

Final Report, Year 1

Breeding season avian use and nesting census of Milan Bottoms,
Rock Island County, Illinois

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EXECUTIVE SUMMARY

1. The Milan Bottoms (MB) bird community was censused at 51 points during the summer of 1999.
2. Sixty-eight species were recorded, which makes this an unusually diverse bird community for a forest tract of this size.
3. The community was dominated by very large populations of species that prefer swampy backwaters and open, disturbed forest (e.g., Great Blue Heron, Wood Duck, Red-headed Woodpecker, Black-capped Chickadee, House Wren, Tree Swallow, Warbling Vireo, Prothonotary Warbler, American Redstart, Song Sparrow, Baltimore Oriole, Common Grackle, and Red-winged Blackbird). Several species occurred at higher abundances than have been estimated in any other forest site in Illinois (Wood Duck, Downy Woodpecker, Black-capped Chickadee, House Wren, Warbling Vireo, and Song Sparrow).
4. Illinois Threatened and Endangered Species included the Red-shouldered Hawk, Yellow-crowned Night Heron, and one of the State's largest populations of Brown Creepers.
5. Relatively low populations were detected of species that depend upon mature, closed forest on natural levees and other slightly elevated areas.
6. There is a large, long-term rookery of Great Blue Herons to complement the healthy winter roost of Bald Eagles.
7. Although occasional nest predators such as House Wrens, grackles, Blue Jays, and crows were abundant in the forest, very few cowbirds were detected.

8. Most of the dominant species nesting in Milan Bottoms are relatively well protected from nest predators by nesting in cavities, defending their nests aggressively, and renesting many times following nest predation.
9. I recommend a management program aimed at maintaining and enhancing mature portions of the forest.

INTRODUCTION

The Milan Bottoms represents one of the largest remaining tracts of floodplain forest along the Mississippi River of Illinois. Because of widespread habitat destruction and damage by the extreme floods of 1993 and 1995, remaining floodplain forest has great potential value as breeding habitat for a variety of regionally rare species. Several species on the List of Endangered and Threatened Species for Illinois depend mostly on floodplain forest, including the Yellow-crowned Night Heron, Red-shouldered Hawk, and Brown Creeper, all of which nest in northern Illinois. In addition, regionally rare Cerulean Warblers reach their greatest abundance in floodplain forest (G. Vonderah, unpubl. data). Large floodplain forests also have the potential to provide a buffer against high abundances of nest predators such as Blue Jays and brood-parasitic Brown-headed Cowbirds.

For these reasons, we undertook a census of the bird community of the Milan Bottoms. Our overall goal was to help guide management of the forest. Our specific objectives were: (1) to search for populations of threatened, endangered, and rare species; (2) estimate abundances of all breeding species; (3) estimate abundances of nest predators and brood parasites; and (4) look for evidence of edge effects on avian abundance, both aquatic and agricultural edges.

METHODS

Censuses were conducted from 5 June to 15 July, 1999, during the morning hours 0530-1130. Censuses were not begun earlier in the season because of high water levels. All censuses used in this report were conducted by Kelly McKay. Census points were established on an approximate grid at 300m intervals. Census points that were in

standing water were either eliminated entirely or moved to the nearest dry land if that land was located less than 50m away. River edge points were located within 20m of the river, whereas points located near the agricultural edge were located at least 50m from the nearest edge. Many census points in the forest interior were actually located along river channels and other backwater openings.

Each census point was visited twice, the first time in June and the second visit in July. As soon as the observer arrived at the point, he began describing all birds heard or observed into a portable tape recorder. The identity, compass direction, and distance to the point were estimated for every bird. For territorial species, only singing males or family groups were counted. For non-territorial species (Common Grackles, herons, waterfowl, European Starlings, swallows), individuals were counted. Birds heard during three time periods (0-5 min, 5-6 min, 6-8 min, 8-10 min) were recorded separately to facilitate comparisons with other studies. Because of the extraordinary abundance of birds in many floodplain forests, we elected to use all birds recorded within 50m of the census point during the entire 10-minute count as our basic descriptor of abundance. There were often too many birds to record during a "standard" 5-minute count and the high density near the point may reduce detection efficiency beyond 50m, as evidenced by a very rapid detection rate/unit area beyond 50m (unpubl. analysis).

Census points were divided into river edge points (those located within 50m of the Mississippi River) (N=14), forest interior points (those located at least 30m from agriculture or the river) (N=25), and agricultural edge points (those within 100m of the row crops) (N=12).

RESULTS

Species richness. Of the 68 species recorded on the census, two were migrants (both sandpipers), and two were only recorded overhead (Chimney Swift, Double-crested Cormorant). One other species was only recorded along the agricultural edge (Brown Thrasher).

Threatened and Endangered Species. Only one Yellow-crowned Night Heron was detected. Diurnal censuses, however, do not census this nocturnal/crepuscular species very efficiently. Red-shouldered Hawks were detected at a number of points suggesting possibly more than one pair. Brown Creepers were by far the most abundant threatened species in the forest with several sub-populations in areas with standing live and dead trees in shallow water. The overall abundance of 0.2-0.3 birds/50m radius point is one of the highest abundances ever recorded in the State for this inconspicuous and non-vocal species. There may be over 50 pairs in the Milan Bottoms, which would make it one of the most important populations in the State.

