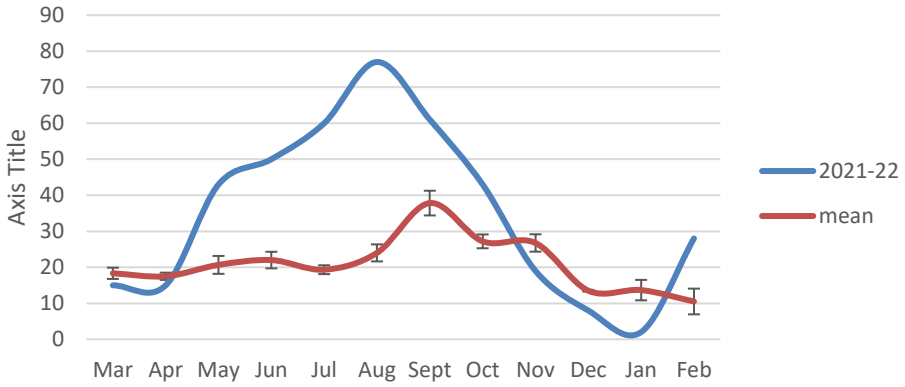


Table 1. Number and size of broods seen on oxbows in 2021

Date	11 May	18 May	25 May	1 June	8 June	15 June	22 June	30 June	28 July	25 Aug
MALL										
Broods	1	1	3	4	8	9	7	7	6	
Young	6	9	40	15	33	19	19	26	15	
WODU										
Broods				3	3	3	8	7	2	1
Young				18	22	12	26	31	11	5
CAGO										
Broods		1								
Young		5								

Rates of use of oxbows by waterbirds

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-waterbirds 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. 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 to February. Relative rates of use of each oxbow for waterbirds and non-waterbirds are shown in Figs. 9 & 10, 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 in the area. In some years, some landowners also grain-feed the ducks, which keeps the numbers of waterbirds high even in the coldest parts of the winter.

Figure 9. Rates of use of waterbodies (bird-use months / ha) by Waterbirds for surveys from 2015-16 to 2021-22, scaled for unequal effort between years.

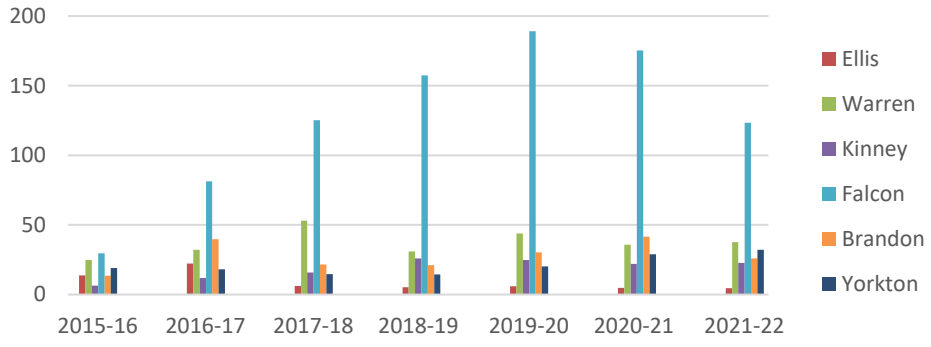
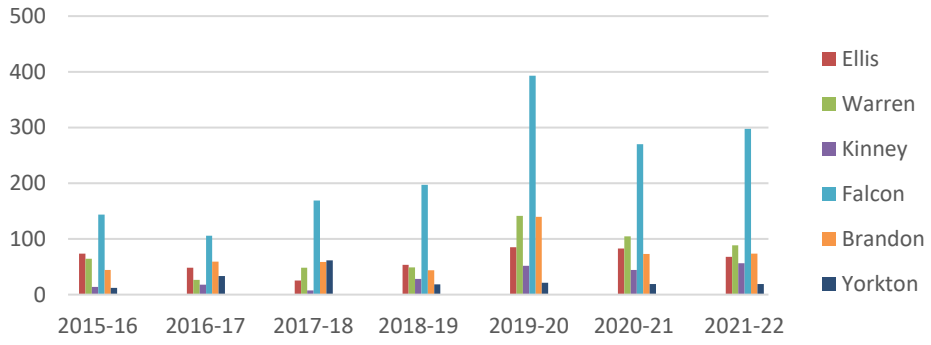


Figure 10. Rates of use of waterbodies (bird-use months / ha) by Non-waterbirds for surveys from 2015-16 to 2021-22, scaled for unequal effort between years.



