

## SPOON RIVER STATE FOREST BIRD SURVEY, 2004

BY MAURY BRUCKER

### PURPOSE OF THE SURVEY

This bird survey was conducted to determine the presence and rough abundance of species of breeding birds in the newly acquired Spoon River State Forest in Knox County, Illinois.

### METHODS

During the breeding season of May 18 to June 25, 2004, birds were identified by sight and calls from 14 selected points and also recorded on the legs between points. The centers of the selected points were approximately  $\frac{1}{4}$  mile apart and were marked with wooden stakes and plastic marking tape. I estimate I could hear birds calling at 300 feet although some birds such as American Crow, Bobwhite and Ring-necked Pheasant have very loud calls which can be heard even further away. With a radius of 300 feet the fourteen circles cover about 90 acres. The order of surveying the points was rotated to spend time more equally near sunrise when the birds were most active. The 14 points selected are indicated on the map on page 1 of the appendix.

### RESULTS

A total of 72 bird species were identified during the four periods of the survey with 725 individuals counted from the 14 points. These results are summarized in Table 1 on page 2 of the appendix. The 7 species with a zero count were found on the legs between the points. The most numerous bird found on the survey was Indigo Bunting (an average of 19 per count date) with American Crows, House Wrens, Northern Cardinals and Red-winged Blackbirds all having above an average of 8 birds per count date. Few avian predators were found: however, one Coyote was seen. Although three Wild Turkeys were found, only one Bobwhite and one Mourning Dove were heard. An average of 6 Brown-headed Cowbirds per count date were found. The raw data for the points and legs are shown in the 8 tables in Tables 1A thru 4B on pages 4 – 11 in the appendix. A few of the birds seen were probably migrants; however, the totals for each of the four counts were between 174 and 189 indicating most of the migration had passed.

### ANALYSIS

Spoon River State Forest is located in the Western Forest-Prairie Natural Division (Schwegman et al. 1973). The current map of the Spoon River Forest area shows mostly woodland; however, long narrow fields on the upland dissect the wooded ravines and bluffs. Small numbers of area sensitive forest birds were found in the broken woodland areas. The woodland quality varies greatly from areas with larger oaks and hickories to other areas of mostly overgrown pastures consisting now of mostly Osage-Orange. Many of the upland cropland and hayfields attract few grassland birds beyond the Red-winged

Blackbirds in the waterways. The grassland field next to the Spoon River on the east side had Common Yellowthroats, Field Sparrows, Song Sparrows as well as Red-winged Blackbirds due to some emerging brushy areas and more structure with some weedy stems from last year. While there is a great deal of linear edge between the long fields and adjacent wooded areas, this type of very narrow edge has less use for savanna birds than a wider edge with shrubs and widely scattered trees would have. This does provide for savanna birds such as Eastern Wood Pewee, Great Crested Flycatchers, Eastern Towhees, Field Sparrows and Lark Sparrows together with the higher numbers of Indigo Buntings. Unfortunately, these narrow fields are also perfect habitat for the nest parasite Brown-headed Cowbirds affecting both the savanna birds and the woodland birds. The current very sharp edge (sometimes called a hard edge) is less useful for savanna birds than a soft edge, i.e. wider transition including shrubs and open trees would be.

#### ENDANGERED AND THREATENED SPECIES

A Cerulean Warbler was heard singing on the leg between points 3 and 4 on May 18, 2004. It was not found again during the subsequent 3 surveys. The Cerulean Warbler was officially added to the Illinois threatened species list on Feb. 20, 2004.

#### AREA SENSITIVE FOREST INTERIOR SPECIES

Table 5 on page 12 of the appendix shows the numbers of high and moderate area sensitive forest interior bird species found in the Spoon River State Forest survey. While 5 species of high area sensitive forest birds were found, some of these may have been late migrants. The Yellow-throated Vireos and Ovenbirds were found through out the breeding season. Fourteen species of moderate area sensitive forest birds were also found. Consolidation of some of the forest blocks into a larger unit may make the area more attractive to these forest birds. One caution is that this forest unit is still an island in the middle of a sea of cropland in central Illinois and some of these areas could become biological sinks which attract birds which can not sustain a local population. Monitoring the Brown-headed Cowbirds and the target bird reproduction success may indicate if the forest blocks are large enough to sustain local forest bird populations.

