
BIRDS

AVIAN BIODIVERSITY IN AN URBAN PARK: BREEDING BIRDS OF THE HABITAT CONSERVATION AREA (2010-2014)

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INTRODUCTION

Since the establishment of the Wascana Game Preserve in 1913, habitat within Wascana Centre, a 930 hectare urban park, and around the City of Regina has changed significantly, from a treeless prairie to an urban forest surrounded by cropland. Many grassland songbird species such as the Western Meadowlark (*Sternella neglecta*), Say's Phoebe (*Sayornis saya*), McCown's (*Calcarius mccownii*) and Chestnut-collared Longspur (*Calcarius ornatus*), were once described as common summer residents, but are now rare or absent from the Regina area (Belcher 1980). Documenting the current avian biodiversity with the changes in habitat and climate is important.

The Habitat Conservation Area (HCA) within Wascana Centre, is a 9.3 ha piece of land that has been set aside for wildlife within the park. The HCA is a mixture of tame grassland, shrubs and tree rows, which is bordered to the

south and east by cattail, bulrush, willow marsh, along Wascana Creek. In 2010, the Wascana Monitoring Avian Productivity and Survivorship (MAPS) station was established in the HCA to monitor the local bird community.

Clarke and Ewart (2010) compared the first year of results from the MAPS station to a survey by Donison (1976) and found 19 species that had been found to breed in and around the HCA in 1975, were absent in 2010.

To further document current avian biodiversity and the importance of this area to birds, we initiated an opportunistic nest searching program in 2013-14. Here we report results from our MAPS observations (2010-2014) as well as the nest searching we conducted (2013-2014).

METHODS

MAPS 2010-2014 Breeding Status

As part of the MAPS protocol all birds observed during banding operations are recorded along

with their behaviour. Birds must be observed within 100 m of one of the MAPS mist nets to be included therefore the entire area of the HCA is not covered. Breeding status was assigned as *Confirmed*, if a current nest was found, a bird was seen carrying nesting material or food, performed a distraction display or a just fledged bird was observed. Breeding was *Probable* if singing, courtship/copulation or territorial behaviour was observed. If the bird was seen flying over the HCA, was banded or seen without exhibiting any of the territorial or breeding behaviours above it was recorded as *Observed*. At the end of the season, year status was assigned as Breeder, Likely Breeder, Transient, or Migrant. Species were then determined to be Regular Breeders (if believed to have bred every year), Usual Breeders (if >1/2 but not all, years), Occasional Breeder (<1/2 years), Transient (T; if not believed to have bred within the MAPS site), or Migrant (M; species not believe to breed in area).

Nest searching 2013-2014

Nest searching occurred opportunistically through the summer (May-August, 2013-2014). GPS locations, species, clutch or brood size, and vegetation structure around the nest were documented. Due to the relatively high human

presence in such a small area, we did not revisit nests regularly (particularly ground nests), unless it was easy to observe the nest without disturbing the birds (i.e. using binoculars from the path to confirm presence of chicks, etc). On June 24th, 2013 and July 17, 2014 we used a 20 m long drag rope to search for ground nesting species in the grass and marsh edge areas of the HCA. We did not search the cattail and bulrush dominated marsh along the southwest and west side of the HCA in either 2013 or 2014, nor did we search the tree/shrub rows on the east portion of the HCA in 2013.

RESULTS

MAPS 2010-2014 Breeding Status

During the Wascana MAPS program, 99 species of birds were observed in the HCA between June 10 and August 10, 2010-2014. Forty of these species were suspected or confirmed to breed in and around the HCA in at least one year (Table 1). Twenty four species were classified as Regular breeders, 7 species were usual breeders, and an additional 9 were Occasional breeders (see Table 1).

