

AVIAN HABITAT PREFERENCES AND IMPLICATIONS FOR MANAGEMENT OF THE MAUMEE BAY STATE PARK WETLAND, 1999

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ABSTRACT

Avian species utilizing wetland habitats at Maumee Bay State Park were studied in 1999 with constant-effort mist netting and vegetation surveys to determine their distribution, population status, breeding success and habitat preference. Habitat types sampled included swamp-forest, beach-ridge, cattail marsh and Phragmites stands.

Data was collected utilizing the protocol for the Monitoring Avian Productivity and Survivorship (MAPS) program. Data indicated that individual species showed preferences for particular habitats, but additional study is needed to look for indicator species that could represent habitat management goals.

INTRODUCTION

Of special concern in Ohio are avian species dependant upon various wetland habitats, much of which has been destroyed and/or converted to agriculture, marinas, condominiums, and urban/suburban sprawl. 95% of Ohio's wetlands have been lost since historic times. This in-depth study was undertaken to obtain a better understanding of the bird use in this little known part of the Maumee Bay State Park and to assess that use in an attempt to manage for its wetland potential.

Equally important to acquiring knowledge for management of rare species on public lands is the need to educate the public about wetlands-dependant species and efforts to restore their habitat. The knowledge acquired from this study will be used to develop new programs designed to inform the public about the importance of Ohio's remaining wetlands, and the species who reside in them.

MATERIALS AND METHODS

Mist Netting - Constant effort mist netting was utilized, patterned after the Monitoring Avian Productivity and Survivorship (MAPS) program. The project utilized twelve nets, operated on a schedule of one every ten-day period from early June through the middle of August. This method was chosen to reduce net bias and interference with the breeding birds, while providing an indication of possible breeding and productivity.

Four (12 X 6m, 30 mm mesh) nets were placed in each of four distinct habitat types. These habitat types consisted of swamp-forest, beach-ridge, cattail marsh, and Phragmites stands. Data collected on the captured birds included species, age, sex, fat, mass, molt, breeding status, time and net of capture.

Site Descriptions - The Maumee Bay State Park wetland area consists of approximately 80 acres of marsh - swamp forest habitat. The area which is today Maumee Bay was once part of a much larger ecosystem known as The Great Black Swamp, which was systematically drained in the late 1800's and early 1900's by pioneers and settlers in northwest Ohio. The residual wetland at Maumee Bay State Park consists of several overlapping habitat types, four of which were sampled through the mist-netting efforts. Little habitat management has occurred in this area since the time it was acquired by the State, and much of the area is being invaded by exotic invasive species, such as *Phragmites australis* (phragmites or giant reed) and *Lythrum salicaria* (purple loosestrife).

RESULTS

Bird use based on mist netting results in the four habitats was compared. Banding dates and capture rates are shown in Table 1. A total of 128 birds of 20 species were banded. Another 31 birds were recaptured, having been previously banded and released. Table 2 shows the summary of all species captured. A listing of species captured by net location appears in Table 3.

Bird species as indicators within each sampled habitat were based on mist net data and are shown in Table 4. Indicator species showed a fairly strong fidelity to certain habitats and their presence as breeders might serve as indicators of a habitat type. It must be recognized that there are other factors that effect presence or absence of species, but additional years of data should fine-tune the use of these indicator species for land management.

The swamp-forest habitat had the greatest numbers of birds captured and banded, with 55. The habitat with the next largest number of birds captured was the beach-ridge, with 46 birds, which was followed closely by the cattail marsh, with 39. The phragmites habitat had the fewest number of captured birds, with 16 total banded.

The habitat with the greatest number of species captured was the beach ridge, with 11 species. This was followed by cattail marsh, with 10 species captured, then swamp-forest, with 9 species. The habitat with the least number of captured species was the phragmites, with a total of only 4 species.

While two years is inadequate to assess productivity at this scale, banding did provide confirmation of eighteen breeding species (Table 5).

DISCUSSION

As indicated earlier, many species showed a preference for individual habitat types. The beach-ridge habitat was predicted to show the greatest number and diversity of birds, and the initial data concurred. The original hypothesis was that phragmites habitat would show the least species diversity and richness, and this also seemed to be the case. These conclusions cannot be deemed absolute, however, and management recommendations must be made carefully. It will be important to continue the monitoring initiated here to eliminate short-term bias, establish trends, and to evaluate habitat manipulation.

TABLE 1 Maumee Bay Wetland Banding Station Capture Rates by Banding Date, 1999

Date	Net Hours	# Birds Banded	# Recaps	Total Birds	Birds/100 Net Hours
June 7	72	18 +1	6	25	34
June 18	72	25	2	27	38
June 28	72	20	6	26	36
July 5	72	19	8	27	38
July 19	72	17	5	22	31
July 27	72	17	3	20	28
August 3	72	12	0	12	17

TABLE 2 Maumee Bay Banding Station Summary of Species captured, 1999

	# Birds Banded	# Recaptures	Total
COYE (common yellowthroat)	19	7	26
AMGO (American goldfinch)	5	0	5
YWAR (yellow warbler)	2	0	2
BCCH (black-capped chickadee)	3	0	3
WIFL (Willow flycatcher)	1	0	1
HOWR (house wren)	4	0	4
RWBL (red-winged blackbird, F)	19	6	25
RWBL (red-winged blackbird, M)	12	incl.	12
GRCA (gray catbird)	6	5	11
NOCA (Northern cardinal)	4	2	6
BAOR (Baltimore oriole)	1	1	2
SOSP (song sparrow)	1	0	1
DOWD (downy woodpecker)	2	3	5
INBU (indigo bunting)	3	1	4
REVI (red-eyed vireo)	3	1	4
FISP (field sparrow)	1	0	1
AMRO (American robin)	14	4 +1	19
COGR (common grackle)	18	0	18
AMWO (American woodcock)	1	0	1
RTHU (ruby-throated hummingbird)	8	0	8
OVEN (ovenbird)	1	0	1
TOTAL # BANDED BIRDS	128		
TOTAL # RECAPTURES		31	
TOTAL # BIRDS CAPTURED		159	
TOTAL NUMBER OF SPECIES:	20		

