A summary of bird counts on the Penticton oxbows

2015 and 2016

Compiled by

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Friends of the Oxbows

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Introduction

Friends of the Oxbows (FOTO) has been lobbying for rejuvenation and further protection of the oxbows adjacent to the Okanagan River Channel in Penticton since 2008. In anticipation of such improvements to some or all of the oxbows, we felt it was necessary to collect data on some aspects of biodiversity in those oxbows, to allow us to measure the impacts of any changes that could be engineered. To that end we persuaded the South Okanagan Naturalists Club (SONC) to undertake surveys of birds using six oxbows on the east side of the Channel between March/February and November of 2015 and 2016. Now with two years of data some preliminary observations on bird use of those wetlands are possible, as detailed in this report.

Methods

Counts of birds seen on and near) the six oxbows (more or less within the riparian areas around each wetland were conducted at approximately monthly intervals. The locations of the study oxbows, and the points from which the counts were made, are shown in Figure 1. Birds were identified by sight and sound, their numbers recorded by consensus of those SONC members participating in the count, and the data for each survey date forwarded to FOTO shortly thereafter.

Figure 1. Oxbow locations and survey points where there was more than one site per oxbow.

Data were stored in an Excel file, by species and numbers seen for each count date on each oxbow. A summary of the total numbers of birds seen on each date, the total number of species, and the totals of

other species seen, principally Western Painted Turtles, were made after each survey. Summaries were also made of water birds, and other bird species, (see App. 1 for a list of species seen in each group) for purposes of comparing rates of usage of wetland areas between years. Trends in numbers were plotted for each wetland, by year. To facilitate comparisons between wetlands and between years, the area under the curve resulting from those data plots was calculated using a simple estimation of the area of the resulting trapezoid (https://www.reference.com/technology/area-under-curve-using-excel-5829839ac57ff2eb). When the area under the curve calculations were divided by the area (ha) of the open water on each wetland, a rough measure of bird-use days resulted, allowing direct comparisons of rates of use of each wetland by year. The area of open water measured from Google Earth images for each wetland is attached as Appendix 2.

Results & Discussion

Graphic summaries of the counts of waterbirds, non-waterbirds, and total birds, for each year for each wetland are attached as Appendix 3. In this section I present summaries of the rates of use by wetland and year, and highlight what apparently accounted for differences between years. Refer to Table 1 for all specific rates of usage on each oxbow and for each year.

Oxobw	Total Bird Use days 2015	Total Bird Use Days 2016	Waterbird Use Days 2015	Waterbird Use Days 2016	Other Bird Use Days 2015	Other Bird Use Days 2016
Ellis	256.5	211	107.5	147.5	149	63.5
Warren	579.5	356	94	157.5	422	214.5
Kinney	30	34.5	10	12	20	22.5
Falcon	149.5	324.5	34	145	115.5	179.5
Brandon	82.5	102.5	15	30	67.5	72.5
Yorkton	446.5	579.5	224.5	200	222	379.5
Total	1544.5	1608	548.5	676	996	932

Table 1. Rates of use of all birds, waterbirds and non-waterbirds seen on each oxbow during surveys of 2015 and 2016

Ellis Cr

Counts were made at Ellis Creek basin from approximately the large culvert over which Industrial Ave once crossed, to the outflow under Hwy 97. This is a relatively small area, but was used by a variety and number of birds throughout the course of the count periods.

Ellis Cr was used more intensively in 2015 than in 2016. Rates of usage were similar for waterbirds in both years, but were less for other birds in 2016. Waterbirds seen most frequently were Mallards in both years. Crows and swallows were the most common non-waterbirds in both years, but with a variation in numbers seen between years.

Warren Ave

Counts on the Warren Ave oxbow were made from three locations: the foot of Okanagan Ave West; the foot of Roy Ave; and on Warren Ave directly across from the church.

The Warren Ave oxbow was used more intensively in 2016 than in 2015, as a result of larger counts of both waterbirds and non-waterbirds. Wood Ducks and Mallards were the most common waterbirds, while non-waterbirds were predominantly represented by starlings and Red-winged Blackbirds.

Kinney Ave

Counts on the Kinney Ave oxbow were made from Kinney Ave, the best and only vantage point.

Kinney Ave oxbow had similar modest rates of use in both years, likely owing to the fact it is quite small. Predominate species of birds were quite different between years. In 2015 Wood Ducks and Mallards were the dominate waterbirds and Red-winged Blackbirds and House Sparrows were the most common non-waterbirds. In 2016, however, American Wigeon and Canada Geese were seen more frequently than Mallards, and starlings were the most common non-waterbirds.

Falcon Court

Falcon Ct oxbow was accessed via the laneway leading south to the oxbow, parallel to the Channel Parkway. Once parked near the oxbow, observers moved along the oxbow as access through the grass and brush allowed.

Falcon Ct oxbow received over twice as much use in 2016 as it did in 2015. Predominate species of waterbirds in 2015 were Wood Ducks and Mallards, and one Wigeon. Swallows and Red-winged Blackbirds were the most common non-waterbirds. In 2016 Mallards were much more numerous, and non-waterbird numbers were inflated by the presence of numbers of California Quail and starlings.

Brandon Ave

The Brandon Ave oxbow was surveyed from the foot of Brandon Ave by access through a gate on the owner's property at the north foot of the street. Once on the grass above the oxbow observers could move to the south end of the oxbow while being screened by riparian plants on the oxbow bank. The north end of the oxbow was also visible from this location, and from the property mentioned above.

Brandon Ave oxbow was used more heavily in 2016 than in 2015. Wood Duck, Mallard and Wigeon were the most frequent waterbirds in 2015, while California Quail and Red-winged Blackbirds were the most common non-waterbirds. Mallard and Red-winged Blackbirds were the most common species of the two categories in 2016, with more of each being seen in that year.

Yorkton Ave – Skaha Place

The Yorkton Ave – Skaha Place oxbow (Yorkton oxbow) was surveyed from two or three main points in both years. Two were on the Figuierras Mobile Home Park, at the foot of Yorkton Ave, on properties adjoining the wetland. The other was from the cul-de-sac at the north end of Skaha Place. Access to this wetland is rather limited, and the surface area is large, so counts recorded probably are underestimates.

The Yorkton oxbow had a higher rate of use in 2016 than in 2015, owing primarily to a larger number of waterbirds being seen. In 2015 Mallard, Wood Duck and to a lesser extent Canada Geese predominated, while swallows and Red-winged Blackbirds were the more common non-waterbirds. In 2016 Mallard, Wood Duck and Canada Geese were still common but there were several other species seen in some numbers, including Gadwall, Wigeon, Ring-necked Duck, and Bufflehead. Non-waterbird numbers were made higher by the sighting of large numbers of starlings on one survey. Otherwise, Red-winged Blackbirds, American Crows and House Sparrows were the most abundant.

In conclusion, the total bird use-days for all six wetlands were slightly higher in 2016 than in 2015. This difference was attributable to apparently higher numbers of both waterbirds and non-waterbirds.

Bird use in relation to wetland area

Rates of bird use on each oxbow in relation to surface area of water are shown in Table 2. The total bird usage in relation to surface area showed the same trend as total bird use-days, namely slightly higher total use per ha in 2016. The relative value of each wetland is magnified when the surface area is taken into account, however. Some wetlands were more important than others but not consistently between years. A number of factors could be at least partly responsible for these apparent differences. The surface areas of the oxbow wetlands are relatively small, there are variable amounts of riparian vegetation on each, and levels of disturbance are likely variable and at times quite high. Combined, these factors likely contribute to variations in the counts. Data over several more years will be required to reduce this variability, but the current data serve to show that these wetlands are important, and that they are used each year by a range of species.

Oxbow	Total Bird use days/ha 2015	Total Bird use days/ha 2016	Waterbird use days/ha 2015	Waterbird use days/ha 2016	Non-waterbird use days/ha 2015	Non-waterbird use days/ha 2016
Ellis	1107	911	464	637	643	274
Warren	637	391	173	155	464	236
Kinney	170	195	57	68	113	127
Falcon	629	1367	143	611	486	756
Brandon	412	513	75	150	337	363
Yorkton	201	254	101	88	100	166
Total	3156	3631	1013	1709	2143	1922

Table 2. Rates of use of oxbows in relation to surface area of water in 2015 and 2016.

