

---

# BIRDS

---

## NEW 'MONITORING AVIAN PRODUCTIVITY AND SURVIVAL' (MAPS) STATION ESTABLISHED IN WASCANA CENTRE, REGINA, SASKATCHEWAN, SUMMER 2010

Jared B. Clarke<sup>1</sup>, Bob Ewart

Wascana Centre Authority, Box 7111, Regina, SK, S4P 3S7

<sup>1</sup>E-mail: <jared.clarke@wascana.sk.ca>

The 'Monitoring Avian Productivity and Survival' (MAPS) Program was established in 1989 by David DeSantes and the Institute for Bird Populations. There are currently over 500 MAPS stations across North America, with only three active stations in Saskatchewan, including Wascana Centre in Regina, SK. The program aims to monitor the population dynamics of North American landbird species. Banding stations set up mist nets and capture, band, age, and sex birds. With this information, it is possible to determine annual survival and reproduction estimates for many of the species captured. Population trends of the station's breeding bird populations can then be determined (e.g., within Wascana Centre). These trends can also be compared to other areas of similar habitat. On a large scale, the data can also be used to understand how broad landscape features influence survival and reproduction.

In 1975, a nesting survey was conducted in the Waterfowl Park (WP), within Wascana Centre.<sup>1</sup> This survey encompassed the entire WP, which includes the Habitat Conservation Area (HCA; see Fig. 1). Donison (1976)

confirmed breeding records for 67 species within the WP.<sup>1</sup> This survey provided an impressive amount of information, but was conducted in an opportunistic searching pattern. There has never been a standardized study conducted in Wascana Centre to monitor population trends of resident songbird species. Therefore, in 2010, Wascana Centre established a MAPS station to study the local breeding bird species. Here we discuss the results of the first year of monitoring.

### Methods

*Study site.* Wascana's MAPS station is set up in the HCA (Fig. 1), a fenced area that was set aside for wildlife in 1962. The HCA is located along Wascana Creek within the city of Regina, SK. The University of Regina sits opposite the HCA on the other side of the creek. The area was formerly privately owned and used as market gardens. The main habitat is a planted tame grassland, dominated by crested wheatgrass (*Agropyron cristum*) and smooth brome grass (*Bromus inermis*). Some native wildflowers, including goatsbeard (*Tragopogon dubius*), woolly yarrow (*Achillea millefolium*), and Canada anemone (*Anemone canadensis*) can be found here as well. *Caragana* sp.

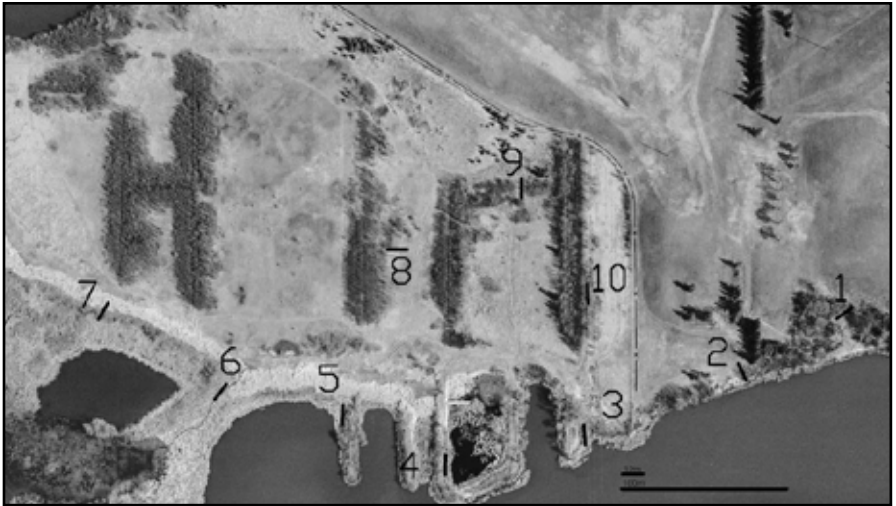


Figure 1. Net locations of the Wascana MAPS station, within Wascana Centre, Regina, SK. The perimeter fence around the Habitat Conservation Area starts to the right of net 3, extends north and then northwest. Nets 1 and 2 are outside of the HCA. Note that the H-shaped *Caragana* row on the west side of the HCA was removed in 2009.

hedgerows originally used to delineated individual properties have spread dramatically; however, a large portion of these rows was removed in 2009. The south and west sides of the HCA are bordered by Wascana Creek and surrounding marsh dominated by cattails (*Typha* sp.), bulrush (*Scirpus* sp.), and willow (*Salix* sp.).

