Delta Marsh Bird Observatory interim report: 1997

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Introduction

The Delta Marsh Bird Observatory (DMBO) is a member of the Canadian Migration Monitoring Network. Its next nearest neighbors are Last Mountain Bird Observatory in Saskatchewan, and Thunder Cape Bird Observatory in Thunder Bay. As the only station in Manitoba, it plays a critical role in helping address the paucity of information on the status of songbird populations in the central prairie provinces.

Traditionally noted for an abundance of waterfowl, Delta Marsh is also a primary stopover site for migrating songbirds. The narrow strip of trees growing on the dune ridge between the lake and the marsh provides a natural migration pathway, making it an ideal place to situate a monitoring station. In addition, food sources from the marsh and lake make possible large numbers of migrating passerines to be funneled through the narrow forest ridge. These "huge quantities" of birds have earned DMBO the reputation of being the busiest monitoring station in Canada.

Methods

DMBO operates on a daily basis during the spring and fall migration periods. It follows an established protocol which involves banding, a daily census and other continuous observations. The spring and fall banding stations are located on the forested dune ridge which lies between Lake Manitoba and Delta Marsh. Spring banding occurred during 1 May to 30 May at the Delta Waterfowl and Wetlands Research Station, located 5 km to the east of the University Field Station (UFSDM); fall banding was conducted at UFSDM from 10 July to 28 September.

Banding starts early in the day, about ½ hour before sunrise, and continues for six hours except under adverse weather conditions. This is important as some species disappear after the first hour or so of light while others do not appear until later. DMBO runs a series of ten mistnets that are checked every ½ hour, or more frequently if necessary. All mistnets are a standard 3 x 12 meter, four tier design with a 30 mm nylon mesh. Net opening and closing times are also noted so that trapping effort can be recorded.

Upon removal from the net, each bird is identified and banded. We then record its wing length, fat condition, primary molt, and weight. In addition, when possible, age and sex are also determined. The birds are then released.

A census is also done 1-2 hours after sunrise along a predetermined route and takes about 45 - 60 minutes each day. The objective of the census is to count as many of the birds present as possible within the defined count area by counting all birds identified by sight or sound along the census route. Incidental but continuous observations are made by banders and other observers throughout the six hour banding period. This is done to account for visibly migrating birds and indicate general movements overlooked by the banding or census alone.

Daily Estimated Totals (ETs) are derived daily and based on banding totals, the daily census, and other observations. They are the best estimates of the numbers of each species present in (or migrating through) the station area each day. Although estimates, they are more realistic than any of the three methods on their own.

In addition to our monitoring function, blood and feather samples were taken from a subset of birds captured to be used in genetics and stable-isotope analyses. DMBO also collected live ticks from captured birds for the Lyme Disease Association of Ontario to help assess the spread of the disease.

Results

Hagan *et al.* (1994) suggested that a long-term commitment is required to obtain measurements of population changes that are amenable to useful interpretation. Therefore, a minimum of 5 years of counts is needed to give any reliable indication of population trends, although 10 years or more are desirable. With this in mind, DMBO will start to analyze the phenology of migration starting this year but will continue to incorporate data and assess population trends in subsequent years.

The 1997 banding season was an interesting one. In total, fall numbers were about average compared to other years. The spring, however, was dismal. The cold weather played a major role in the spring migration (or lack thereof). Although the first part of the season was

warm enough to melt (most of) the 60 cm of snow that had fallen in early April, the temperature turned bitterly cold during the third week of May. The peak of spring migration, theoretically in full swing by then, was delayed and virtually non-existent.

The effects of the weather were dramatic. We caught over 400 birds on 22 May, a huge backlog of spring migrants. All traces of the spring rush had vanished by the next day, when only 49 birds were caught. Although there was another small rush (100+ birds) over the next few days, it was quite apparent by the end of May that many of the spring migrants had bypassed us. Our spring total for 1997 was only 1,502 captures compared to over 3,000 during each of the previous two years. This equaled 1.0 birds caught per mistnet hour, as compared to 1.8 in 1995 and 1996 (Table 1).

