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Fall 2005

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## **BREEDING BIRD COMMUNITIES IN RIPARIAN FORESTS ALONG THE CENTRAL PLATTE RIVER, NEBRASKA**

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**ABSTRACT**—The Platte River has changed from a nearly treeless prairie river to a heavily forested river. These habitat changes have likely benefited many woodland birds, but have harmed other migratory birds such as cranes. In response to this impact on migratory birds, conservation groups implemented a tree-clearing program to enhance habitat for these species. This practice is not without controversy because of concerns about its effect on woodland birds. The goal of this study was to determine the composition and abundance of breeding birds that use these forests and discuss the potential impacts of tree clearing on woodland birds. Surveys were conducted using the point-count method. I observed 56 breeding species during 1998 and 1999. The most abundant woodland birds were house wrens (*Troglodytes aedon*), Baltimore orioles (*Icterus galbula*), American goldfinches (*Carduelis tristis*), blue jays (*Cyanocitta cristata*), common yellowthroats (*Geothlypis trichas*), eastern towhees (*Pipilo erythrophthalmus*), European starlings (*Sturnus vulgaris*), and northern cardinals (*Cardinalis cardinalis*). The avian community is dominated by migratory species that are forest-edge and open-forest generalists. Certainly, conservationists and managers should consider the impact of the river-clearing program on woodland birds. However, a high priority must be placed on those species that are declining or have been severely impacted by the expansion of riparian forests. Ultimately, conservationists and managers must consider both the detriments and benefits of the program and make management decisions accordingly.

**Key Words:** Great Plains, Nebraska, Platte River, riparian forests, woodland birds

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### **Introduction**

During the last 150 years, the Platte River has undergone dramatic hydrologic and morphologic changes in response to reduced river flows created by

diversion of water for irrigation and power generation (Johnson 1994; Currier 1997). This reduction in river flows has resulted in the development of riparian forests in reaches of the river that were once unvegetated wide channels of shifting alluvial sand (Johnson 1994; Currier 1997). In some reaches of the river, the active river channel has been reduced by as much as 90% (Sidle et al. 1989). Additionally, the reduction in flows has facilitated the conversion of wet meadows, which are hydrologically linked to river stage, to cropland, homesites, and commercial properties; nearly 75% of the native wet meadows along the Platte River have been lost (Currier and Ziewitz 1987). Essentially, the Platte River has been changed from a nearly treeless prairie river to a heavily forested river surrounded by an expanse of croplands (Currier 1997; Currier and Davis 2000).

The Platte River ecosystem provides habitat for a myriad of migratory birds (U.S. Fish and Wildlife Service 1981). However, the habitat changes in the Platte River have had a negative effect on some migratory birds that use the river during at least a portion of their annual cycle. Whooping cranes (*Grus americana*) and sandhill cranes (*G. canadensis*), which rely on the Platte River for nocturnal roosting, have abandoned some river segments because of the development of woody vegetation and narrowing of river channels (U.S. Fish and Wildlife Service 1981; Krapu et al. 1984; Faanes and LeValley 1993). Least terns (*Sterna antillarum*) and piping plovers (*Charadrius melodus*), which historically nested on exposed sandbars in the river, now rarely nest in the central Platte River (Ziewitz et al. 1992). In contrast, the expansion of woody vegetation along the Platte River has probably benefited many woodland bird species. Knopf (1986) noted that the development of riparian forests throughout the Great Plains has provided corridors for woodland birds to disperse across the expansive grasslands that once served as ecological barriers. Prior to settlement, woodland bird species were probably not common along the Platte River (Faanes and Lingle 1995; Ducey 2000), but now the avian community in riparian forests along the Platte River is probably one of the most biologically diverse communities in Nebraska.

Because the Platte River ecosystem is one of the most impacted ecosystems in North America and provides critical habitat for several endangered and threatened species (whooping crane, least tern, and piping plover) as well as other migratory birds, this ecosystem has been the focus of major conservation efforts. In particular, conservation groups have implemented a tree-clearing program along riverbanks and in river channels to enhance roosting habitat for cranes and waterfowl. Although cranes and waterfowl have responded positively to the tree-clearing program (Davis 2003), little attention has been given to potential impacts that the tree-clearing program may have on breeding woodland birds. In

this paper, I describe the composition and abundance of breeding woodland birds that use riparian forests along the Platte River and discuss the implications of tree clearing for these species.