Numerically dominant territorial species. More than most forest bird communities, Milan Bottoms was dominated by a few very abundant species. The House Wren abundance was, by far, the highest every record in the State. The overall population of this species in Milan Bottoms probably exceeds 1,000 pairs. Given the nest-predatory habits of this species, this huge population may pose a significant threat to some other species. Downy Woodpeckers were more abundant in this forest than in any other area I have censused to date, as were Black-capped Chickadees. Song Sparrows reached extraordinarily high population densities in more disturbed sections of the forest. The population density of Song Sparrows in Milan Bottoms was by far the highest yet

recorded in a forest habitat in Illinois. This species, however, also reaches comparable population densities in many non-forested habitats. The Baltimore Oriole and Warbling Vireo, two species of relatively open habitats with scattered trees were also common in Milan Bottoms, mainly in heavily disturbed sections. American Redstarts were abundant, especially in Silver Maples near water; this species was generally abundant in the floodplain forests of the Upper Mississippi River. Red-winged Blackbirds were patchily abundant in shrub-dominated swamps. All of the most abundant species in Milan Bottoms were typical of highly disturbed forests and more open habitats in general.

Numerically dominant, non-territorial species. One of the most striking aspects of the Milan Bottoms community was the very high abundance of non-territorial species. There is a large rookery of Great Blue Herons and, apparently, a nearby colony of Bank Swallows, which forage abundantly over the river. Wood Duck populations were also very high in the backwaters of the Milan Bottoms where they were recorded at a higher rate than in any other forest I have censused. Tree Swallows nested in and foraged abundantly over the backwaters of the forest. The counts for Milan Bottoms are the highest I have ever recorded in a floodplain forest, no doubt because of the many open backwater areas. Northern Rough-winged Swallows mainly appeared as post-breeding wanderers, but were sometimes observed in flocks of up to 60. Turkey Vultures roosted along the river and were routinely observed flying overhead. Chimney Swifts were also regularly observed overhead and may nest in some of the larger snags. European Starlings nested abundantly throughout Milan Bottoms in snags; their abundance was the highest ever recorded in a forest habitat in Illinois. Common Grackles, a facultative nest predator, were very abundant, especially in June.

Other typical floodplain forest species. In addition to the species already described, several other floodplain species were typically abundant. Prothonotary Warblers were recorded near all backwater areas in numbers typical of Mississippi River forests. Red-headed Woodpeckers were also patchily abundant within the forest.

Southern species. Several rare species are at or near the northern limit of their breeding ranges. Yellow-throated Warblers were present, but probably only a few pairs nested in the entire forest. One pair of Carolina Wrens was detected. Northern Parulas were detected once; Milan Bottoms is in the middle of an area that has historically lacked this species. A few pairs of Blue-gray Gnatcatchers were scattered throughout Milan Bottoms.

"Forest-interior" species. In general, species characteristic of closed-canopy forests were rare or uncommon in Milan Bottoms. Only one male Cerulean Warbler was detected and Red-eyed Vireos were less abundant than usual. No tanagers were detected, but they are rare in most floodplain forests in Illinois. Yellow-throated vireos, Eastern Wood-Pewees, and Great Crested Flycatchers, which occur in both closed and moderately disturbed canopies, were detected at typical abundances in Milan Bottoms compared with other floodplain forests. Pileated Woodpeckers, which also tolerate moderate disturbances, were recorded at low population densities throughout Milan Bottoms.

Shrubland species. Perhaps because of late floods, species that nest in shrubs and in annual plants were comparatively uncommon in Milan Bottoms. Gray Catbirds, Yellow Warblers, Common Yellowthroats, and Indigo Buntings were all recorded in relatively low population densities only.

Nest predators and parasites. Brown-headed Cowbirds were unusually scarce in Milan Bottoms, perhaps because of the scarcity of suitable hosts other than Song Sparrows. Common Grackles were abundant, but foraged mainly on the ground. House Wrens were also abundant, usually close to the ground as well. American Crows were heard regularly and were unusually common in Milan Bottoms, but were rarely observed foraging within the forest. Blue Jays, which are usually rare in floodplain forests, were relatively common, especially along the river.

Other species. Several species occurred at "typical" population densities for forests at this latitude, including the Yellow-billed Cuckoo, Red-bellied Woodpecker, Hairy Woodpecker, White-breasted Nuthatch, and Northern Cardinal. Ruby-throated Hummingbirds were unaccountably rare. Eastern Bluebirds nested in a few snags in swamps.

Absent species. Ground-foraging forest species such as Kentucky Warblers, Wood Thrushes, and Ovenbirds were not record, perhaps because of the seasonal flooding regime. Hooded Mergansers were not recorded in the backwaters. Scarlet Tanagers and Hooded Warblers are rare in floodplain forests statewide, so it is not surprising that they were not found in Milan Bottoms. The lack of Acadian Flycatchers, however, is puzzling given their abundance in floodplain forests elsewhere in the State.