Nest searching 2013-2014

We located 118 nests in 2013-2014. In 2013, 55 nests of 20 species were located (5.9 nests/hectare; Figure 1) and 63 nests of

Table 1. Based on observations during the Wascana MAPS program (2010-2014), species breeding status was assessed for each year as a Confirmed Breeder (B), Likely Breeder (LB), Transient (T), or not recorded (-). Species were assigned a cumulative Breeding Status, if they breed within the Wascana MAPS site every year (Breeder, B), >1/2 of all years, but not all (Occasional Breeder, O), or <1/2 of all years (Unusual Breeder, U). The total number of nests located by nest searching in 2013 and 2014 is also presented. *Brown-headed Cowbird nests were those of other birds with cowbird eggs present.

Species	4-letter code	Wascana MAPS Breeding Status					Cumulative Breeding Status	Nest searching	
		2010	2011	2012	2013	2014		Total nests 2013	Total nests 2014
American Goldfinch	AMGO	B	B	B	B	B	B	3	3
American Robin	AMRO	B	B	B	B	B	B	2	2
American Wigeon	AMWI	B	B	B	B	B	B	1	1
Brown Thrasher	BRTN	B	B	B	B	B	B	0	0
Brown-headed Cowbird	BHCO	B	B	B	B	B	B	4	6
Canada Goose	CANG	L	B	B	B	L	B	1	0
Cedar Waxwing	CEDW	B	B	B	B	B	B	4	10
Clay-coloured Sparrow	CCSP	B	B	B	B	B	B	3	7
Common Grackle	COGR	B	B	L	B	L	B	1	1
Common Yellowthroat	COYE	B	B	B	B	B	B	2	0
Eastern Kingbird	EAKI	B	B	B	B	B	B	3	2
Gray Catbird	GRCA	B	B	B	B	B	B	3	2
House Wren	HOWR	B	L	B	B	B	B	0	0
Least Flycatcher	LEFL	B	B	B	B	B	B	0	1
Mallard	MALL	B	B	B	B	B	B	8	5
Mourning Dove	MODO	L	L	B	B	B	B	5	4
Northern Flicker	NOFL	B	B	L	L	L	B	0	0
Red-winged Blackbird	RWBL	B	B	B	B	B	B	5	2
Song Sparrow	SOSP	B	B	B	B	B	B	0	0
Sora	SORA	B	B	B	L	B	B	0	0
Tree Swallow	TRES	L	B	L	L	L	B	0	0
Warbling Vireo	WAVI	L	B	B	B	B	B	0	0
Western Kingbird	WEKI	B	B	B	B	B	B	2	1
Yellow Warbler	YEWA	B	B	B	B	B	B	7	16
Baltimore Oriole	BAOR	-	B	B	B	B	U	1	1
Blue-winged Teal	BWTE	T	B	B	B	L	U	1	0
Gadwall	GADW	B	B	T	B	B	U	1	2
House Finch	HOFI	-	L	T	L	L	U	0	0
Marsh Wren	MAWR	B	L	B	B	-	U	0	0
Nelson's Sparrow	NESP	L	-	-	B	B	U	0	1
Yellow-headed	YHBL	B	B	T	B	-	U	1	0

19 species were located in 2014 (6.7 nests/hectare; Figure 2). The four most common nests located were those of Yellow Warbler (n=23; *Dendroica petechia*), Cedar Waxwing (n=14; *Bombocilla cedrorum*), Mallard (n=7; *Anas platyrhynchos*) and Clay-colored Sparrow (n=9; *Spizella pallida*).

Interestingly, Yellow Warbler and Cedar Waxwing were also the species most commonly caught as part of the MAPS program.

Comparison between MAPS results and nest searching

We located nests of 17 of 24 Regular breeders (71%), 5 of 7

Usual breeders (72%) and 2 of 9 Occasional breeders (22%). Of the Regular breeders we did not locate nests of Brown Thrasher (*Toxostoma rufum*), House Wren (*Troglodytes aedon*), Northern Flicker (*Colaptes auratus*), Song Sparrow (*Melospiza melodia*), Sora (*Porzana carolina*), Tree Swallow (*Tachycineta bicolor*) or Warbling Vireo (*Vireo gilvus*).