#### HIGH PRIORITY SAVANNA BIRD SPECIES

Oak savanna, which ranges from open woodland to scattered trees in grasslands, has become better understood in Illinois in the last 15 years. Certain plants and animals appear to do better in this part sun and part shade habitat. Partners in Flight, a bird conservation group, has published a bird conservation plan for the "Prairie Peninsula" in 2000 which covers most of central Illinois. The cover page and two tables are included on pages 13, 14 and 15 in the appendix. The priority species the plan recommends include those birds showing significant declines in population over the last 20 years. The priority species are identified by habitat. Although there is some overlap of species in multiple types of habitat, the 5 priority species listed in our area in the plan for savannas are Northern Bobwhite, Red-headed Woodpecker, Eastern Wood Pewee, Great Crested Flycatcher and Field Sparrow. For the Spoon River State Forest survey, Pewees

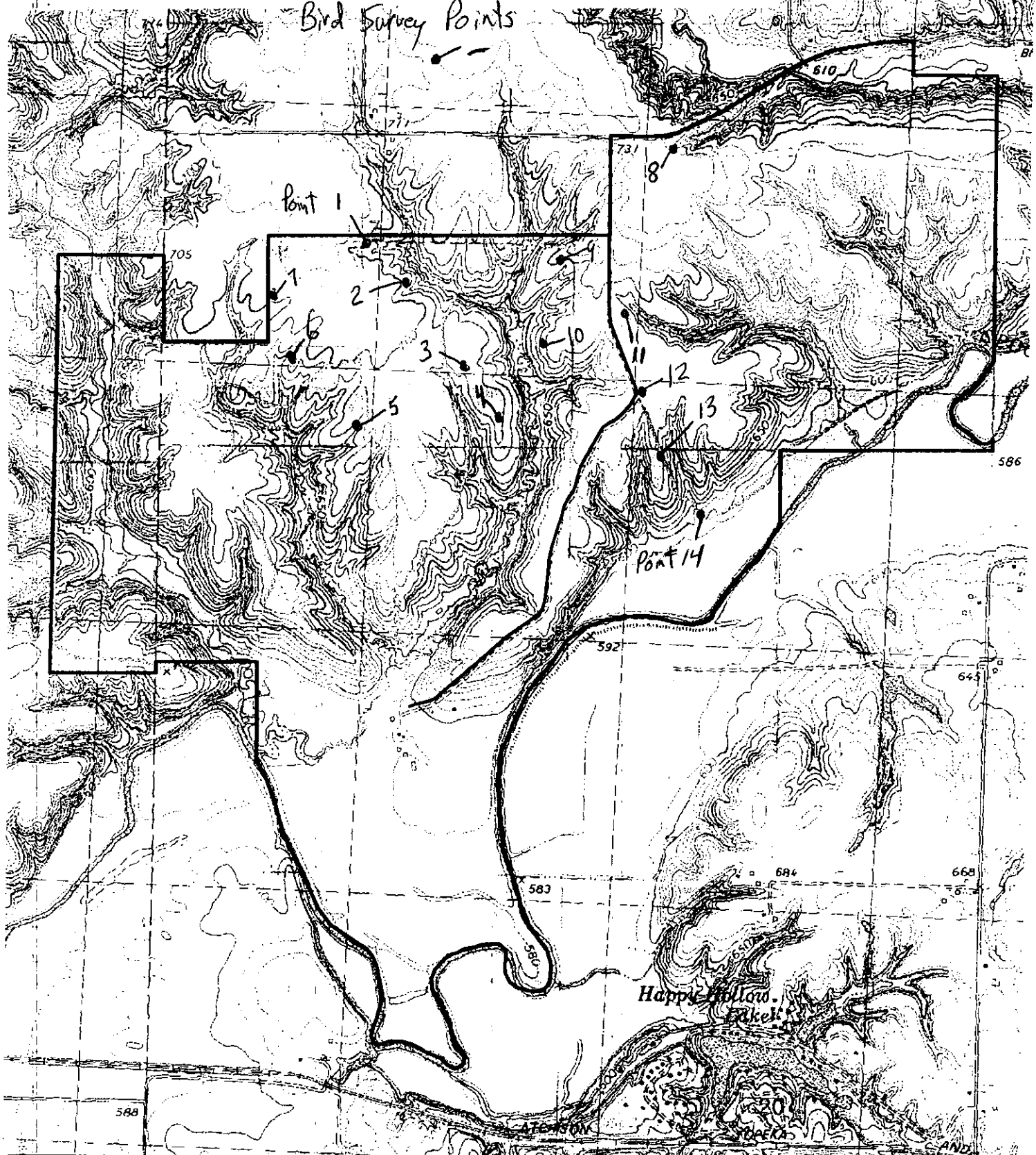
averaged about 6 per count date and the Great-crested Flycatcher averaged just under 4 per count date with the other three species being present in small numbers. With some savanna habitat improvements, the populations of these high priority savanna birds could be greatly increased.