**Netting.** Following standardized MAPS protocol, mist nets were used at the station for 6 days during summer 2010 as follows: 15 and 26 June; 7, 16, and 30 July; and 6 August. Ten 12-m mist nets were set up within the HCA, spaced approximately 50 to 100 m apart. Nets were opened at sunrise at each session and closed 6 h later. Mist nets were checked approximately every 30 min for captured birds. All birds were removed from the net, placed in a cloth bag, and taken to the banding station for processing. Each bird was banded, weighed, sexed, and aged (e.g., see Fig. 2, inside back cover, top). We also

collected a variety of morphological information, including development of a brood patch, cloacal protuberance, fat deposits, and feather moult and wear. Once the measurements were complete, the bird was released.

**Observations.** Observations were also made of all birds seen/heard during each session. Based on the behaviour or general observation made, breeding status was assigned as Confirmed (current nest found, carrying nesting material, carrying food, distraction display, or local, just fledged, bird present); Probable (courtship/copulation, territorial behaviour, song); or Observed (banded, encountered, flyover). After all sessions were completed, year status was assigned as Breeder, Likely Breeder, Transient, or Migrant.

## Results

**Netting.** In total, nets were open for 36 h (432 net-hours), and 386 birds of 26 species were captured. Of those, 332

**Table 1. Species and total birds captured as part of the Wascana MAPS station within the Habitat Conservation Area during the 2010 breeding season. Recaps: recaptures.**

Species	Total	
	Banded	Recaps
Yellow Warbler	99	18
Gray Catbird	38	11
American Robin	28	2
Red-winged Blackbird	27	1
American Goldfinch	24	4
Clay-colored Sparrow	14	2
Cedar Waxwing	12	4
Common Yellowthroat	12	3
Least Flycatcher	11	1
House Wren	9	2
Song Sparrow	9	2
Yellow-headed Blackbird	9	1
Trail's Flycatcher	7	0
Brown Thrasher	6	0
Warbling Vireo	5	1
Marsh Wren	4	1
Brown-headed Cowbird	3	1
Tennessee Warbler	3	0
Western Kingbird	3	0
Chipping Sparrow	2	0
Sora	2	0
Barn Swallow	1	0
Common Grackle	1	0
House Finch	1	0
Lincoln's Sparrow	1	0
Northern Flicker	1	0
<b>Total</b>	<b>332</b>	<b>54</b>

were newly banded, while 54 recaptures were made during a later session (Table 1). Therefore, the capture rate was 0.9 birds per net-hour. Comparisons of age classes were made of the four species that were most frequently captured this summer (HY: Hatch Year, SY: Second Year, ASY: After Second Year, AHY: After Hatch Year; Table 2). The proportion of HY birds was relatively high (>40%) for yellow warblers (*Dendroica petechia*), gray catbirds (*Dumetella carolinensis*), and American robins (*Turdus migratorius*), while only a small proportion of HY red-winged blackbirds (*Agelaius phoeniceus*) were captured.

**Table 2. Age classes of the four most-frequently captured species at the Wascana MAPS station in 2010. HY: Hatch Year, SY: Second Year, ASY: After Second Year, AHY: After Hatch Year**

Species	Age Class			
	HY (%)	SY (%)	ASY (%)	AHY (%)
Yellow Warbler	41 (41)	27 (27)	21 (21)	10 (10)
Gray Catbird	20 (53)	3 (8)	14 (37)	1 (3)
American Robin	20 (71)	4 (14)	3 (11)	1 (4)
Red-winged Blackbird	6 (22)	7 (26)	14 (52)	0

**Observations.** During the six sessions, 49 species were observed within the study area (Table 3). Breeding was confirmed for 23 species, breeding was likely for an additional 19 species, and five transient species and two migrant species were also observed. We also compared the species list from the study conducted in Waterfowl Park in 1976 (Table 3). Nineteen species that were present in 1975 were absent in 2010. Conversely, eight species that were documented in 2010 were not noted in 1975, four of which were Breeders or Likely Breeders.

### Discussion

This is the first time a standardized study focusing on breeding birds within Wascana Centre has been undertaken. Because 2010 was the first year of the study, we have no current data to which we can compare our results. Donison's (1976) methodology was completely different from that of our study,<sup>1</sup> and therefore, no large-scale comparisons between the data sets can be made. We are able to simply compare the two lists of species noted during the two studies (see Table 3).