### Study Area and Methods

The study area was located along a 120 km stretch of the Platte River between Grand Island and Overton, NE (Fig. 1). The landscape along the river is composed of a mosaic of cropland, riparian forest, and grassland. Irrigated cropland (corn, soybean, alfalfa, wheat, and sorghum) is the major cover type, with corn accounting for nearly 88% of the cropland (Davis 2003). Riparian forests along the Platte River are composed of narrow woodland strips (most <100 m wide) and small woodland patches (most <10 ha) that are nearly contiguous (Colt 1997). The forests generally have open canopies and are dominated by eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), and red mulberry (*Morus rubra*) (Currier 1982). Other common tree species include hackberry (*Celtis occidentalis*), eastern redcedar (*Juniperus virginiana*), and boxelder (*Acer negundo*). Dominant shrubs include rough-leaved dogwood (*Cornus drummondii*), prickly ash (*Zanthoxylum americanum*), willow (*Salix* spp.), and false indigo (*Amorpha fruticosa*) (Currier 1982).

I conducted breeding bird surveys in riparian forests along the Platte River from late May to early July in 1998 and 1999. I used the point-count method to survey birds in 30 forest tracts (Ralph et al. 1995; Hamel et al. 1996) located throughout the study area, sampling a total of 80 and 82 points in 1998 and 1999, respectively. Point-count stations were randomly located at least 250 m apart within each forest tract and not located within 50 m of habitat edges (e.g., woodland-grassland, woodland-cropland, and woodland-river channel). Depending on the size of the forest tract, one to six point-count stations were located within each tract. Forest tract sizes ranged from 1.5 to 196 ha. Point counts were conducted from 0600 to 1000 on mornings without heavy winds (defined as wind strong enough to move larger tree branches) and no precipitation or fog. During each point count, I stood in the center of a 50 m fixed-radius circular plot and recorded all birds seen or heard within the plot during a 10-minute sampling period. Birds observed flying over the forest tract were not recorded. Birds detected within the forest tract but beyond the 50 m radius or detected while en route to another point-count station within the forest tract were recorded for evaluation of species richness. Point-count stations were visited once during each year.

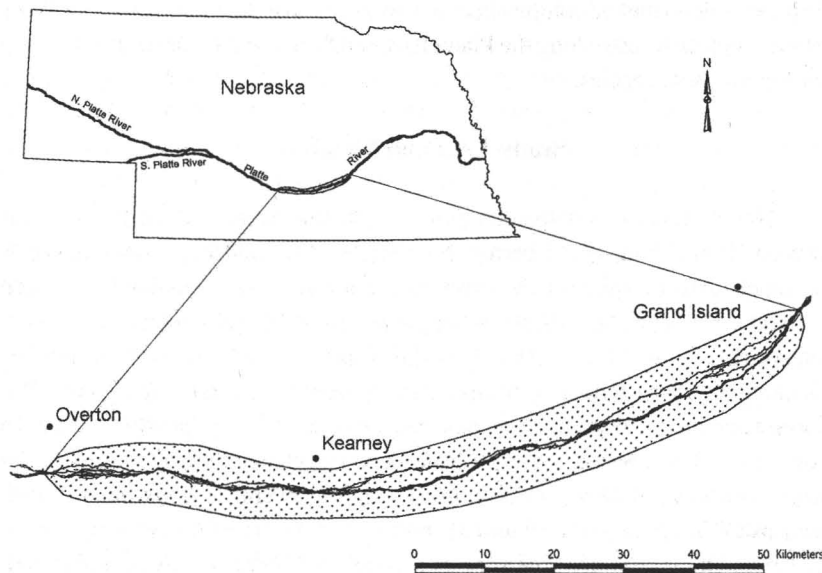


Figure 1. Location of riparian forest bird study area in central Nebraska between Grand Island and Overton, 1998-99.