Species Diversity

Tables 3 and 4 show the number of species of birds seen on each oxbow by survey date, for 2015 and 2016. The total number of species seen was similar between years, 58 in 2015 and 57 in 2016. There was some variation between oxbows between years, with fewer species seen at Ellis, Warren and Brandon in 2016 than in 2015. In contrast, more species were seen at Falcon and Yorkton/Skaha in 2016 than in

2015, although surveys at Falcon in 2015 were incomplete. The number of species seen at Kinney was similar between years.

Oxbow/Date	19-Feb-15	19-Mar-15	23-Apr-15	21-May-15	25-Jun-15	23-Jul-15	03-Sep-15	10ct 15	Total
Ellis Cr	6	7	8	5	9	7	9	4	24
Warren	7	12	16	13	9	17	13	12	42
Kinney	2	3	1	4	0	0	2	2	8
Falcon			13	7	5	7	9	4	8
Brandon	6	6	11	5	5	3	3	2	24
Yorkton/Skaha	4	5	11	9	12	8	7	6	23
Total	14	18	28	21	21	22	28	18	58

Table 3. Species diversity by date and location for oxbow surveys 2015.

Oxbow/Date	11-Feb-16	10-Mar-16	7-Apr-16	12-May-16	30-Jun-16	28-Jul-16	28-Aug-16	28-Sep-16	6-Nov-16	Total
Ellis Cr	4	4	7	6	6	4	6	4	7	18
Warren	16	9	13	16	12	11	11	15	16	38
Kinney	0	0	3	4	1	0	2	2	1	9
Falcon	10	11	12	5	5	7	6	3	7	36
Brandon	4	6	2	5	2	5	1	4	4	17
Yorkton/Skaha	12	13	15	9	9	10	15	10	9	40
Total	24	23	31	21	23	30	30	20	22	57

Table 4. Species diversity by date and location for oxbow surveys 2016.

The seasonal changes in the numbers of species seen by survey for each year were similar (Fig.2). The peak around survey three (March/April) would likely coincide with spring migration, and the peak and diminution around survey seven (September) would coincide with fall migration.

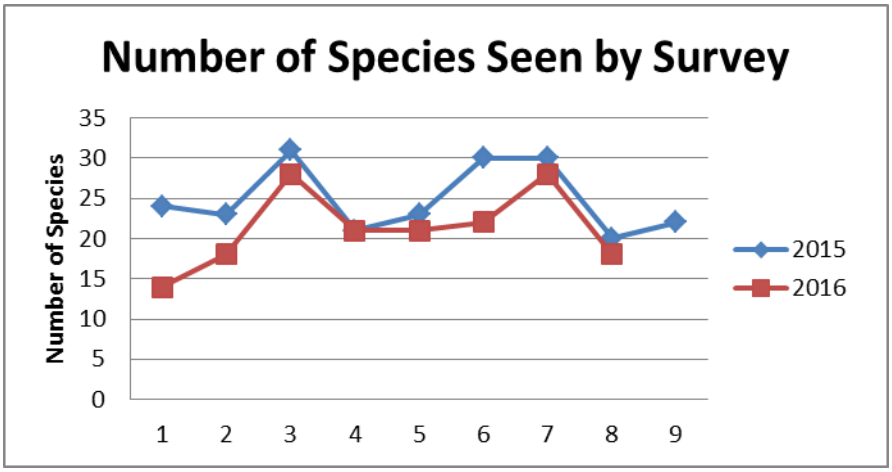


Figure 2. Number of species seen by survey on the Penticton oxbows, 2015 and 2016.

Turtles

The number of turtles seen (believed to all be the Western Painted Turtle) was approximately the same in both years (Fig.3). The population in all oxbows combined appears to number between 40 and 50 animals, if it is assumed there is little or no movement in or out of the ponds. The highest count in 2016 was slightly higher than in 2015, which could be an indication of recruitment into the population, with the above proviso. The variation in the apparent population size throughout each year is likely a result of turtle visibility, which in turn is affected by temperature and the amount of vegetation on each pond. Recoding peak counts over a number of years, and looking for trends in that number, will likely be a good indication of population status overall.

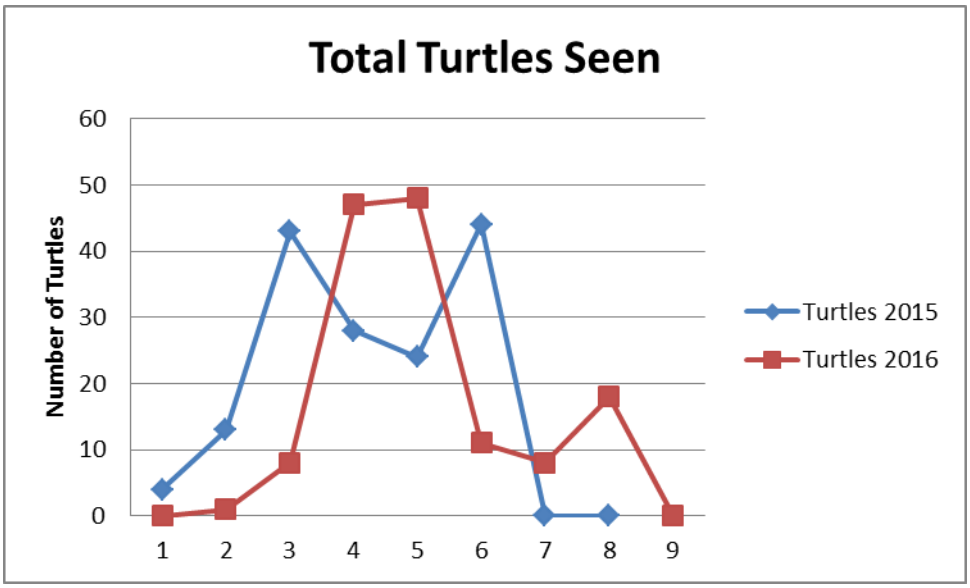


Figure 3. Total numbers of turtles seen on each survey of the Penticton oxbows, 2015 and 2016. Numbers along the bottom axis correspond to approximate survey dates, March through November.

Acknowledgements

All data used in this report were ably collected by members of the South Okanagan Naturalists Club, under the supervision of Charmain.

Appendix 1. Alphabetical list of all water bird species and other bird

species seen in both years.

2015	Water birds	Others	2016	Water birds	Others
American Crow		y	American Coot	x	
American Goldfinch		y	American Crow		y
American Kestrel		y	American Goldfinch		y
American Robin		y	American Kestrel		y
American Wigeon	x		American Robin		y
Bald Eagle		y	American Wigeon	x	
Barn Swallow		y	Bald Eagle		y
Belted Kingfisher	x		Barn Swallow		y
Black-capped Chickadee		y	Belted Kingfisher	x	
Bluebirds		y	Black-capped Chickadee		y
Blue-winged Teal	x		Bohemian Waxwing		y
Bohemian Waxwing		y	Brewer's Blackbird		y
Brewer's Blackbird		y	Bufflehead	x	
Bullock's Oriole		y	California Quail		y
California Quail		y	Canada Goose	x	
Canada Goose	x		Cassin's Finch		y
Catbird		y	Cedar Waxwing		y
Cedar Waxwing		y	Collared Dove		y
Chipping Sparrow		y	Common Merganser	x	
Collared Dove		y	Common Raven		y
Common Goldeneye	x		Cooper's Hawk		y
Common Raven		y	Dark-eyed Junco		y
Cooper's Hawk		y	E Kingbirds		y
Dark-eyed Junco		y	Gadwall	x	
E Kingbirds		y	Gold Finch		y
Gadwall	x		Great Blue Heron	x	
Gold Finch		y	Gulls, California	x	
Great Blue Heron*	x		Hooded Merganser	x	
Gulls, Californai?	x		House Finch		y
Hairy Woodpecker		y	House Sparrow		y
Hooded Merganser	x		Magpie		y
House Finch		y	Mallard	x	
House Sparrow		y	Mourning Dove		