It is possible to compare age classes within species from this breeding season to determine potential nesting success. Table 2 shows that high proportions of young birds were captured for

**Table 3. Breeding status of bird species identified during the Wascana MAPS station's first year of operation (2010) and of those noted by Donison (1976).<sup>1</sup> Breeding status was assigned based on results from 2010. B: Breeder, LB: Likely Breeder, T: Transient, M: Migrant, X: documented in 1975, but not in 2010. Species highlighted in bold were observed in 2010, but not in 1975. Note that species not observed near the Habitat Conservation Area in 1975 have been omitted.**

Species	Breeding Status	Species	Breeding Status	Species	Breeding Status
Canada Goose	B	Common Tern	X	American Robin	B
Gadwall	B	Forster's Tern	X		
American Wigeon	B	Black Tern	T	Gray Catbird	B
Mallard	B			Brown Thrasher	B
Blue-winged Teal	LB	Rock Pigeon	LB		
Northern Shoveller	X	Mourning Dove	LB	European Starling	X
Northern Pintail	LB				
Green-winged Teal	X	Black-billed Cuckoo	X	Cedar Waxwing	B
Canvasback	LB				
Redhead	X	<b>Belted Kingfisher</b>	M	<b>Tennessee Warbler</b>	M
Ruddy Duck	LB			Yellow Warbler	B
		<b>Downy Woodpecker</b>	LB	Northern Waterthrush	X
Gray Partridge	LB	Northern Flicker	B	Common Yellowthroat	B
Pied-billed Grebe	LB	Least Flycatcher	B	Chipping Sparrow	B
Eared Grebe	B	Western Kingbird	B	Clay-colored Sparrow	B
Western Grebe	LB	Eastern Kingbird	B	Vesper Sparrow	X
				Savannah Sparrow	X
<b>American White Pelican</b>	T	Loggerhead Shrike	X	<b>Nelson Sharp-tailed Sparrow</b>	LB
<b>Double-crested Cormorant</b>	T			Song Sparrow	B
		Warbling Vireo	B		
American Bittern	X			Red-winged Blackbird	B
		American Crow	LB	Western Meadowlark	X
<b>Cooper's Hawk</b>	LB			Yellow-headed Blackbird	B
		Horned Lark	X	Brewer's Blackbird	X
Merlin	LB			Common Grackle	B
		Purple Martin	LB	Brown-headed Cowbird	B
Sora	B	Tree Swallow	LB	Baltimore Oriole	
American Coot	X	Bank Swallow	X		
		Barn Swallow	LB	American Goldfinch	B
Killdeer	LB			<b>House Finch</b>	B
		House Wren	B		
Spotted Sandpiper	X	Marsh Wren	B		
Wilson's Phalarope	X				

yellow warblers, gray catbirds, and American robins during the breeding season, suggesting that these birds had good local reproductive success in 2010. Interestingly, low numbers of adult American robins were captured. This capture rate is likely low due to the adults' ability to escape from the nets because of their large size (i.e. they are too large for the mist net holes) in addition to the adults' behaviour of continually struggling once captured

in the net and typically escaping. Only 22% of red-winged blackbirds captured were HY birds, which is much lower than the other three species, suggesting that this species did not have as successful a breeding season. However, it is more likely that the earlier nesting behaviour of red-winged blackbirds would have resulted in fledged young and adults already dispersing from the area by the first session on 16 June. More in-depth analysis will be available

for most species once multiple years of data have been acquired.

### **Acknowledgements**

The Wascana Centre Authority (WCA) thanks the numerous volunteers who came out and helped us each session. Special thanks to A. Crosby, J. Martino, G. Sheperd, A. Fortney, T. Vass, R. Fisher, G. Foley, and the crew from Nature Conservancy of Canada. We also acknowledge the dedication of R. Clarke, who attended each session to ensure that quality data

were collected during the banding process. WCA thanks the Friends of Wascana Marsh for their financial support needed to establish this station. Thanks also to S. Davis for comments on an earlier draft of this manuscript. **Visit Wascana Centre's website for more information about the Centre and our monitoring programs: [www.wascana.ca](http://www.wascana.ca).**

1. Donison R (1976) Regina Waterfowl Park nesting survey. *Blue Jay* 34:103-116.



*Great egret (Ardea alba), photographed at Highfield Dam, southwest of Herbert, SK, on 27 September 2010. The last time it was seen was on 3 October.*

*Randy McCulloch*