#### RECOMMENDATIONS FOR BIRD HABITAT IMPROVEMENTS

- 1) A double objective of increasing habitat for forest birds and at the same time improving the habitat for savanna birds would increase the probability of a measurable improvement of significant birds using Spoon River State Forest.
- 2) Consolidate forest block size for area sensitive forest birds by planting trees on cropland and hayfields between wooded areas. This will take many years for the trees to become large enough to become forest bird habitat.
- 3) Soften the edges of field/woodland to increase the amount of savanna habitat and its usefulness for savanna birds. This could be accomplished two ways. Selectively removing Osage-orange and other pioneer trees leaving the remaining Oaks and Hickories in a more open, less dense state is one way. Or the borders of the wooded areas could be extended into some of the fields by planting widely spaced trees and shrubs into a pre-planted herbaceous border. I would caution against the quick fix of planting exotic shrubs such honeysuckles or autumn olive or even the native Grey Dogwood as these can quickly get out of hand and be impossible to remove later. This would fit in with the management of the area for Wild Turkey habitat.
- 4) Plan on follow up bird surveys as the habitat changes mature at Spoon River State Forest to monitor the impact on significant non-game bird species.

# SPOON RIVER STATE FOREST MANAGEMENT PLAN

Bird Survey Points



	<p>Spoon River State Forest Entrance Road Trails &amp; Firebreaks</p>	<p>SCALE 1:18,000 Created T. Bittner February 2004</p>	