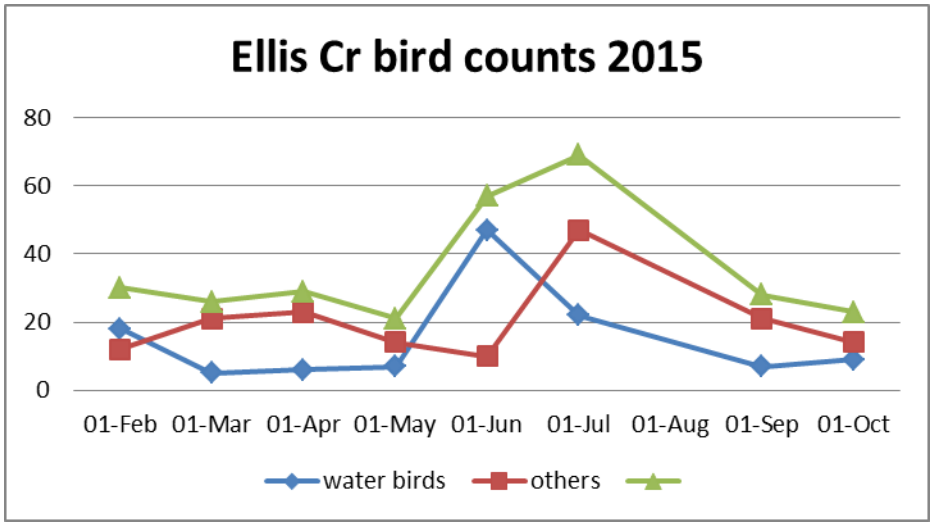
Mallard	x		Northern Flicker		y
Marsh Wren		y	Northern Harrier		y
Mountain Chickadee			Northern Shoveler	x	
Mourning Dove		y	Osprey		y
Northern Flicker		y	Pine Siskin		y
Osprey		y	Red-tailed Hawk		y
Red-tailed Hawk		y	Red-winged Blackbird		y
Red-winged Blackbird		y	Ringbilled Gull	x	
Rock Pigeon		y	Ring-necked Duck	x	
Rough-winged Swallows		y	Rock Pigeon		y
Rufous Hummingbird		y	Say's Phoebe		y
Say's Phoebe		y	Sharp-shinned Hawk		y
Say's Phoebe		y	Song Sparrow		y
Song Sparrow		y	Spotted Sandpiper	x	
Starling		y	Spotted Towhee		y
Swallows		y	Starling		y
Thrushes		y	Stellar's Jay		y
Turkey Vulture		y	Tree Swallow		y
Violet Green Swallow		y	Turkey Vulture		y
Warblers		y	Violet Green Swallow		y
Western Flycatcher		y	Westen Wood Pewee		y
Western Meadowlark		y	Western Tanager		y
White-crowned Sparrow		y	White-crowned Sparrow		y
Wood Duck	x		Wood Duck	x	
Yellow Warbler		y	Yellow Warbler		y
Yellow-rumped Warbler		y			

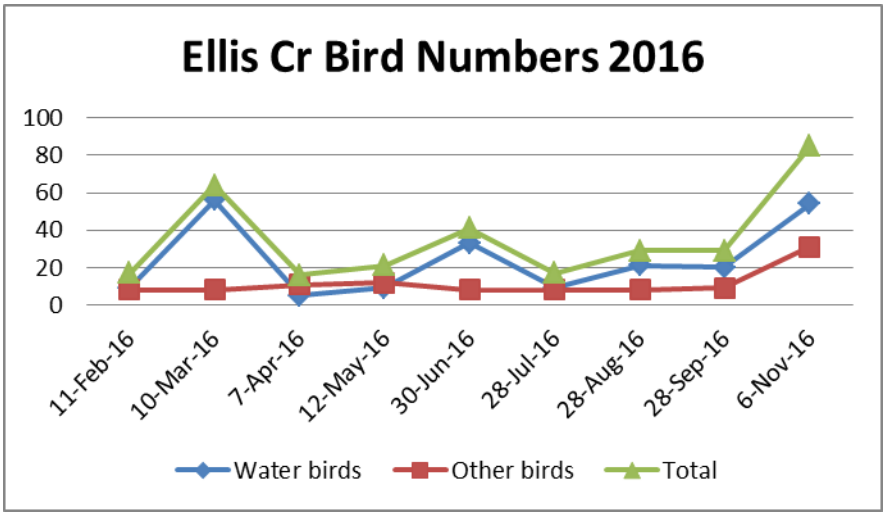
Appendix 2. Area of open water, measured area of riparian vegetation on the City side, and perimeter of potential riparian area on Band side for each of the Penticton oxbow wetlands surveyed for bird use 2015 and 2016.

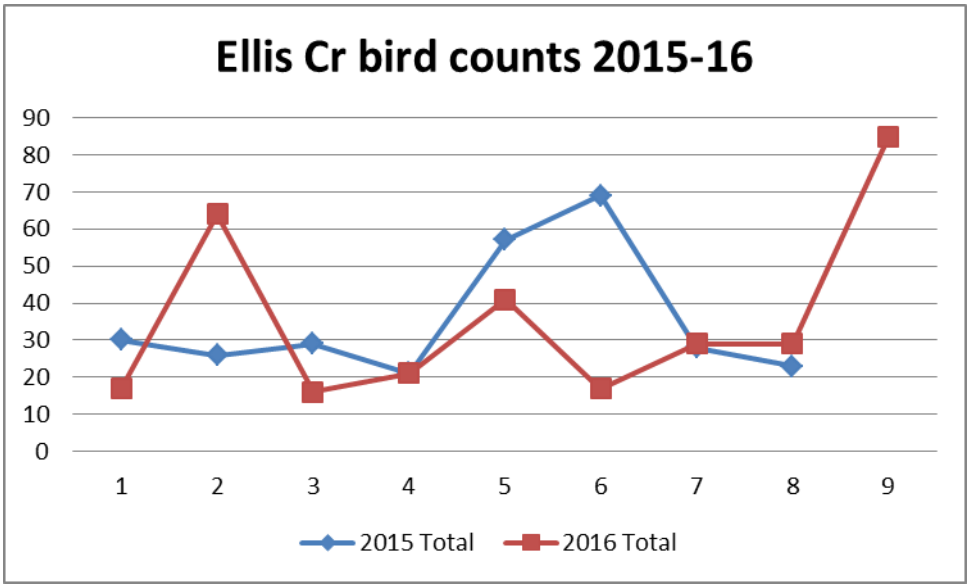
Oxbow	Ellis	Warren	Kinney	Falcon	Brandon	Yorkton
Open water area (m^2)	2300	9100	1765	2375	2000	22285
City-side riparian area (m^2)	4000	6500	500	2175	825	negligible
Band-side perimeter (m)	n/a	630	120	240	220	1160

Appendix 3. Graphic summaries of bird counts for each wetland by year.