Turtle counts.

Turtles appeared in March 2021, reached their highest count in early June (Fig. 11), and then were visible in relation to the summer's heat. During the very hottest part of the summer, turtles were not visible. With the return of more moderate weather in August only a few turtles reappeared, and none were seen in the fall. The heat of the summer no doubt drove the turtles back into the mud, but with very low water levels in the oxbows this summer and fall it remains to be seen whether the turtles were able to survive the hot dry conditions last year. Total number of turtles seen by month for each year of surveys is shown in Fig. 12. Turtle counts this year were second only to those in 2020.

Figure 11. Turtle numbers on each oxbow and in total per survey, 2021-22.

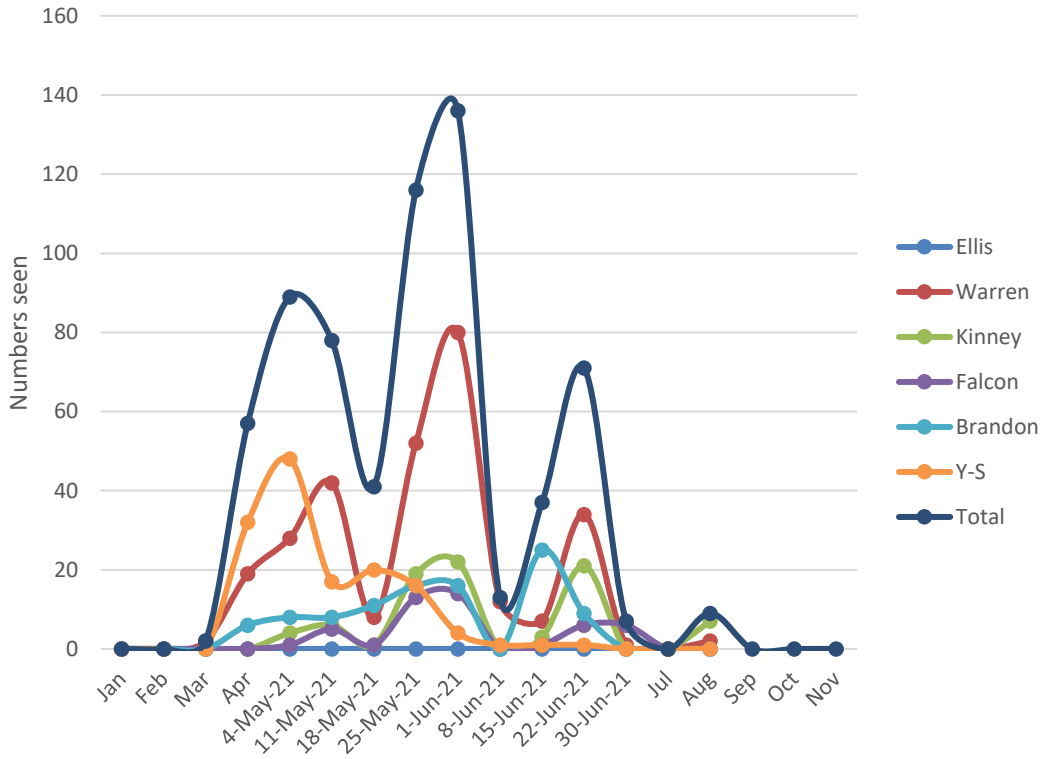
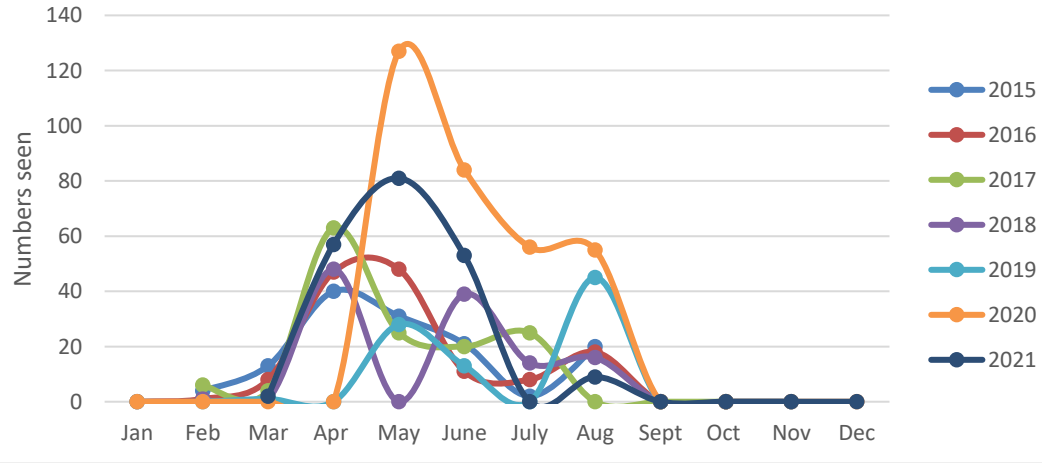