The fall banding captures totalled 5,683 birds of 80 species, at a rate of 1.4 birds per mistnet hour. Only 66 species were recorded during the spring migration. Fortunately, we did not have as large an influx of Yellow Warblers as we had had in 1996 (2,117 of them!). However, it is interesting to note that in 1994, 1995 and 1997, the numbers of Yellow Warblers caught were nearly identical at 1,436, 1,436 and 1,429, respectively, despite the variation in sampling effort (Table 2).

The 1997 fall season was an especially good one for sparrows. In fact, for most of these species, the numbers caught were higher than in all previous years of fall banding. Perhaps this can be attributed to the unusually warm 20+ degree temperatures we experienced during most of September.

In the fall of 1996, we collected blood samples from 40 “very pale” and 40 “very bright” coloured hatch-year (HY) Yellow Warblers. Dr. Lisle Gibbs of McMaster University conducted DNA analyses on the samples in an effort to determine if Yellow Warblers can be sexed by their pale (female) or bright (male) plumage. Prior to the 1997 field season, the DNA sex determination results came back positive; in other words, the bright birds were all males and the pale birds were all females. We were then able to determine reliably the sex of HY Yellow Warblers by their plumage. The color amongst individuals within this species varies dramatically, however, and we plan to investigate this further in 1998. We will attempt to ascertain whether the gender of HY Yellow Warblers can also be determined using the intermediate shades of their pale and bright plumage.

Acknowledgements

This project has benefitted from the efforts of several people. In particular, I thank Tanya Dixon, Jonathan Scarth, Dr. Bob Jones, Dr. Keith Hobson, Dr. Spencer Sealy, Paula Grieef, Joyce Tomchuk, Joanne Tuckwell and Ray Pettinger. I would also like to thank the following organizations and individuals for their generous support: Delta Waterfowl Foundation, Canadian Wildlife Service (Environment Canada), The Province of Manitoba - Special Conservation Fund, TransCanada PipeLines, John and Lucy Hartwell, Dean and Penny Hatten, Manitoba Hydro, The James L. Baillie Memorial Fund, Ducks Unlimited Canada, Manitoba Naturalists Society, Friesens Corporation, and The University of Manitoba Field Station (Delta Marsh). Last but not least, DMBO would like to extend special thanks and appreciation to the Bell Family for graciously allowing us to band on their property.

References

Hagan, J.M. III, K.A. Hobson, D.J.T.N. Nur, C.J. Ralph. 1994. Recommended methods for monitoring bird migration. Prepared by the Intensive Sites Technical Committee of the Migration Monitoring Council. 22pp.

Table 1. Delta Marsh Bird Observatory spring banding summary, 1995-1997.