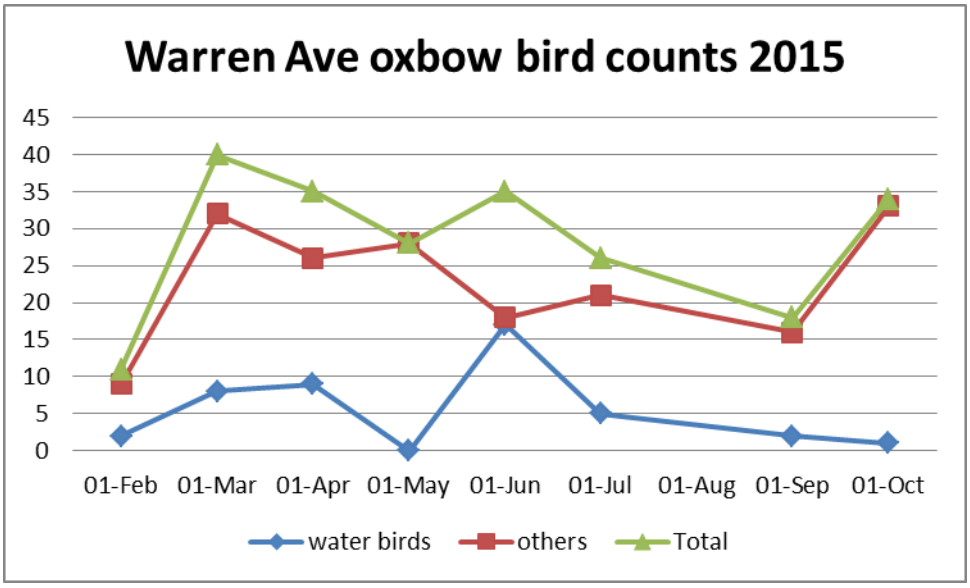
Ellis Creek

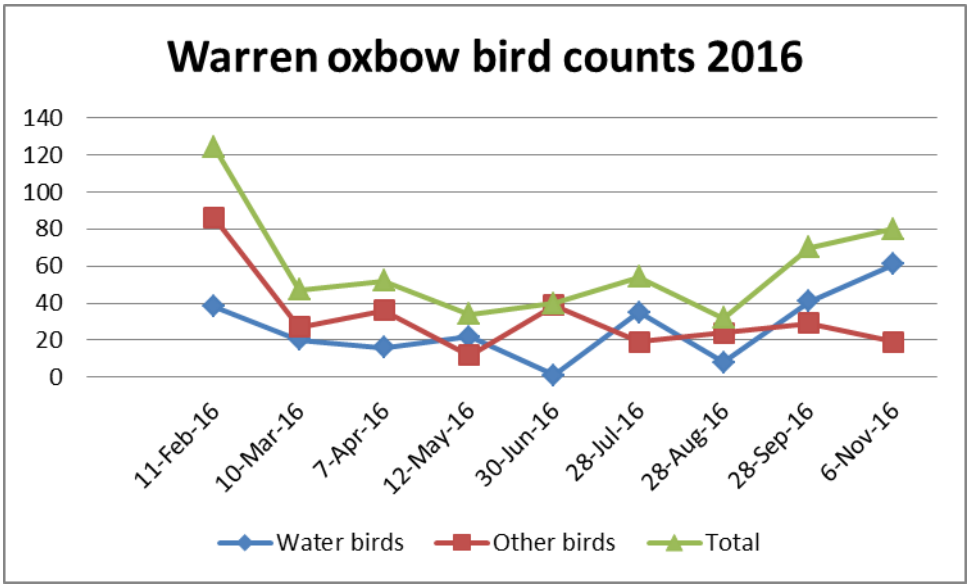


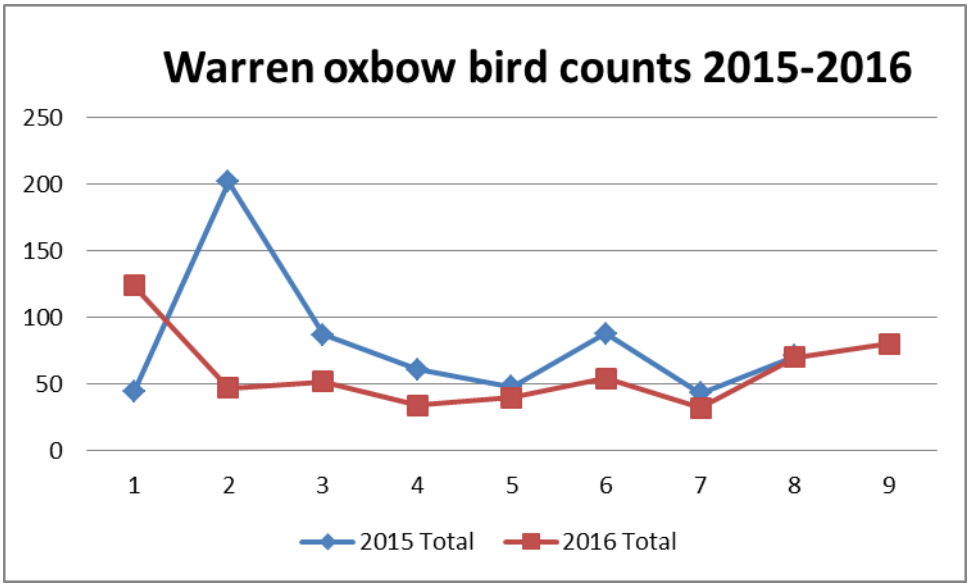



Ellis Cr bird counts 2015-16
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
2015 Total
2016 Total

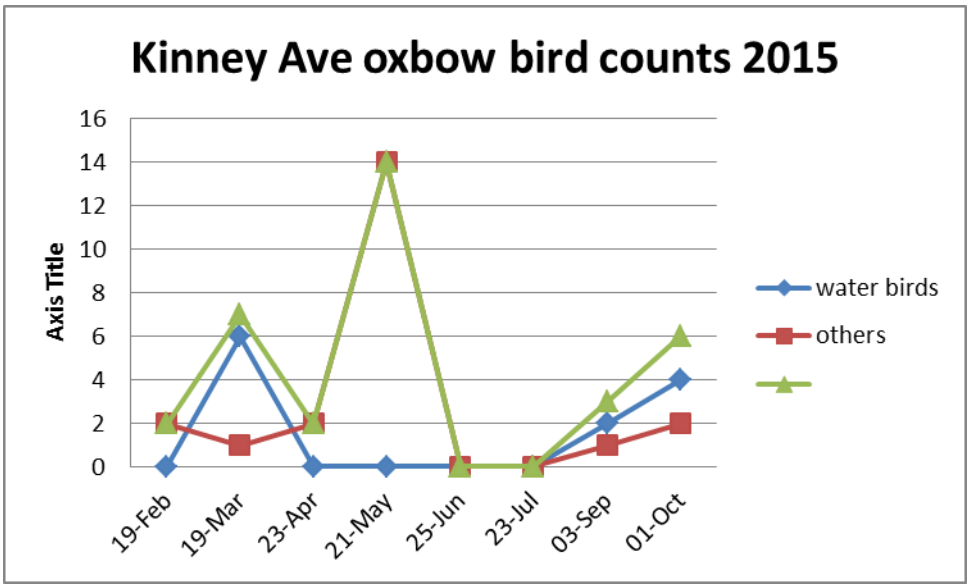
Warren Ave

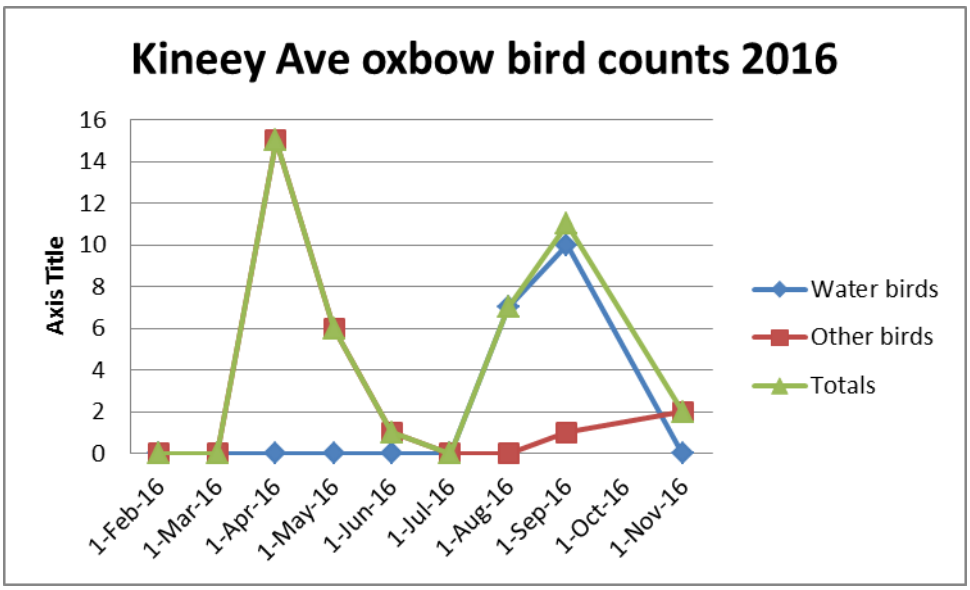

Warren Ave oxbow bird counts 2015
45
40
35
30
25
20
15
10
5
0
01-Feb
01-Mar
01-Apr
01-May
01-Jun
01-Jul
01-Aug
01-Sep
01-Oct
water birds
others
Total