Brown-headed Cowbird Parasitism

Brown-headed Cowbirds (*Molothrus ater*) had laid eggs in the nests of four different species in 2013 and 2014: Common Yellowthroat (n=2; *Geothlypis trichas*), Yellow Warbler (n=6), American Goldfinch (n=1; *Carduelis tristis*) and Clay-colored Sparrow (n=1). We were not able to check all nests to provide complete data on the frequency of parasitism.

DISCUSSION

Our nest searching and MAPS results show that the Habitat Conservation Area provides suitable nesting habitat for a variety of birds, despite not being native prairie. Despite relatively large numbers of birds banded as part of the MAPS program, we were surprised by the high density of nests in both 2013 and 2014 (5.9 and 6.7 nests/hectare, respectively). These values are still likely an underrepresentation

of the true nest density (particularly for species like Red-winged Blackbird), as we did not search the entire study area or throughout the nesting season. For example, we did not survey the marsh areas or the heavily treed shrub rows in 2013 (Fig. 1). As a result of the differences in nest searching between years, it is difficult to make any comparisons between years.

In Clarke and Ewart (2010) a comparison between the first year of MAPS and a survey in 1975 (Donison 1976) found 19 species were absent in 2010 that were confirmed breeding in Wascana Park in 1975. Over the following four years we observed 11 of those species in the HCA although none of the observations suggested they were breeding in the area as they had been in 1975. The remaining 8 species were still absent. These included Green-winged Teal (*Anas crecca*), Redhead (*Aythya americana*), American Bittern (*Botaurus lentiginosus*), Wilson's phalarope (*Phalaropus tricolor*), Loggerhead Shrike (*Lanius ludovicianus*), Horned Lark (*Eremophila alpestris*), European Starling (*Sturnus vulgaris*), and Vesper Sparrow (*Pooecetes gramineus*).

