SPRING MIGRATION SONGBIRD BANDING AT DAVIS BAYOU, GULF ISLANDS NATIONAL SEASHORE 2000-2001

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Introduction

Stopover sites are critical habitat for Neotropical migrant songbirds along major migration pathways, such as the Gulf Coast of Mississippi, Texas and Florida (Moore and Simons 1992, Winker et al. 1992). However, a paucity of data exists concerning the role of small coastal stopover sites. Moore and Simons (1992) and their co-workers demonstrated the vital role of barrier islands as stopover sites, but the use and suitability of mainland coastal stopover sites, such as the Davis Bayou Unit at Gulf Islands National Seashore, has been infrequently studied.

The importance of small coastal habitat fragments may be increasing. Intensive economic development of coastal areas (e.g., casinos, suburban sprawl) has resulted in the loss of large areas of suitable habitat for both Neotropical migrant and resident bird species. Thus, within the landscape context of the Gulf Coast, small habitat fragments may provide critical stopover habitat for foraging and resting before songbirds resume migration. Further, barrier islands cannot provide enough suitable foraging habitat alone.

Protected areas, such as Davis Bayou, provide critical habitat for a wide range of migratory songbirds. Our objective was to document use of a small coastal habitat fragment by Neotropical migrant songbirds during spring migration 2000-2001.

Methods

We conducted our research at the Davis Bayou Unit of Gulf Islands National Seashore, Ocean Springs, Mississippi from 18 March to 7 May 2000 (16 sampling days) and from 24 March to 25 April 2001 (21 sampling days). We mist-netted songbirds at 3 sites within the Davis Bayou Unit and one site on Horn Island for comparative purposes. Habitats sampled included scrub-shrub and mixed pine-hardwood forest. Sampling was conducted from approximately 06:00-10:00 and 15:00-19:00 during good weather conditions. All birds, except Ruby-throated Hummingbirds, were marked with a uniquely-numbered U. S. Fish and Wildlife Service band. We recorded age, sex, and morphometric measurements including wing length, tail length, body mass, and fat score for each bird. Further morphometric measurements were taken if warranted (e.g., identification of *Empidonax* flycatchers).

Results

We documented 64 migrant songbird species during spring 2000 at the Davis Bayou Unit of Gulf Islands National Seashore (Table 1). During spring 2000, we mist-netted 200 birds and successfully banded 195 individuals. Five Ruby-throated Hummingbirds were mist-netted in 2000, but not banded. We banded 146 individuals of 27

Neotropical migrant species and 49 individuals of 8 resident species (Table 2). During spring 2001, we documented 67 migrant songbird species at the Davis Bayou and Horn Island Units of Gulf Islands National Seashore (Table 1). We mist-netted 103 birds and successfully banded 100 individuals. Three Ruby-throated Hummingbirds were mist-netted, but not banded. We banded 75 individuals of 23 Neotropical migrant species and 25 individuals of 8 resident species (Table 3).

Discussion

Although this project was limited in scope and logistics, our results demonstrate the valuable role of small coastal habitat fragments on the Mississippi Gulf Coast. Many birds marked in this study occupied or used scrub-shrub habitats including several thrush species, Hooded Warbler, Kentucky Warbler, Ovenbird, Gray Catbird, and White-eyed Vireo. The strong representation of understory birds was a function of habitat present, but also reflects the height of mist-nets used in this study (i.e., low capture probability for bird species using the overstory). The greatest proportion of habitat at Davis Bayou was mixed pine-hardwood forest. This habitat had a sparse understory which limited the number of captures and species marked such as Red-eyed Vireo, Bay-breasted Warbler, Blue-winged Warbler, Prothonotary Warbler, and Magnolia Warbler. However, we documented a wide range of midstory and overstory species through area surveys including tanagers, grosbeaks, flycatchers, and buntings.

Although we did not attempt mist-netting in the overstory, forest canopies at Davis Bayou appeared to provide extensive foraging opportunities for migratory

songbirds. Due to overstory canopy closure, many areas of Davis Bayou have limited understory vegetation and a reduced midstory. These structural factors reduced the utility of these stands for foraging by understory birds (i.e., thrushes) and midstory species (i.e., flycatchers, tanagers). Specifically, many berry producing plants, which provide critical energy sources for migrants, are excluded by extensive shading from overstory canopy closure. Limited thinning and prescribed burning would encourage shrubby understory growth and enhance the foraging habitat available to migrant songbirds.

Acknowledgments

We are extremely grateful to A. Arrington, S. Baillie, A. Casale, D. Hengstenberg, W. Nimitz, J. and J. Thompson, L. Welch., D. Wilkins, and N. Winstead for volunteering their time and efforts as field assistants. Special thanks to H. Schramm and the Mississippi Cooperative Fish and Wildlife Research Unit for logistical and administrative support. We thank J. Eubanks, G. Hopkins, R. Hoggard, and the Davis Bayou Unit staff for administrative support.

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Table 1. Bird species documented at the Davis Bayou Unit of the Gulf Islands National Seashore, Ocean Springs, Mississippi during spring 2000-2001. The four-letter alpha codes are defines at bottom of this table. Migratory status is defined as (M) = migrant and (R) = resident species. An "X" indicates species was observed on the study site but not banded and an "#" indicates the number of individuals captured and banded.