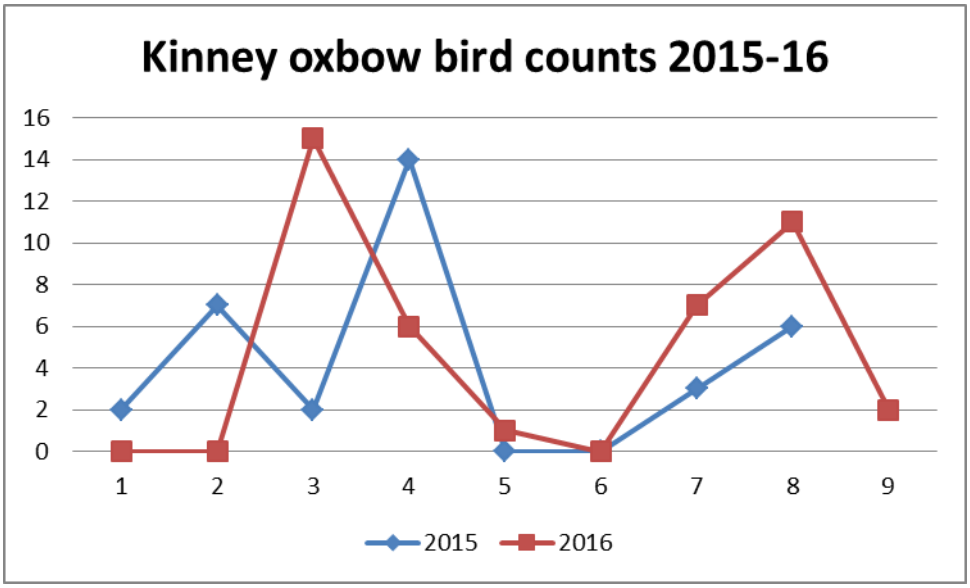

Warren oxbow bird counts 2016
140
120
100
80
60
40
20
0
11-Feb-16
10-Mar-16
7-Apr-16
12-May-16
30-Jun-16
28-Jul-16
28-Aug-16
28-Sep-16
6-Nov-16
Water birds
Other birds
Total


Warren oxbow bird counts 2015-2016
250
200
150
100
50
0
1
2
3
4
5
6
7
8
9
2015 Total
2016 Total

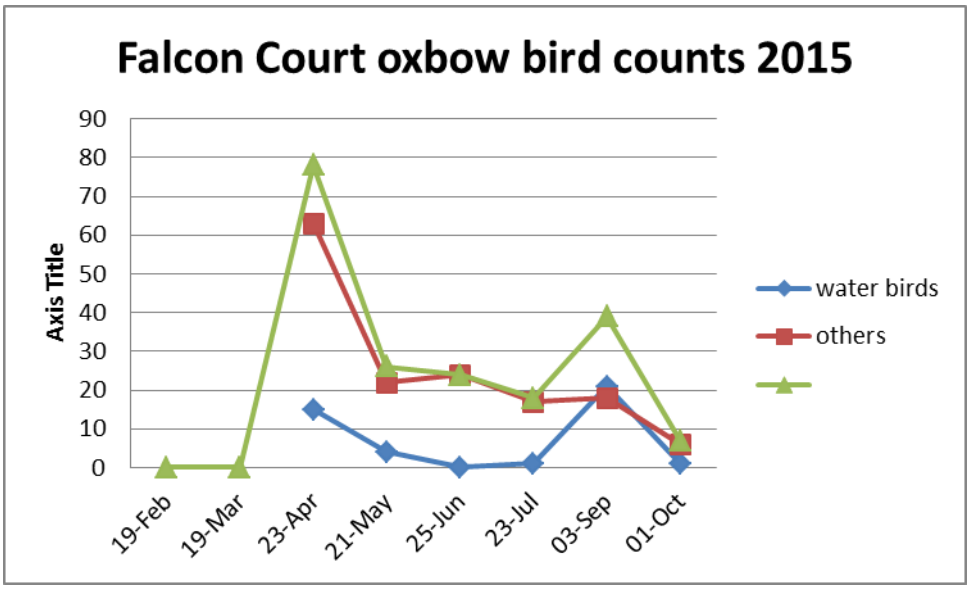
Kinney Ave

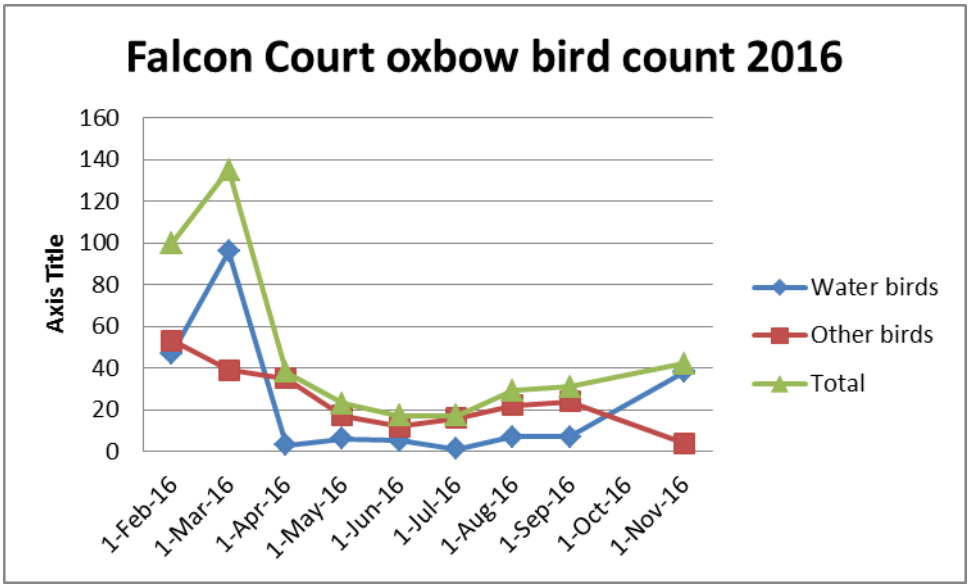

Kinney Ave oxbow bird counts 2015
Axis Title
16
14
12
10
8
6
4
2
0
19-Feb
19-Mar
23-Apr
21-May
25-Jun
23-Jul
03-Sep
01-Oct
water birds
others

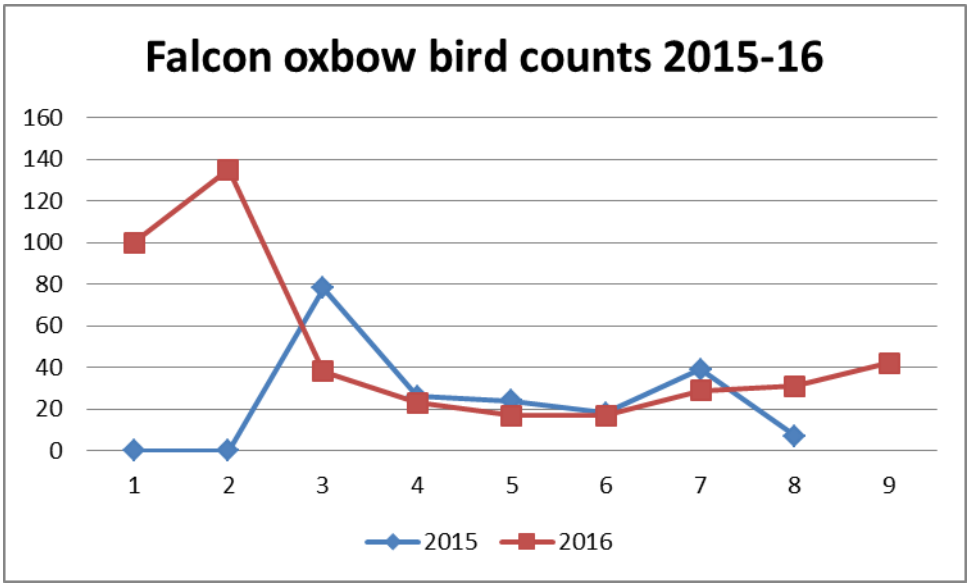

Kineey Ave oxbow bird counts 2016
Axis Title
16
14
12
10
8
6
4
2
0
1-Feb-16
1-Mar-16
1-Apr-16
1-May-16
1-Jun-16
1-Jul-16
1-Aug-16
1-Sep-16
1-Oct-16
1-Nov-16
Water birds
Other birds
Totals