Noteworthy nests include a single Sedge Wren (*Cistothorus*

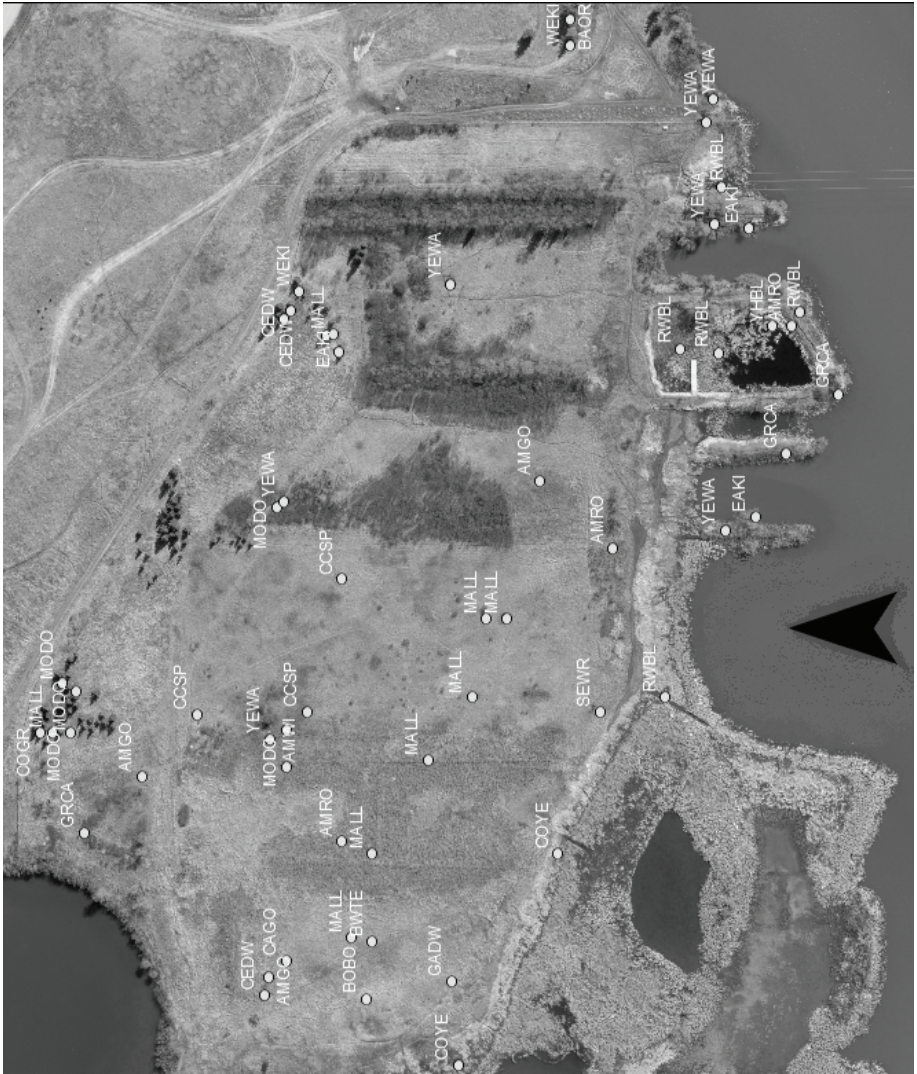


Figure 1. The Habitat Conservation Area (HCA), within Wascana Centre, showing approximate nest locations of 55 nests found between May - August, 2013. Species are listed by their 4 letter code. All nests are within the HCA fence, except for the BAOR, WEKI, and YEWA nest on the bottom right portion of the map. Note the BOBO nest was located in 2012.

platensis) nest located on June 24, 2013. It was an enclosed nest, constructed from Smooth

Brome Grass (*Bromus inermis*), and supported by a Western Snowberry (*Symphoricarpos*



Figure 2. Approximate nest locations in the Habitat Conservation Area (HCA) within Wascana Centre, for the 63 nests found between May - August, 2014. Species are listed by their 4 letter code. All nests are within the HCA fence, except for the WEKI, MODO, EAKI and YEWA nest on the bottom right portion of the map.

occidentalis) twig. It contained five white eggs. We do not know the outcome as we did not revisit

the nest. In 2013, at least five male sedge wrens were heard singing in the HCA. No sedge



Clay-colored Sparrow nest with three eggs, constructed on a Western Snowberry stem, in the Habitat Conservation Area in June 2013.

wrens were heard in 2010, 2011, or 2014.

We found nine Mourning Dove (*Zenaida macroura*) nests, two of them on the ground. In 2013, a nest with two half-grown young was located beneath an Absinth (*Artemisia absinthium*) plant, while in 2014 two eggs were found at the base of a small Prickly Rose (*Rosa acicularis*) stem and some

snowberry. The outcome of these nests is not known.

Lastly, in 2012, prior to our broad scale nest searching, we located a Bobolink (*Dolichonyx oryzivorus*) nest containing five young (fig. 1). We observed one newly-fledged Bobolink chick with an adult in 2013 confirming breeding in the area. Bobolinks were absent in 2010, 2011, 2014.

These records are of particular interest given the Bobolink's listing as Threatened by the Committee of the Status of Endangered Wildlife in Canada (COSEWIC).

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Literature Cited

Belcher, M. (1980). Birds of Regina. Saskatchewan Natural History Society. Regina, SK.

Clarke J, Ewart R. (2010) New monitoring avian productivity and survival (MAPS) station established in Wascana Centre, Regina, Saskatchewan, Summer 2010. *Blue Jay* 68: 174-178.

Donison, R. (1976). Regina Waterfowl Park Nesting Survey. *Blue Jay* 34:103-116.



Common Yellowthroat nest in the Habitat Conservation Area, within Wascana Centre, with two Brown-headed Cowbird chicks, June 2013.



Least flycatcher nest with young

-Jared Clarke



Tree swallow

- May Haga