Figure 12. Total turtles seen each year by month, 2015-21.*



* Numbers in May and June 2020 and 2021 are means of weekly surveys those months

Appendix 1. Frequency of occurrence of waterbird species, 2015 to 2021-22.

Waterbird species	Number of years seen at least once	Annual frequency of occurrence (%)
American Coot	5	71
American White Pelican	1	14
American Wigeon	4	57
Belted Kingfisher	7	100
Blue-winged Teal	4	57
Bufflehead	6	86
California Gull	6	86
Canada Goose	7	100
Canvasback	1	14
Cinnamon Teal	2	29
Common Goldeneye	1	14
Common Merganser	1	86
Gadwall	7	100
Glaucous-winged Gull	2	29
Great Blue Heron	7	100
Greater Scaup	2	29
Greater Yellow-legs	1	29
Green-winged Teal	5	71
Hooded Merganser	7	100
Killdeer	2	29
Lesser Scaup	7	100
Mallard	5	71
Northern Pintail	1	14
Northern Shoveler	5	71
Osprey	7	100
Red-headed Duck	2	29
Ring-billed Gull	6	86
Ring-necked Duck	6	86
Ruddy Duck	2	29
Snow Goose	1	14
Solitary Sandpiper	1	14
Sora	2	29
Spotted Sandpiper	6	86
White-fronted Goose	1	14
Wilson's Snipe	1	14
Wood Duck	7	100

Appendix 2. Number of waterbirds, non-waterbirds and turtles seen each survey month on Penticton oxbows in 2021-22.

Month	Waterbirds	Non-waterbirds	Turtles
Jan	258	148	0
Feb	330	209	0
Mar	224	249	2
Apr	124	302	57
May*	104	229	81
June*	148	243	53
July	163	294	7
Aug	136	194	9
Sept	165	295	0
Oct	173	277	0
Nov	193	141	0
Dec	144	34	0
Jan	118	151	0
Feb	234	270	0

*** Numbers in May and June are means of weekly surveys those months**

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

Waterbirds

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Surveys per year	8	9	7	11	11	12	12
Ellis	14	22	6	5	6	5	5
Warren	25	32	53	31	44	36	38
Kinney	6	12	16	26	25	22	23
Falcon	30	81	125	157	189	175	123
Brandon	13	40	22	21	30	42	26
Yorkton	19	18	15	15	20	29	32

Non-waterbirds

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