Species	1995	1996	1997	Species	1995	1996	1997
Sharp-shinned Hawk	0	3	2	Cape May Warbler	9	28	11
Black-billed Cuckoo	1	0	0	Myrtle Warbler	291	97	85
Yellow-bellied Sapsucker	2	2	0	Black-throated Green W	2	0	2
Downy Woodpecker	2	0	0	Blackburnian Warbler	2	0	2
Hairy Woodpecker	0	0	1	Palm Warbler	62	24	20
Yellow-shafted Flicker	0	1	0	Bay-breasted Warbler	1	2	2
Olive-sided Flycatcher	1	0	0	Blackpoll Warbler	146	44	28
Eastern Wood Pewee	0	1	0	Black-and-white Warbler	38	34	51
Yellow-bellied Flycatcher	10	8	1	American Redstart	93	118	31
Traill's Flycatcher	74	96	2	Ovenbird	21	43	12
Least Flycatcher	124	155	87	Northern Waterthrush	24	24	16
Eastern Phoebe	1	0	0	Connecticut Warbler	3	3	2
Eastern Kingbird	11	14	2	Mourning Warbler	10	13	3
Tree Swallow	140	7	0	Common Yellowthroat	115	183	35
Barn Swallow	0	2	0	Wilson's Warbler	89	62	30
Blue Jay	6	10	1	Canada Warbler	8	11	4
Black-capped Chickadee	0	0	2	Rose-breasted Grosbeak	13	7	13
Red-breasted Nuthatch	1	0	0	Eastern Towhee	0	0	2
Brown Creeper	7	4	2	American Tree Sparrow	3	8	7
House Wren	56	27	25	Chipping Sparrow	25	5	19
Winter Wren	3	0	0	Clay-colored Sparrow	54	30	56
Sedge Wren	0	1	0	Savannah Sparrow	7	2	4
Marsh Wren	1	0	0	Sharp-tailed Sparrow	0	1	0
Golden-crowned Kinglet	7	6	2	Fox Sparrow	12	71	5
Ruby-crowned Kinglet	182	116	49	Song Sparrow	33	26	12
Wood Thrush	0	0	1	Vesper Sparrow	0	2	0
Veery	5	4	9	Lincoln's Sparrow	13	43	23
Gray-cheeked Thrush	20	23	18	Swamp Sparrow	12	30	12
Swainson's Thrush	44	62	45	White-throated Sparrow	183	248	96
Hermit Thrush	49	88	101	White-crowned Sparrow	11	9	3
American Robin	15	6	14	Harris' Sparrow	10	5	5
Gray Catbird	85	69	43	Slate-coloured Junco	24	39	2
Brown Thrasher	8	6	11	Red-winged Blackbird	13	9	9
Cedar Waxwing	6	265	0	Yellow-headed Blackbird	14	13	16
Solitary Vireo	7	2	1	Common Grackle	2	1	0
Warbling Vireo	16	12	4	Brown-headed Cowbird	13	6	13
Philadelphia Vireo	4	5	1	Orchard Oriole	1	5	0
Red-eyed Vireo	8	15	1	Baltimore Oriole	35	37	36
Golden-winged Warbler	1	0	0	Purple Finch	3	0	0
Tennessee Warbler	181	74	27	Pine Siskin	16	0	0
Orange-crowned Warble	74	58	35	American Goldfinch	35	16	6
Nashville Warbler	20	33	48	Total Species	75	70	66
Yellow Warbler	495	501	231	Total Birds	3164	3074	1502
Chestnut-sided Warbler	10	5	3	Total Mistnet Hours	1760	1732	1512
Magnolia Warbler	41	94	59	Birds/Mistnet Hour	1.8	1.8	1.0

Table 2. Delta Marsh Bird Observatory fall banding summary, 1992-1997. (*Banding data for 1992-94 conducted by the banding program of Dr. K. Hobson, Canadian Wildlife Service)

Species	'92	'93	'94	'95	'96	'97
Sharp-shinned Hawk	1	11	4	2		
Mourning Dove	3	5	6	3	1	4
Black-billed Cuckoo	3	4	17	3	1	
Common Nighthawk	1					
Whip-poor-will	1					
Yellow-bellied Sapsucker	5	2	7	2	3	2
Downy Woodpecker	12	21	9	11	10	7
Hairy Woodpecker	8	15	4	6	6	10
Yellow-shafted Flicker	4	10	9	11	5	7
Olive-sided Flycatcher	1	2				
Eastern Wood Pewee	27	26	19	16	12	21
Yellow-bellied Flycatcher	25	2	6	9	2	6
Traill's Flycatcher	26	42	19	55	32	9
Least Flycatcher	102	76	210	127	126	126
Eastern Phoebe	11	17	16	9	16	19
Great Crested Flycatcher	1	1	4	2		
Eastern Kingbird	26	17	17	18	7	26
Tree Swallow	87	363	125	92	377	269
Northern Rough-winged Swallow	1	1				
Bank Swallow	6	5	8	3	9	
Cliff Swallow	1	1				
Barn Swallow	18	13	15	33	54	32
Blue Jay	1	2				
Black-capped Chickadee	1	5	18			
Boreal Chickadee	1					
Red-breasted Nuthatch	2	63	7	32	3	37
White-breasted Nuthatch	4	4	3	4	5	3
Brown Creeper	3	13	10	11	1	18
House Wren	78	40	104	101	59	103
Winter Wren	1	1	2			
Marsh Wren	2	4	10	23	44	30
Golden-crowned Kinglet	4	16	7	5	3	1
Ruby-crowned Kinglet	55	101	99	128	24	99
Veery	5	2	2	1	1	
Gray-cheeked Thrush	10	15	10	14	1	14
Swainson's Thrush	101	81	92	148	55	84
Hermit Thrush	5	11	31	48	7	19
American Robin	52	58	62	66	33	36
Gray Catbird	114	82	79	102	49	58
Brown Thrasher	2					
Cedar Waxwing	13	8	19	18	8	8
Solitary Vireo	11	5	8	9	3	6
Yellow-throated Vireo	1	1				
Warbling Vireo	45	33	86	56	48	33
Philadelphia Vireo	9	9	12	5	2	4
Red-eyed Vireo	22	17	15	16	13	19
Golden-winged Warbler	1	2				
Tennessee Warbler	91	207	1100	284	622	563
Orange-crowned Warbler	21	51	51	69	14	44