Survey Counts	1A	1B	2A	2B	3A	3B	4A	4B	
Great Blue Heron	1	0	0	0	0	0	0	0	1
Turkey Vulture	0	12	0	0	0	0	0	0	12
Canada Goose	1	0	0	22	0	0	0	0	23
Wood Duck	0	0	0	0	0	0	0	0	0
Red-tailed Hawk	0	0	1	0	0	0	0	0	1
Ring-necked Pheasant	0	0	0	0	0	1	0	0	1
Wild turkey	1	1	0	0	1	0	0	0	3
Northern Bobwhite	0	0	0	0	0	0	1	0	1
Mourning Dove	0	0	0	1	0	0	0	0	1
Black-billed Cuckoo	0	0	0	1	0	0	0	0	1
Yellow-billed cuckoo	1	3	3	2	4	2	1	2	18
Great Horned Owl	0	0	0	0	0	0	0	0	0
Barred Owl	0	0	0	0	0	0	1	0	1
Red-headed Woodp	3	0	0	0	0	0	3	0	6
Red-bellied Woodp	0	2	3	2	3	5	5	4	24
Downy Woodp.	0	0	4	2	1	1	3	2	13
Hairy Woodp.	0	0	0	1	0	1	0	0	2
Northern Flicker	0	1	0	2	2	0	0	2	7
Eastern Wood-Pewee	5	1	5	1	4	3	4	2	25
Acadian Flycatcher	0	0	1	0	0	0	2	0	3
Least Flycatcher	1	0	0	0	0	0	0	0	1
Eastern Phoebe	1	1	1	0	0	0	0	0	3
Great-crested Flycatch.	2	2	1	2	2	1	4	1	15
Eastern Kingbird	0	0	0	0	0	0	0	0	0
Yellow-throated Vireo	1	0	1	1	2	2	1	1	9
Warbling Vireo	0	0	0	0	0	1	0	0	1
Red-eyed Vireo	1	4	2	1	1	0	2	0	11
Blue Jay	2	2	3	1	3	5	4	1	21
Am. Crow	6	12	2	3	8	11	8	9	59
Barn Swallow	0	1	0	1	0	1	0	0	3
Black-capped Chick.	1	0	3	0	2	3	0	2	11
Tufted Titmouse	0	2	7	2	0	0	1	0	12
White-breasted Nut.	2	2	2	3	2	5	7	6	29
Carolina wren	0	1	1	1	1	1	0	0	5
House Wren	2	4	7	7	6	4	4	6	40
Blue-gray Gnatcatch.	3	4	0	5	0	4	0	1	17
Eastern Bluebird	0	0	0	1	0	2	0	0	3
Swainson's Thrush	1	0	0	0	0	0	0	0	1
Wood Thrush	0	1	1	0	0	1	1	0	4
Am. Robin	0	3	1	0	0	0	0	0	4
Gray Catbird	3	0	1	1	3	1	6	4	19
Brown thrasher	2	2	0	1	1	0	1	0	7
European Starling	0	1	0	2	0	0	0	0	3
Cedar Waxwing	0	1	3	0	0	0	0	0	4
Blue-winged Warbler	0	0	0	0	0	0	3	0	3
Tenn. Warbler	1	2	0	0	0	0	0	0	3
Northern Parula	0	0	0	0	0	1	0	0	1
Chestnut-sided War.	0	0	0	0	0	0	0	0	0
Yellow-rumped War	0	0	0	0	0	0	0	0	0
Blackpoll Warbler	1	0	0	0	0	0	0	0	1
Cerulean Warbler	0	0	0	0	0	0	0	0	0
Am. Redstart	0	2	0	0	0	0	0	0	2
Ovenbird	1	0	2	0	2	2	2	1	10
Kentucky Warbler	0	1	0	0	0	0	0	1	2

Common Yellowthroat	2	5	1	4	1	4	2	5	24
Wilson's Warbler	1	0	0	0	0	0	0	0	1
Summer Tanager	1	0	1	0	1	0	1	2	6
Scarlet Tanager	0	1	1	0	0	0	0	0	2
Eastern Towhee	2	1	1	1	0	2	1	1	9
Chipping Sparrow	0	1	0	0	0	1	0	0	2
Field Sparrow	0	4	0	0	3	1	1	1	10
Vesper Sparrow	0	0	0	0	0	0	0	0	0
Lark Sparrow	0	2	1	1	1	1	0	0	6
Song Sparrow	0	2	1	1	1	3	1	2	11
Northern Cardinal	4	3	2	7	6	6	6	3	37
Rose-breasted Grosb.	1	2	0	4	3	0	2	2	14
Indigo Bunting	9	6	7	9	10	8	9	12	70
Red-winged Blackbird	0	5	0	14	0	6	0	9	34
Eastern Meadowlark	0	1	0	0	0	1	0	0	2
Common Grackle	1	1	0	0	0	0	5	0	7
Brown-headed Cowbird	0	1	1	6	3	6	5	3	25
Baltimore Oriole	1	2	0	0	1	1	0	0	5
Am. Goldfinch	0	4	1	4	0	1	1	2	13
Totals per table	65	109	72	117	78	99	98	87	725
Count per date		174		189		177		185	725