PRELIMINARY MANAGEMENT RECOMMENDATIONS

The "forest-interior" bird community appears to need the most management consideration. The extensive system of backwaters and flood-damaged stands creates abundant habitat for open-forest species and swamp specialists. The species that nest in large trees on natural levees, however, were rare or absent. Maintaining and enhancing

existing mature timber therefore appears to be a very high priority for the site. Large trees also provide good nest sites for many species.

The breeding community of Milan Bottoms is currently dominated by species that are resistant to nest predation (e.g., cavity nesters) and to cowbird parasitism (e.g., rejecters). As a result, this bird community may be less affected by fragmentation than many upland forest bird communities. Milan Bottoms therefore has high potential to be a source population for many nesting species.

The swamp-dependent and open-forest species that nest in Milan Bottoms appear to have large, healthy populations and do not require special management. Likewise, the shrubland bird community should recover rapidly as saplings regrow under dead trees and after a period of relatively low floods when these forests may regenerate.

Table. Estimated abundances of birds in the Milan Bottoms

No. recorded/10 census points (50-m radius; 10-min. count)
1999 (June and July)

<u>Species</u>	<u>River Edge (14)</u>	<u>Interior (25)</u>	<u>Agricultural Edge (12)</u>
Great Blue Heron	1.8 i	11.0 i	2.1 i
Great Egret	0	+	0
Green Heron	0	+	0.8 i
Yellow-crowned Night Heron	0	0.2 i	0
Double-crested Cormorant	+	+	0
Mallard	1.4 i	0	0.4 i
Wood Duck	0.4 i	8.0 i	18.8 i
Turkey Vulture	20.4 i	0.4	0
Red-tailed Hawk	0	0.2	0.8
Red-shouldered Hawk	0	0.2	+
Killdeer	1.1	0.2	2.1
Spotted Sandpiper	0	0.4	0
Solitary Sandpiper	0	0.2	0
Mourning Dove	0	+	+
Yellow-billed Cuckoo	1.8	0.8	1.3
Chimney Swift	+	3.8	+
Ruby-throated Hummingbird	0	0.2	0
Belted Kingfisher	1.1	0.4	+
Barred Owl	0	0.4	0
Great Horned Owl	0	0	0.8
Red-bellied Woodpecker	2.5	4.2	4.6
Red-headed Woodpecker	3.6	6.4	2.9
Northern Flicker	+	1.2	+
Downy Woodpecker	7.9	4.6	9.2
Hairy Woodpecker	2.1	1.4	3.8
Pileated Woodpecker	+	0.4	0.4
Eastern Phoebe	0	0.6	1.3
Eastern Wood-Pewee	5.0	3.0	3.3
Great Crested Flycatcher	3.9	5.0	7.1
Barn Swallow	0	0.2	0.4 i
Tree Swallow	46.4 i	22.8 i	13.3 i
Bank Swallow	23.4 i	1.8 i	0
Northern Rough-winged Swallow	0.4 i	15.8 i	0
Purple Martin	0.7 i	0	0
American Crow	1.8	1.2	2.9
Blue Jay	5.0	2.8	1.3
Eastern Tufted Titmouse	3.2	0.2	0.4
Black-capped Chickadee	7.5	9.4	13.8
White-breasted Nuthatch	4.6	5.8	7.9

Table. Estimated abundances of birds in the Milan Bottoms (cont.)

<u>Species</u>	<u>River Edge (14)</u>	<u>Interior (25)</u>	<u>Agricultural Edge (12)</u>
Brown Creeper	0	3.4	2.5
House Wren	23.6	25.4	30.0
Carolina Wren	0	0.2	0
American Robin	0.7	+	+
Eastern Bluebird	0	0.4	+
Gray Catbird	1.4	1.4	0.8
Brown Thrasher	0	0	+
Cedar Waxwing	3.2	2.6	1.3
European Starling	13.2 i	17.8 i	5.8 i
Blue-gray Gnatcatcher	0.7	2.0	0
Warbling Vireo	4.6	3.8	5.0
Red-eyed Vireo	3.9	3.0	0.8
Yellow-throated Vireo	1.8	2.6	0.4
Prothonotary Warbler	5.7	6.8	4.6
Northern Parula	0	0.4	0
Yellow-throated Warbler	0	+	0.4
Yellow Warbler	0	0.2	+
Cerulean Warbler	0	0.2	0
Common Yellowthroat	1.4	0.8	2.1
American Redstart	11.4	17.4	4.2
Northern Cardinal	4.6	7.0	6.3
Rose-breasted Grosbeak	+	0	0
Indigo Bunting	2.5	3.4	8.3
Song Sparrow	18.6	10.8	8.8
American Goldfinch	1.1	1.0	4.6
Baltimore Oriole	9.3	4.2	2.5
Common Grackle	23.6 i	29.8 i	7.9 i
Red-winged Blackbird	9.3	12.8	12.5
Brown-headed Cowbird	0.4	1.6	2.1

i = individuals