Species	'92	'93	'94	'95	'96	'97
Nashville Warbler	13	37	109	33	51	51
Yellow Warbler	970	832	1436	1436	2117	1429
Chestnut-sided Warbler	15	4	17	10	21	11
Magnolia Warbler	42	51	40	27	38	49
Cape May Warbler	2	15	25	23	12	22
Black-throated Blue Warbler	1	1	1			
Myrtle Warbler	74	566	432	341	369	300
Black-throated Green Warbler	2	4	4	2	4	5
Blackburnian Warbler	3	11	1	4	6	
Palm Warbler	3	14	13	5	20	26
Bay-breasted Warbler	6	2	6	2	7	9
Blackpoll Warbler	29	49	50	60	19	41
Black-and-white Warbler	88	37	67	50	54	48
American Redstart	260	122	179	120	301	238
Ovenbird	32	40	55	57	53	36
Northern Waterthrush	191	199	211	173	155	195
Connecticut Warbler	2	1	2	2	2	1
Mourning Warbler	15	14	21	35	30	34
Common Yellowthroat	32	43	199	105	229	188
Wilson's Warbler	31	8	10	32	73	51
Canada Warbler	31	14	23	32	18	18
Northern Cardinal	1					
Rose-breasted Grosbeak	36	32	32	55	19	20
Eastern Towhee	2	1				
American Tree Sparrow	1	1				
Chipping Sparrow	12	19	28	32	45	67
Clay-colored Sparrow	4	8	12	72	28	93
Savannah Sparrow	1					
Fox Sparrow	1	4	12	9	3	9
Song Sparrow	107	113	155	199	194	274
Lincoln's Sparrow	10	3	10	8	4	21
Swamp Sparrow	2	7	5	20	4	19
White-throated Sparrow	51	93	123	124	31	196
White-crowned Sparrow	2	2	1	5		
Harris' Sparrow	3	2	1	5	3	13
Slate-coloured Junco	10	114	45	77	15	164
Red-winged Blackbird	5	37	117	72	56	
Yellow-headed Blackbird	1	14	7	12		
Common Grackle	6	3	12	13	14	9
Brown-headed Cowbird	12	2	12	9	14	7
Orchard Oriole	5	24	10	11	14	
Baltimore Oriole	46	35	124	104	71	30
Purple Finch	1	1	3	2	2	2
Pine Siskin	19	9	12	23	6	148
American Goldfinch	21	29	15	23	36	29
Total Species	81	77	81	81	79	80
Total Birds	3206	3990	5878	5028	5817	5683
Total Mistnet Hours	2917	4027	4674	5091	3827	4118
Birds/Mistnet Hour	1.1	1.0	1.3	1.0	1.5	1.4