Survey Points/ time	832	850	908	921	938	953	1009		
B	8	9	10	11	12	13	14		
Great Blue Heron								0	
Turkey Vulture	12							12	
Canada Goose								0	
Wood Duck								0	
Red-tailed Hawk								0	
Ring-necked Pheasant								0	
Wild turkey			1					1	
Northern Bobwhite								0	
Mourning Dove								0	
Black-billed Cuckoo								0	
Yellow-billed cuckoo	2			1				3	
Great Horned Owl								0	
Barred Owl								0	
Red-headed Woodp								0	
Red-bellied Woodp	1			1				2	
Downy Woodp.								0	
Hairy Woodp.								0	
Northern Flicker			1			1	1	1	
Eastern Wood-Pewee			1	1				1	
Acadian Flycatcher								0	
Least Flycatcher								0	
Eastern Phoebe			1					1	
Great-crested Flycatch.			1				1	1	2
Eastern Kingbird						2			0
Yellow-throated Vireo									0
Warbling Vireo									0
Red-eyed Vireo	1		1	1	1		1	1	4
Blue Jay		1	3				1		2
Am. Crow	2	1	2	2	1	1		3	12
Barn Swallow					1				1
Black-capped Chick.									0
Tufted Titmouse	1	1							2
White-breasted Nut.		2							2
Carolina wren			1						1
House Wren	1	1		1				1	4
Blue-gray Gnatcatch.			2	2					4
Eastern Bluebird									0
Swainson's Thrush									0
Wood Thrush						1			1
Am. Robin	1	2	1			1			3
Gray Catbird									0
Brown thrasher	1		1						2
European Starling		1							1
Cedar Waxwing			1						1
Blue-winged Warbler									0
Tenn. Warbler		1	1		1				2
Northern Parula									0
Chestnut-sided War.		1							0
Yellow-rumped War							1		0
Blackpoll Warbler									0
Cerulean Warbler									0
Am. Redstart						2			2
Ovenbird							1		0
Kentucky Warbler		1							1









Common Yellowthroat										4	4
Wilson's Warbler											0
Summer Tanager											0
Scarlet Tanager											0
Eastern Towhee				1							1
Chipping Sparrow											0
Field Sparrow											0
Vesper Sparrow											0
Lark Sparrow	1	2									1
Song Sparrow									1		1
Northern Cardinal			2	2	1		1	1	1		7
Rose-breasted Grosb.					2	1	1				4
Indigo Bunting			1		2	2	1		3		9
Red-winged Blackbird						4			10		14
Eastern Meadowlark											0
Common Grackle											0
Brown-headed Cowbird	4				1	1					6
Baltimore Oriole											0
Am. Goldfinch	1				2	1					4
Total *	34	9	9	14	13	8		30			117
* Totals for the points not the legs											













Survey Points/ time	9:38	9:19	9:02	8:02	8:35	8:20	8:02		
B	8	9	10	11	12	13	14		
Great Blue Heron									0
Turkey Vulture									0
Canada Goose									0
Wood Duck									0
Red-tailed Hawk									0
Ring-necked Pheasant									0
Wild turkey									0
Northern Bobwhite									0
Mourning Dove									0
Black-billed Cuckoo									0
Yellow-billed cuckoo		1		1					2
Great Horned Owl									0
Barred Owl									0
Red-headed Woodp									0
Red-bellied Woodp				1	1	1	1		4
Downy Woodp.			1	1			1		2
Hairy Woodp.									0
Northern Flicker	1			1					2
Eastern Wood-Pewee					1	1			2
Acadian Flycatcher									0
Least Flycatcher									0
Eastern Phoebe									0
Great-crested Flycatch.							1		1
Eastern Kingbird									0
Yellow-throated Vireo						1			1
Warbling Vireo									0
Red-eyed Vireo									0
Blue Jay	1								1
Am. Crow	1	3	1				4		9
Barn Swallow									0
Black-capped Chick.					1	1			2
Tufted Titmouse									0
White-breasted Nut.		1	1	1	1	1	1	1	6
Carolina wren									0
House Wren	1	1		2			2		6
Blue-gray Gnatcatch.			1	1		2			1
Eastern Bluebird	2								0
Swainson's Thrush									0
Wood Thrush									0
Am. Robin									0
Gray Catbird		1	1	1	1				4
Brown thrasher									0
European Starling									0
Cedar Waxwing									0
Blue-winged Warbler									0
Tenn. Warbler									0
Northern Parula									0
Chestnut-sided War.									0
Yellow-rumped War									0
Blackpoll Warbler									0
Cerulean Warbler									0
Am. Redstart									0
Ovenbird							1		1
Kentucky Warbler			1						1