## Results

I recorded a total of 56 breeding bird species in riparian forest habitats along the Platte River, with 48 species observed in 1998 and 50 in 1999 (Table 1). Of the 56 breeding bird species, 41 species are migratory and 15 species are year-round residents (breeding and wintering ranges overlap in central Nebraska) (Root 1988; Price et al. 1995). Of the migratory species, 58% are long-distance migrant species (i.e., neotropical migrants) and 42% are short-distance migrant species (i.e., continental migrants). In terms of forest habitat-type associations, forest-edge species composed the largest proportion (53%) of the species, followed by open-forest species (25%) and closed-forest species (16%). Three forest-interior species were each observed once during the study: wood thrush, Acadian flycatcher, and American redstart (see Table 1 for scientific names).

During both years, I recorded 3,442 detections of birds (1998: 1,622 detections; 1999: 1,820 detections) from all visited point-count stations. Mean relative abundance and species richness in riparian forests was 21.25 birds/point count  $\pm$  0.66 [SE] and 11.11 species/point count  $\pm$  0.32, respectively. In decreasing order, the most abundant breeding birds ( $>0.8$  individuals/point count) in

TABLE 1

## MIGRATORY STATUS, ABUNDANCE, FREQUENCY OF OCCURRENCE, AND SURVEY TRENDS OF BREEDING BIRD SPECIES INHABITING RIPARIAN FORESTS ALONG THE PLATTE RIVER IN CENTRAL NEBRASKA, 1998-99

Species	Year	Habitat association <sup>a</sup>	Migratory status <sup>b</sup>	Abundance $\bar{x} \pm SE^c$	Frequency of occurrence <sup>d</sup>	Breeding bird survey <sup>e</sup>
Turkey vulture ( <i>Cathartes aura</i> )	98	OF	SD	0.01 $\pm$ 0.01	0.01	1.6***
Wood duck ( <i>Aix sponsa</i> )	98, 99	FE	SD	0.08 $\pm$ 0.04	0.05	4.6***
Red-tailed hawk ( <i>Buteo jamaicensis</i> )	98, 99	FE	R	0.07 $\pm$ 0.04	0.04	2.6***
American kestrel ( <i>Falco sparverius</i> )	98, 99	FE	R	0.02 $\pm$ 0.02	0.03	-0.5*
Wild turkey ( <i>Meleagris gallopavo</i> )	98, 99	FE	R	0.08 $\pm$ 0.05	0.02	13.8***
Northern bobwhite ( <i>Colinus virginianus</i> )	98, 99	FE	R	0.54 $\pm$ 0.07	0.37	-3.0***
Mourning dove ( <i>Zenaida macroura</i> )	98, 99	OF	SD	0.72 $\pm$ 0.09	0.39	-0.2
Yellow-billed cuckoo ( <i>Coccyzus americanus</i> )	99	OF	LD	0.02 $\pm$ 0.01	0.03	-1.8***
Belted kingfisher ( <i>Ceryle alcyon</i> )	99	CF	SD	0.01 $\pm$ 0.01	0.01	-1.6***
Red-headed woodpecker ( <i>Melanerpes erythrocephalus</i> )	98, 99	CF	SD	0.34 $\pm$ 0.05	0.28	-2.6***
Red-bellied woodpecker ( <i>Melanerpes carolinus</i> )	98, 99	CF	R	0.10 $\pm$ 0.03	0.09	0.7***
Downy woodpecker ( <i>Picoides pubescens</i> )	98, 99	CF	R	0.13 $\pm$ 0.03	0.11	0.0
Hairy woodpecker ( <i>Picoides villosus</i> )	99	CF	R	0.01 $\pm$ 0.01	0.02	1.8***
Northern flicker ( <i>Colaptes auratus</i> )	98, 99	OF	R	0.74 $\pm$ 0.08	0.42	-2.1***
Eastern wood-Pewee ( <i>Contopus virens</i> )	98, 99	CF	LD	0.09 $\pm$ 0.04	0.05	-1.8***
Willow flycatcher ( <i>Empidonax traillii</i> )	98, 99	FE	LD	0.06 $\pm$ 0.03	0.05	-0.9**
Least flycatcher ( <i>Empidonax minimus</i> )	98, 99	CF	LD	0.07 $\pm$ 0.03	0.06	-1.1***
Acadian flycatcher ( <i>Empidonax virescens</i> )	98	FI	LD	0.01 $\pm$ 0.01	0.01	-0.1
Eastern phoebe ( <i>Sayornis phoebe</i> )	98	FE	LD	0.02 $\pm$ 0.01	0.02	1.0***
Great crested flycatcher ( <i>Myiarchus crinitus</i> )	98, 99	CF	LD	0.14 $\pm$ 0.05	0.08	0.0
Western kingbird ( <i>Tyrannus verticalis</i> )	99	FE	LD	0.01 $\pm$ 0.01	0.01	0.4**
Eastern kingbird ( <i>Tyrannus tyrannus</i> )	98, 99	FE	LD	0.23 $\pm$ 0.05	0.13	-1.0
Warbling vireo ( <i>Vireo gilvus</i> )	98, 99	OF	LD	0.57 $\pm$ 0.07	0.36	1.2***
Bell's vireo ( <i>Vireo bellii</i> )	98, 99	FE	LD	0.02 $\pm$ 0.02	0.03	-2.9***
Red-eyed vireo ( <i>Vireo olivaceus</i> )	98, 99	CF	LD	0.06 $\pm$ 0.02	0.04	1.3***
Blue jay ( <i>Cyanocitta cristata</i> )	98, 99	OF	R	1.12 $\pm$ 0.09	0.66	-1.1***