Species	2000	2001	Species	2000	2001
ACFL (M)	1	1	NOFL (R)		2
AMRE (M)	X	X	NOMO (R)	1	3
AMRO (M)	X	X	NOPA (M)	X	X
BAOR (M)		X	NRWS (M)	X	X
BARS (M)	X	X	NOWA (M)	2	X
BBWA (M)	1	X	OCWA (M)	X	
BBCU (M)	X		ORIOR (M)		2
BAWW (M)	1	X	OSPR (R)	X	X
BTNW (M)	X	X	OVEN (M)	9	1
BGGN (M)	X	X	PABU (M)	X	X

BLGR (M)		1	PAWA (M)		1
BLJA (R)	3	2	PRAW (M)		2
BWWA (M)	1	X	PIWO (R)		1
BWHA (M)	X	X	PROW (M)	3	2
BRTH (M)	6	1	PUMA (M)	X	X
BHCO (R)		1	RBWO (R)	3	
CMWA (M)		X	REVI (M)	3	1
CACH (R)	3		RWBL (R)		1
CARW (R)	12	7	RBGR (M)	X	
CEDW (M)		X	RCKI (M)	X	1
CSWA (M)	X	X	RTHU (M)	5	3
CHSW (M)	X	X	SAVS (M)		X
CWWI (M)	X	X	SCTA (M)	X	X
CONI (M)	X	X	SSHA (M)	X	
COYE (M)	4	X	SUTA (M)	X	X

COHA (R)	X	X	SWTH (M)	1	X
DOWO (R)	1		SWWA (M)		1
EAKI (M)	X	X	STKI (M)		X
EAPH (M)	X	X	SWSP (M)		2
EATO (M)	4	3	TEWA (M)	X	X
EAWP (M)	X	X	TRES (M)		X
GCKI (M)	X		TUTI (R)	9	
GWWA (M)	X		VEER (M)	9	X
GRCA (M)	9	11	WPWI (M)	X	
GCTH (M)	4	X	WEVI (M)	10	19
BITH (M)	1		WTSP (M)		2
GCFL (M)	1	1	WOTH (M)	25	X
HETH (M)	X	X	WEWA (M)	4	3
HOWA (M)	21	10	YBSA (M)		X
HOWR (M)	X	X	YBCU (M)	X	1

INBU (M)	7	2	YBCH (M)	X	X
KEWA (M)	11	4	YRWA (M)	1	3
LEFL (M)	X		YTVI (M)	X	X
MAWA (M)	1	X	YEWA (M)	X	X
NOCA (R)	17	8			

ACFL = Acadian Flycatcher; AMRE = American Redstart; AMRO = American Robin; Baltimore Oriole; BARS = Barn Swallow; BBWA = Bay-breasted Warbler; BBCU = Black-billed Cuckoo; BAWW = Black-and-white Warbler; BTNW = Black-throated Green Warbler; BGGN = Blue-gray Gnatcatcher; BLGR = Blue Grosbeak; BLJA = Blue Jay; BWWA = Blue-winged Warbler; BWHA = Broad-winged Hawk; BRTH = Brown Thrasher; BHCO – Brown-headed Cowbird; CMWA = Cape May Warbler; CACH = Carolina Chickadee; CARW = Carolina Wren; CEDW = Cedar Waxwing; CSWA = Chestnut-sided Warbler; CHSW = Chimney Swift; CWWI = Chuck-will's-widow; CONI = Common Nighthawk; COYE = Common Yellowthroat; COHA = Cooper's Hawk; DOWO = Downy Woodpecker; EAKI = Eastern Kingbird; EAPH = Eastern Phoebe; EATO = Eastern Towhee; EAWP = Eastern Wood-Pewee; GCKI = Golden-crowned Kinglet; GWWA = Golden-winged Warbler; GRCA = Gray Catbird; GCTH = Gray-cheeked Thrush; BITH = Bicknell's Thrush; GCFL = Great Crested Flycatcher; HETH = Hermit Thrush; HOWA = Hooded Warbler; HOWR = House Wren; INBU = Indigo Bunting; KEWA = Kentucky Warbler; LEFL = Least Flycatcher; MAWA = Magnolia Warbler; NOCA = Northern Cardinal; NOFL = Northern Flicker; NOMO = Northern Mockingbird; NOPA = Northern Parula; NRWS = Northern Rough-winged Swallow; NOWA = Northern Waterthrush; OCWA = Orange-crowned Warbler; ORIOR = Orchard Oriole; OSPR = Osprey; OVEN = Ovenbird; PABU = Painted Bunting; PAWA = Palm Warbler; PRAW = Prairie Warbler; PIWO = Pileated Woodpecker; PROW = Prothonotary Warbler; PUMA = Purple Martin; RBWO = Red-bellied Woodpecker; REVI = Red-eyed Vireo; RWBL = Red-winged Blackbird; RBGR = Rose-breasted Grosbeak; RCKI =

Ruby-crowned Kinglet; RTHU = Ruby-throated Hummingbird; SAVS = Savannah Sparrow; SCTA = Scarlet Tanager; SSHA = Sharp-shinned Hawk; SUTA = Summer Tanager; SWTH = Swainson's Thrush; SWWA = Swainson's Warbler; STKI – Swallow-tailed Kite; SWSP = Swamp Sparrow; TEWA = Tennessee Warbler; TRES = Tree Swallow; TUTI = Tufted Titmouse; VEER = Veery; WPWI = Whip-poor-will; WEVI = White-eyed Vireo; WTSP = White-throated Sparrow; WOTH = Wood Thrush; WEWA = Worm-eating Warbler; YBSA = Yellow-bellied Sapsucker; YBCU = Yellow-billed Cuckoo; YBCH = Yellow-breasted Chat; YRWA = Yellow-rumped Warbler; YTVI = Yellow-throated Vireo; YEWA = Yellow Warbler