TABLE 3: Species Captured and Net Location by Habitat

Net 1 Swamp-Forest

NOCA 1
 AMRO 8
 COGR 2
RECAPS: 0

11 birds, 3 species

Net 2 Beach Ridge

REVI 1
 GRCA 4
 RWBL 3
 AMRO 1
 COGR 6

RECAPS:
 DOWO 1
 GRCA 3

19 birds, 6 species

Net 3 Beach Ridge

COYE 2
 REVI 1
 RWBL 6
 BAOR 1
 AMRO 2
 AMWO 1
 RTHU 1

RECAPS:
 NOCA 1
 AMRO 2
 COYE 1

18 birds, 8 species

Net 4 Beach Ridge

REVI 1
 NOCA 1
 AMRO 1
 RWBL 1

RECAPS:
 GRCA 1
 BAOR 1
 RWBL 1
 DOWO 2

9 birds, 7 species

Net 5 Phragmites

COYE 3
 GRCA 1
 RWBL 2

RECAPS: 0

6 birds, 3 species

Net 6 Phragmites

COYE 1
 WIFL 1
 RWBL 2

RECAPS: 0

4 birds, 3 species

Net 7 Cattail Marsh

YWAR 1
 AMGO 2
 COYE 6
 INBU 1
 SOSP 1
 RWBL 2
 RTHU 3

RECAPS:
 COYE 1

17 birds, 7 species

TABLE 3 Continued: Species Captured and Net Location by Habitat

Net 8 Cattail Marsh

AMGO	2
COYE	2
HOWR	1
RTHU	4
RECAPS:	
COYE	2
AMRO	1

12 birds, 5 species

Net 9 Cattail Marsh

YWAR	1
COYE	1
HOWR	1
INBU	2
RWBL	2
RECAPS:	
COYE	2
GRCA	1

10 birds, 6 species

Net 10 Phragmites

COYE	4
RWBL	1
RECAPS:	
RWBL	1

6 birds, 2 species

Net 11 Swamp-Forest

AMGO	1
FISP	1
OVEN	1
RWBL	6
DOWO	1
AMRO	2
COGR	8
RECAPS:	
AMRO	1
RWBL	1
REVI	1

23 birds, 8 species

Net 12 Swamp-Forest

HOWR	2
BCCH	3
DOWO	1
RWBL	6
NOCA	2
GRCA	1
AMRO	1
COGR	2
RECAPS:	
RWBL	3
NOCA	1

21 birds, 8 species

TABLE 4 Birds Species as Indicators of Habitats Sampled

SWAMP FOREST Nets 1, 11, 12

Total number of birds banded: Net 1 – 11 Net 11 – 23 Net 12 – 21

TOTAL – 55 birds, 9 species

Dominant species captured: **AMRO, RWBL, COGR**

BEACH RIDGE Nets 2, 3, 4

Total number of birds banded: Net 2 – 19 Net 3 – 18 Net 4 – 9

TOTAL – 46 birds, 11 species

Dominant species captured: **COGR, RWBL, GRCA**

PHRAGMITES STAND Nets 5, 6, 10

Total number of birds banded: Net 5 – 6 Net 6 – 4 Net 10 – 6

TOTAL – 16 birds, 4 species

Dominant species captured: **COYE, RWBL, GRCA**

CATTAIL MARSH Nets 7, 8, 9

Total number of birds banded: Net 7 – 17 Net 8 – 12 Net 9 – 10

TOTAL - 39 birds, 10 species

Dominant species captured: **COYE, RTHU, AMGO**

TABLE 5 Confirmed Breeding Bird Species

HATCHING YEAR BIRDS:

BCCH	RWBL
COYE	GRCA
HOWR	AMRO
WIFL	COGR
DOWO	RTHU
NOCA	SOSP

12 - HY SPECIES

BREEDING CONDITION ADULTS:

YWAR
FISP
REVI
INBU
BAOR
AMWO

6 AHY / SY SPECIES

TOTAL CONFIRMED BREEDING BIRD SPECIES - 18

Habitat manipulation, such as prescribed burning and spraying of exotic vegetation, which was scheduled to begin in the spring of 1998, was delayed due to adverse weather conditions. Additionally, the summer of 1999 experienced a severe drought for most of the growing season, which may have had some impact on breeding bird densities and species usage of the various marsh habitats. Whatever the reason, the banding season of 1999 had very low capture rates, compared to the previous year. In 1998 a total of 313 birds were captured, compared to 159 in 1999. Also, total numbers of bird species recorded was 20 % less in 1999 than in 1998, 20 species compared to 25 species the previous year. Individual species densities showed remarkable changes as well. For instance, in 1998, 19 yellow warblers were captured, compared to 2 in 1999. Other Neotropical migrant species were also missing or found in reduced numbers, including orchard oriole, Carolina wren, Prothonotary warbler, and indigo bunting. Whether these short-term changes were due to adverse weather conditions, or are a result of globally declining numbers of Neotropical migratory songbirds, or are due to increasing percentages of exotic and invasive plant species, can only be borne out through additional study and banding data collection.