Common Yellowthroat						1			4	5
Wilson's Warbler										0
Summer Tanager					2					2
Scarlet Tanager										0
Eastern Towhee				1						1
Chipping Sparrow										0
Field Sparrow		1							1	1
Vesper Sparrow		1								0
Lark Sparrow										0
Song Sparrow									2	2
Northern Cardinal						1			2	3
Rose-breasted Grosb.						1		1		2
Indigo Bunting	3		3		2	2		1	1	12
Red-winged Blackbird						3	2		6	9
Eastern Meadowlark		1								0
Common Grackle										0
Brown-headed Cowbird	1	3		1	1	1				3
Baltimore Oriole										0
Am. Goldfinch				1					1	2
Totals *		8	10	7	14	13	8		27	87
* Totals are for the Points and not the Legs										



**Partners in Flight  
Bird Conservation Plan**  
*for*  
***The Prairie Peninsula***  
**(Physiographic Area 31)**

Version 1.0  
4 February 2000

by

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Table 1. Partners in Flight Priority Species for Physiographic Area 31: The Prairie Peninsula.

Species	Criteria	Total Score	AI	PT	BBS Trend	% Pop.
Greater Prairie-Chicken	Ib	27	2	3	na	<1
Black Rail	Ib	26	3	3	na	na
Henslow's Sparrow	Ib	26	3	3	-18.3	4.0
Cerulean Warbler	Ib	25	2	3	-9.4	<1
Dickcissel	Ib	24	4	5	-3.8**	5.1
Red-headed Woodpecker	Ib	23	5	5	-2.0**	9.2
Bell's Vireo	Ib	23	2	3	-2.9	<1
N. Bobwhite	Ila	21	4	5	-2.1**	5.7
Chimney Swift	Ila	21	4	5	-1.9**	6.9
Field Sparrow	Ila	21	4	5	-3.2**	6.4
Yellow-billed Cuckoo	Ila	20	3	5	-4.0**	2.2
Eastern Wood Pewee	Ila	20	3	5	-1.1*	3.4
Great Crested Flycatcher	Ila	19	3	5	-1.8**	1.8
Grasshopper Sparrow	Ila	19	3	5	-7.0**	3.1

Criteria: see Appendix 1.

Total score: see Appendix 1.

AI = area importance score; see Appendix 1.

PT = population trend score; see Appendix 1.

BBS = Breeding Bird Survey trend, measured as mean % change per year for the years 1966-1996, for this physiographic area.

\* = significant at 0.10; \*\* = significant at 0.05; na = not available.

% pop = percentage of the species population residing in the planning unit.



### Section 3: Habitats and objectives

#### Habitat-species suites:

Priority species are grouped by suites into habitat types as shown in Table 2.

Table 2: Priority species by habitat type in Physiographic Area 31: The Prairie Peninsula.

Species	Habitat	Total Score	AI	PT	TB
Greater Prairie-Chicken	GR	27	2	3	4
Henslow's Sparrow	GR	26	3	3	4
Dickcissel	GR	24	4	5	4
Grasshopper Sparrow	GR	19	3	5	3
Bell's Vireo	GR - SH	23	2	3	4
N. Bobwhite	GR - SH	21	4	5	3
Field Sparrow	GR - SH	21	4	5	3
Black Rail	WE	26	3	3	4
Cerulean Warbler	RDF	25	2	3	4
Red-headed Woodpecker	RDF	23	5	5	3
Chimney Swift	RDF	21	4	5	3
Cerulean Warbler	DF	25	2	3	4
Yellow-billed Cuckoo	DF	20	3	5	3
Eastern Wood Pewee	DF	20	3	5	3
Great Crested Flycatcher	DF	19	3	5	2
Red-headed Woodpecker	SA	23	5	5	3
Eastern Wood Pewee	SA	20	3	5	3
N. Bobwhite	SA	21	4	5	3
Field Sparrow	SA	21	4	5	3
Great Crested Flycatcher	SA	19	3	5	2
Chimney Swift	U	21	4	5	3

Habitat codes: GR = grassland; GR-SH = grasslands with a shrubby component; WE = wetlands; RDF = riparian deciduous forest; DF = deciduous forest; SA = savanna/woodland; U = urban.

Total score: see Appendix 1.

AI = area importance score; see appendix 1.

PT = population trend score; see Appendix 1.

TB = threats breeding score; see Appendix 1.