TABLE 1 continued

Species	Year	Habitat association	Migratory status	Abundance $\bar{x} \pm SE$	Frequency of occurrence	Breeding bird survey
Black-billed magpie ( <i>Pica pica</i> )	99	OF	R	0.01 $\pm$ 0.01	0.01	-0.4
American crow ( <i>Corvus branchyrhynchos</i> )	98	FE	R	0.01 $\pm$ 0.01	0.02	1.0***
Black-capped chickadee ( <i>Poecile atricapillus</i> )	98, 99	OF	R	0.52 $\pm$ 0.11	0.26	1.4***
White-breasted nuthatch ( <i>Sitta carolinensis</i> )	98, 99	OF	R	0.25 $\pm$ 0.05	0.16	1.9***
House wren ( <i>Troglodytes aedon</i> )	98, 99	OF	LD	3.85 $\pm$ 0.13	0.96	0.7***
Eastern bluebird ( <i>Sialia sialis</i> )	98	FE	SD	0.03 $\pm$ 0.01	0.02	2.4***
Wood thrush ( <i>Hylocichla mustelina</i> )	99	FI	LD	0.01 $\pm$ 0.01	0.01	-1.8***
American robin ( <i>Turdus migratorius</i> )	98, 99	OF	SD	0.78 $\pm$ 0.09	0.44	0.7***
Gray catbird ( <i>Dumetella carolinensis</i> )	98, 99	FE	LD	0.75 $\pm$ 0.08	0.44	-1.1
Brown thrasher ( <i>Toxostoma rufum</i> )	98, 99	FE	SD	0.33 $\pm$ 0.05	0.23	-1.2***
European starling ( <i>Sturnus vulgaris</i> )	98, 99	FE	R	0.96 $\pm$ 0.16	0.31	-0.9***
Cedar waxwing ( <i>Bombicilla cedrorum</i> )	98, 99	CF	SD	0.26 $\pm$ 0.10	0.06	1.1***
Yellow warbler ( <i>Dendroica petechia</i> )	98, 99	FE	LD	0.49 $\pm$ 0.07	0.29	0.4***
American redstart ( <i>Setophaga ruticilla</i> )	99	FI	LD	0.01 $\pm$ 0.01	0.01	-0.5
Common yellowthroat ( <i>Geothlypis trichas</i> )	98, 99	FE	LD	1.09 $\pm$ 0.08	0.61	-0.3**
Eastern towhee ( <i>Pipilo erythrophthalmus</i> )	98, 99	FE	SD	0.98 $\pm$ 0.10	0.53	-1.8***
Chipping sparrow ( <i>Spizella passerine</i> )	98, 99	OF	LD	0.01 $\pm$ 0.01	0.02	-0.2
Field sparrow ( <i>Spizella pusilla</i> )	98, 99	FE	SD	0.24 $\pm$ 0.05	0.15	-3.1***
Song sparrow ( <i>Melospiza melodia</i> )	98, 99	FE	SD	0.75 $\pm$ 0.06	0.53	-0.6***
Northern cardinal ( <i>Cardinalis cardinalis</i> )	98, 99	OF	R	0.85 $\pm$ 0.09	0.46	0.1
Rose-breasted grosbeak ( <i>Pheucticus ludovicianus</i> )	98, 99	OF	LD	0.18 $\pm$ 0.04	0.15	-0.7**
Indigo bunting ( <i>Passerina cyanea</i> )	98	OF	LD	0.01 $\pm$ 0.01	0.02	-0.6***
Red-winged blackbird ( <i>Agelaius phoeniceus</i> )	98, 99	FE	SD	0.17 $\pm$ 0.05	0.10	-1.0***
Common grackle ( <i>Quiscalus quiscula</i> )	98, 99	FE	SD	0.25 $\pm$ 0.08	0.13	-1.2***
Brown-headed cowbird ( <i>Molothrus ater</i> )	98, 99	FE	SD	0.57 $\pm$ 0.08	0.29	-1.2***
Orchard oriole ( <i>Icterus spurius</i> )	98, 99	FE	LD	0.17 $\pm$ 0.04	0.12	-0.8**
Baltimore oriole ( <i>Icterus galbula</i> )	98, 99	FE	LD	1.36 $\pm$ 0.10	0.66	-0.7***
American goldfinch ( <i>Carduelis tristis</i> )	98, 99	FE	SD	1.22 $\pm$ 0.11	0.60	0.0
House sparrow ( <i>Passer domesticus</i> )	99	FE	R	0.01 $\pm$ 0.01	0.01	-2.5***