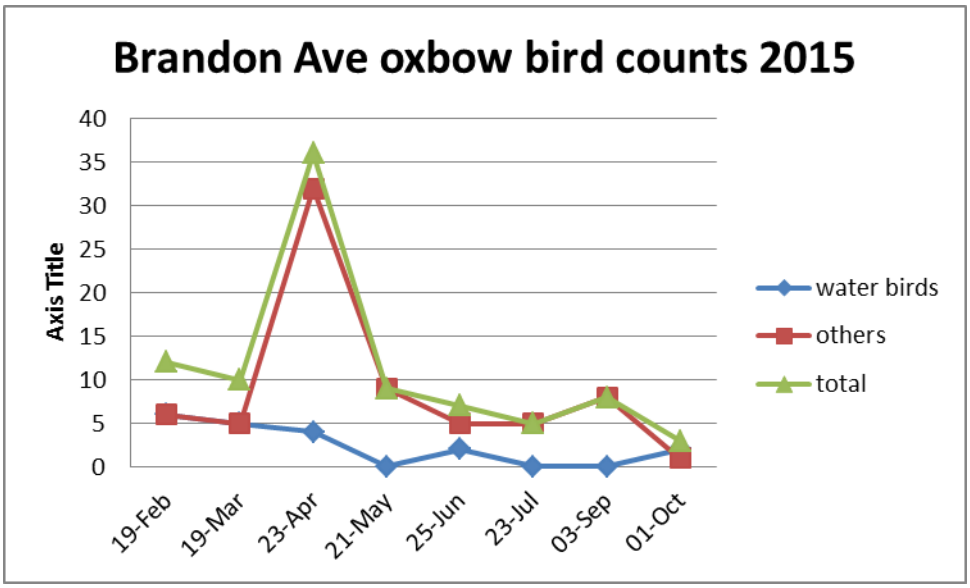
Falcon Court

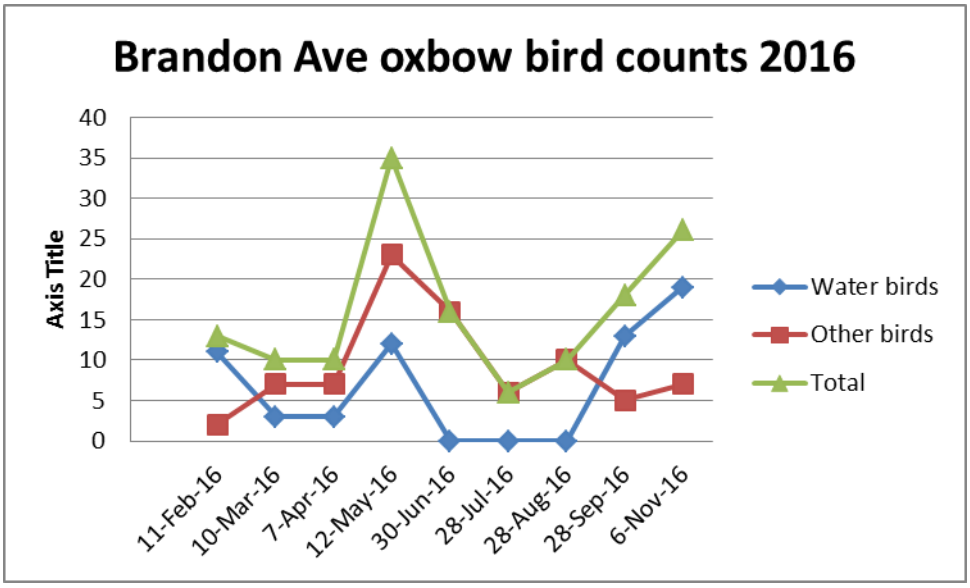


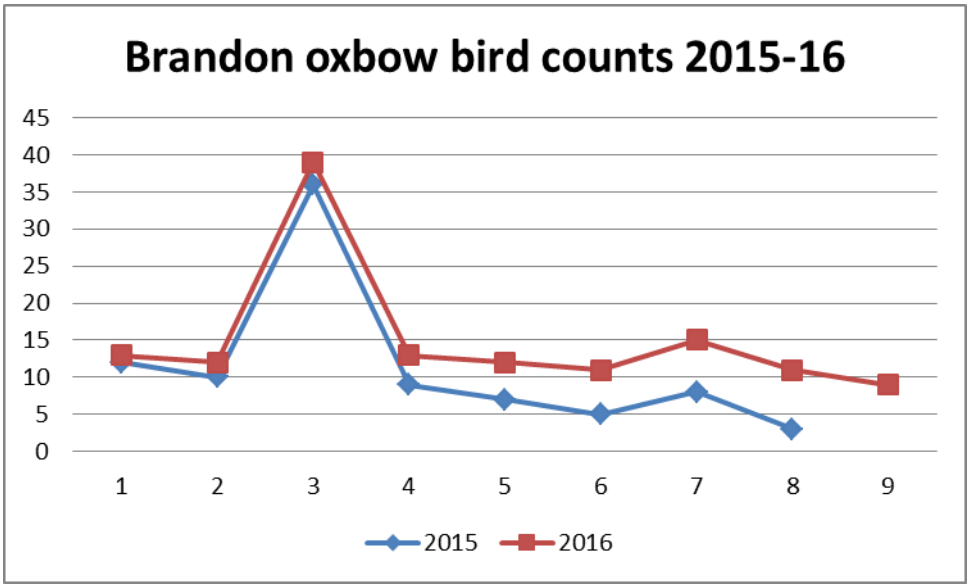

Falcon Court oxbow bird count 2016
Axis Title
160
140
120
100
80
60
40
20
0
1-Feb-16
1-Mar-16
1-Apr-16
1-May-16
1-Jun-16
1-Jul-16
1-Aug-16
1-Sep-16
1-Oct-16
1-Nov-16
Water birds
Other birds
Total


Falcon oxbow bird counts 2015-16
160
140
120
100
80
60
40
20
0
1
2
3
4
5
6
7
8
9
2015
2016