<sup>a</sup> OF = open-forest species, FE = forest-edge species, CF = closed-forest species, FI = forest-interior species (Kendeigh 1982).

<sup>b</sup> LD = long-distance migrant species, SD = short-distance migrant species, R = resident species.

<sup>c</sup> Relative abundance is mean number of individuals/point. Sample sizes were 80 points in 1998 and 82 points in 1999.

<sup>d</sup> Frequency of occurrence is the proportion of the total points surveyed that an individual species was observed at least once.

<sup>e</sup> North American Breeding Bird Survey trends from Sauer et al. (2004). Trends are estimated as average annual percent change from 1966 to 2003.

\* =  $P \leq 0.10$ , \*\* =  $P \leq 0.05$ , \*\*\* =  $P \leq 0.01$ .

riparian forests along the Platte River were house wrens, Baltimore orioles, American goldfinches, blue jays, common yellowthroats, eastern towhees, European starlings, and northern cardinals (Table 1). In terms of the distribution of species throughout the study area, I observed 26 species in  $\geq 10\%$  of the point-count stations. Of those 26 species, house wrens (96%), Baltimore orioles (66%), blue jays (66%), common yellowthroats (61%), American goldfinches (60%), song sparrows (53%), and eastern towhees (53%) most frequently occurred in point counts.

According to North American Breeding Bird Survey data from 1966–2003, 44 of the species observed during this study had statistically significant population trends ( $P \leq 0.10$ , Sauer et al. 2004). Of these 44 species, 26 species exhibited decreasing trends and 18 exhibited increasing trends. Species exhibiting decreasing trends included 11 long-distance migrant species, 9 short-distance migrant species, and 6 resident species, while species exhibiting increasing trends included 6 long-distance migrant species, 5 short-distance migrant species, and 7 resident species. Forest-edge species, that is, species confined to the forest edge or mixtures of trees, shrubs, grasses (Kendeigh 1982), included the greatest proportion of the species having decreasing trends, accounting for 65% of the species. Open-forest species (i.e., species occurring in forest edges, openings in dense forests, and open woods), closed-forest species (i.e., species that spend most of their time in and under the forest canopy), and forest-interior species (i.e., species limited to extensive forest tracts [Kendeigh 1982]) accounted for 19%, 12%, and 4% of the species with decreasing trends, respectively. Similarly, forest-edge species comprised the greatest portion of the species with increasing trends (50%), followed by open-forest species (28%) and closed-forest species (22%).