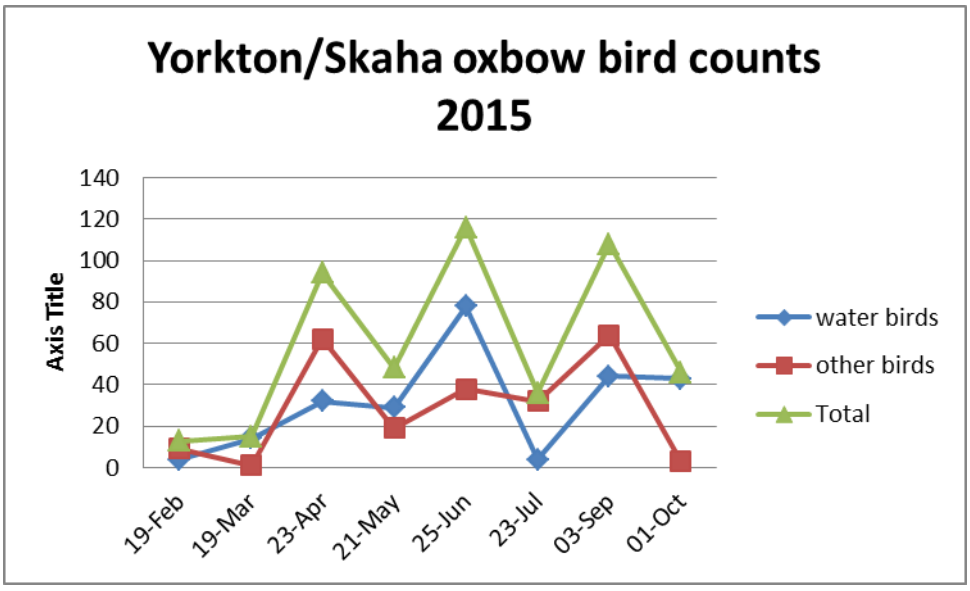
Brandon Ave oxbow

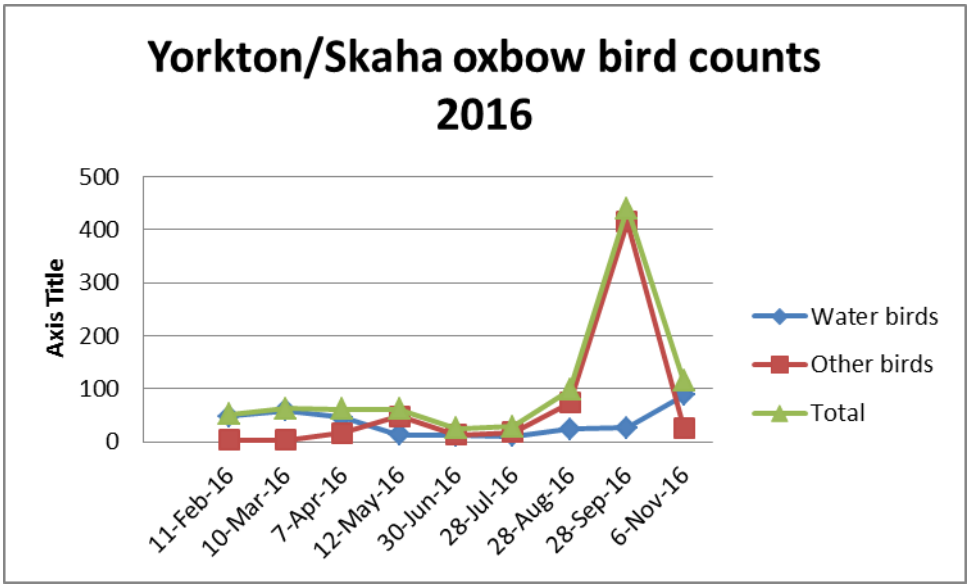


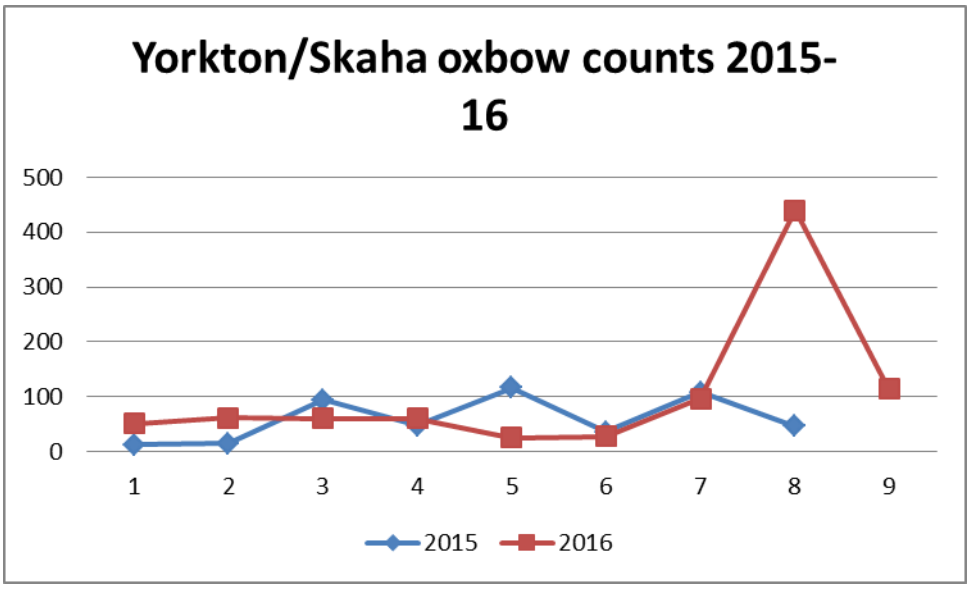


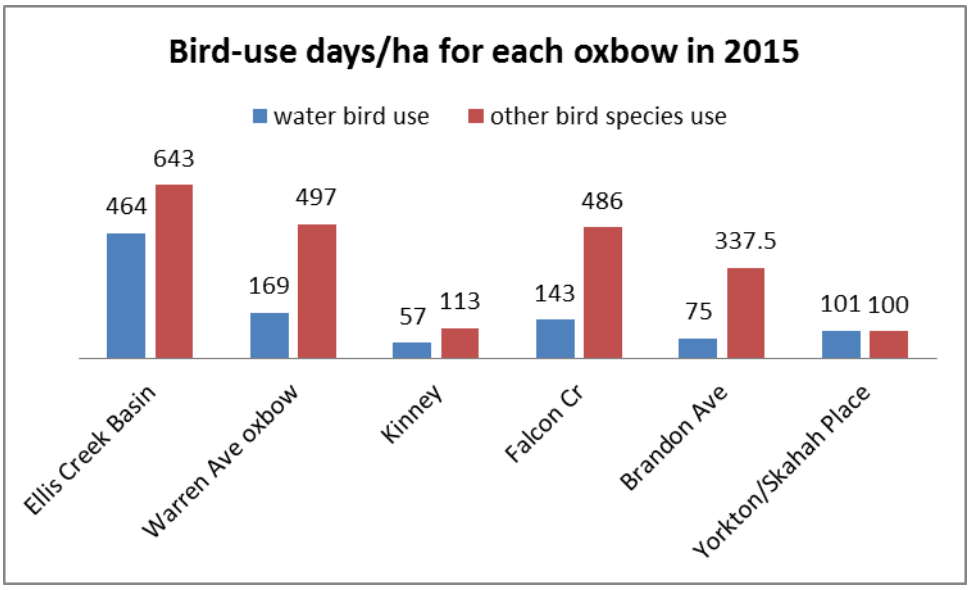


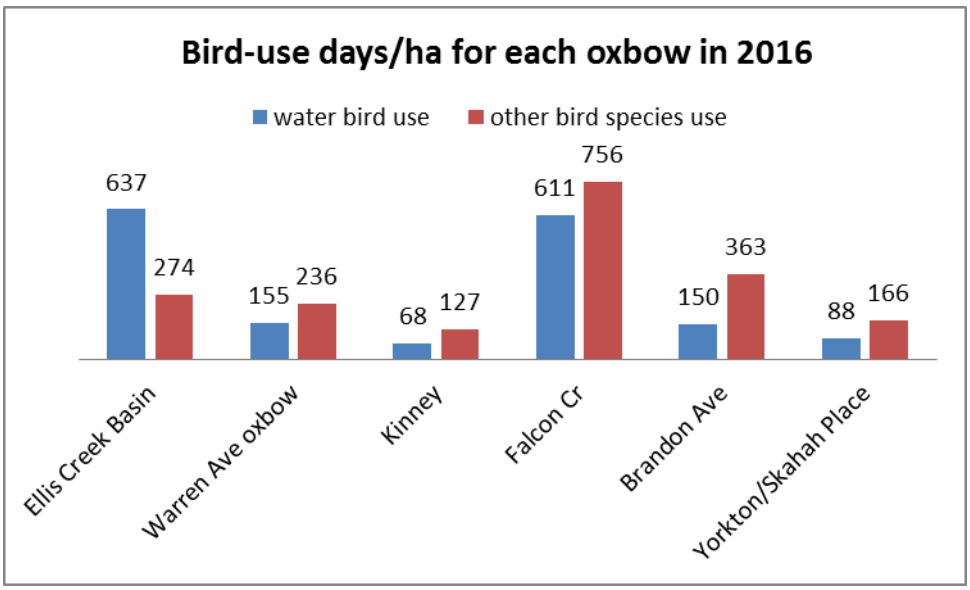
Yorkton Ave-Skaha Place oxbow

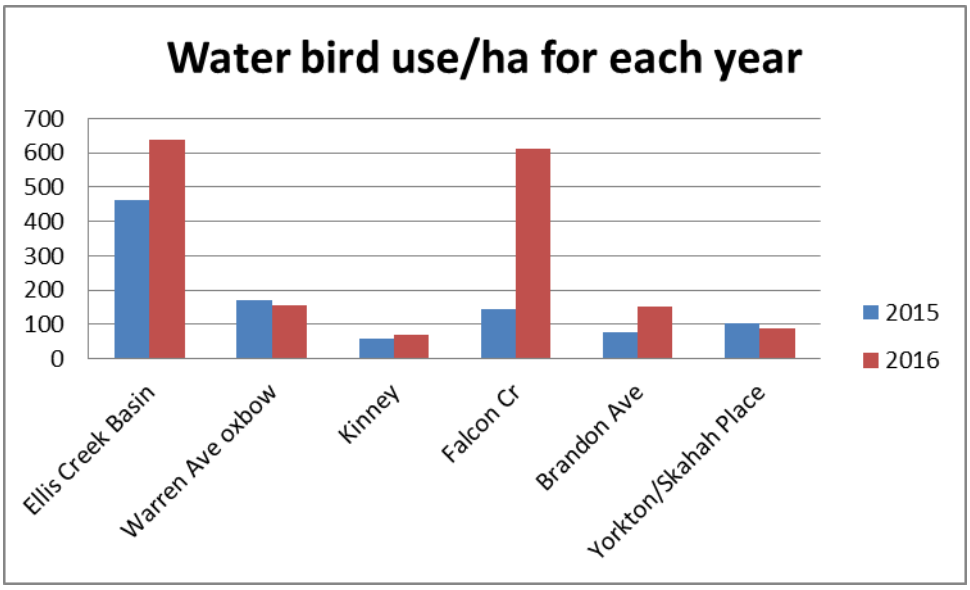


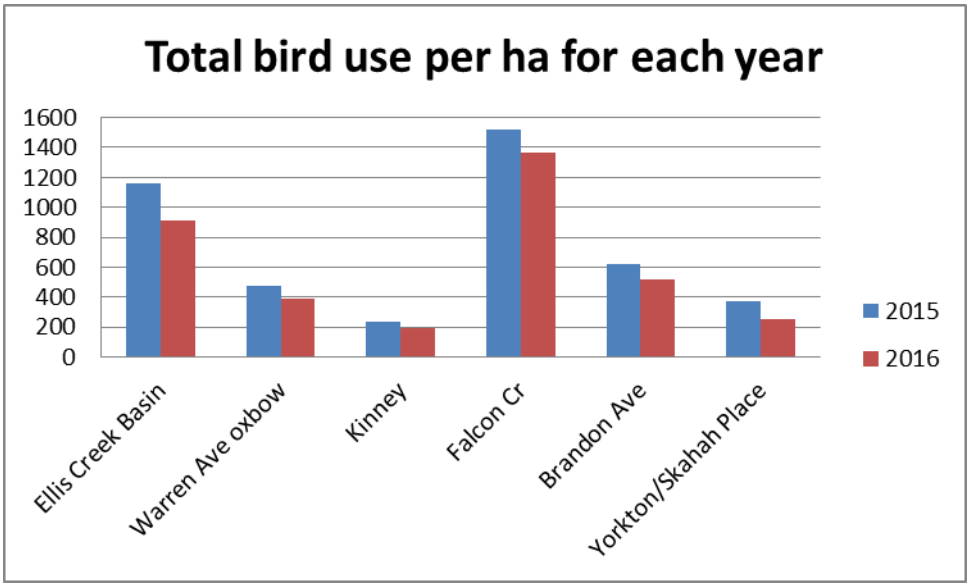

Yorkton/Skaha oxbow bird counts 2016
Axis Title
500
400
300
200
100
0
11-Feb-16
10-Mar-16
7-Apr-16
12-May-16
30-Jun-16
28-Jul-16
28-Aug-16
28-Sep-16
6-Nov-16
Water birds
Other birds
Total

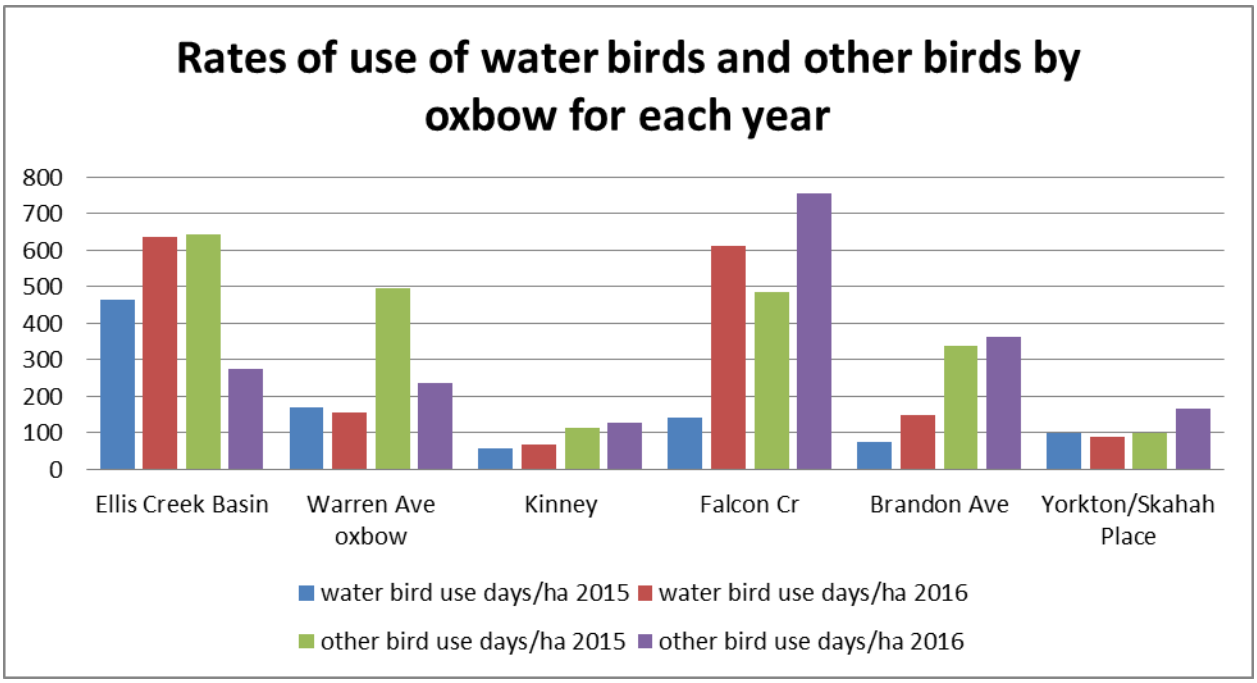

Yorkton/Skaha oxbow counts 2015-16
500
400
300
200
100
0
1
2
3
4
5
6
7
8
9
2015
2016


Bird-use days/ha for each oxbow in 2015
water bird use
other bird species use
464
643
169
497
57
113
143
486
75
337.5
101
100
Ellis Creek Basin
Warren Ave oxbow
Kinney
Falcon Cr
Brandon Ave
Yorkton/Skahah Place


Bird-use days/ha for each oxbow in 2016
water bird use
other bird species use
637
274
155
236
68
127
611
756
150
363
88
166
Ellis Creek Basin
Warren Ave oxbow
Kinney
Falcon Cr
Brandon Ave
Yorkton/Skahah Place


Water bird use/ha for each year
700
600
500
400
300
200
100
0
Ellis Creek Basin
Warren Ave oxbow
Kinney
Falcon Cr
Brandon Ave
Yorkton/Skahah Place
2015
2016


Total bird use per ha for each year
1600
1400
1200
1000
800
600
400
200
0
Ellis Creek Basin
Warren Ave oxbow
Kinney
Falcon Cr
Brandon Ave
Yorkton/Skahah Place
2015
2016


Rates of use of water birds and other birds by oxbow for each year
800
700
600
500
400
300
200
100
0
Ellis Creek Basin
Warren Ave oxbow
Kinney
Falcon Cr
Brandon Ave
Yorkton/Skahah Place
water bird use days/ha 2015
water bird use days/ha 2016
other bird use days/ha 2015
other bird use days/ha 2016