## Discussion

The expansion of woody vegetation along many rivers in the Great Plains has played a major role in shaping the recent structure and composition of avian communities within riparian corridors along those rivers. Historically, woody vegetation along many of those rivers was lacking or limited during presettlement times. However, with the rapid development of riparian forests throughout the Great Plains, there was a concomitant rapid expansion of woodland avian species along many rivers in the Great Plains (Knopf 1986; Knopf and Scott 1990). Igl and Johnson (1997) compared breeding bird populations in North Dakota for 1967 and 1992–93 and reported significant increases in woodland-associated bird species. They noted that the increases in these



species paralleled increases in woodland habitat in North Dakota. Bernstein et al. (1990) conducted a similar study in northwestern Iowa and noted a similar trend for woodland-associated bird species for that region.

Knopf (1986) suggested that it is probable that nearly 90% of the contemporary riparian avifauna in the western Great Plains was not present prior to 1900. In the case of the contemporary avian community of Platte River forests, a similar conclusion can be posited. The contemporary avian community appears not to contain many endemic species to central Nebraska and is comprised mostly of ecological generalists that have continental distributions (e.g., house wren, American robin, gray catbird, and common yellowthroat) or species that occur primarily in eastern deciduous forests (e.g., red-headed woodpecker, red-bellied woodpecker, orchard oriole, and eastern wood-pewee; Price et al. 1995). Moreover, many of the common riparian species that currently inhabit Platte River forests (e.g., red-bellied woodpecker, white-breasted nuthatch, wood duck, and northern cardinal) did not occur in those forests prior to 1920 (Ducey 1988). Consequently, the contemporary avian community found in riparian forests along the Platte River likely has little resemblance to the historic avian community.

Riparian forests along the Platte River certainly contain some of the most diverse avian communities of any habitat in central Nebraska. However, the majority of these species are considered habitat generalists. In my study, the avian community was dominated by forest-edge and open-forest generalist species that accounted for 78% of the species occurring in riparian forests along the Platte River. Moreover, the most abundant birds in the riparian forest were edge and open-forest generalist species (e.g., house wrens, Baltimore orioles, common yellowthroats, and blue jays). Similarly, Faanes and Lingle (1995) and Colt (1997) found edge and open-forest generalist species were the most abundant birds in riparian forests along the Platte River. The abundance of edge and open-forest generalist species can be attributed to the spatial arrangement of riparian forests along the Platte River. Most of the forests are narrow and linear, and contain many tree-fall gaps that create a highly patchy forest (Colt 1997). As a result of this spatial arrangement, these forests are much more suitable for edge and open-forest species than closed-forest and interior species. Specifically, these forests are not wide enough to provide core areas for interior species that are area sensitive. Additionally, the patchiness of these forests makes them unsuitable for many of the closed-forest specialist species. The lower abundances of many of the closed-forest species and single observations of three interior species (wood thrush, American redstart, and Acadian flycatcher) supports the contention that these forests are more suitable for edge and open-forest generalist species than closed-forest and interior species.

Recently, some researchers have questioned the use of tree clearing along the Platte River as a management technique for enhancing sandhill crane and whooping crane habitat on the grounds that this technique may severely impact the woodland bird species that use riparian forests (Johnson and Boettcher 1999; Johnson and Boettcher 2000; Potter 2004a). In fact, Johnson and Boettcher (1999) suggested the biologically diverse bird community inhabiting Platte River riparian forests as a major reason for seriously questioning the tree-clearing program. This study certainly shows that riparian forests along the Platte River contain a very diverse breeding bird community. The question is what impact the tree-clearing program has had or will have on these woodland birds. In general, I suggest that the woodland bird community is minimally affected by the tree-clearing program. A closer examination of the woodland bird community shows that the community is primarily composed of habitat generalist species. Species such as house wrens, Baltimore orioles, blue jays, and American robins are ubiquitous and inhabit a wide range of habitats (e.g., woodlots, fencerows, urban areas, and homesteads). Results from this study as well as other studies (Faanes and Lingle 1995; Colt 1997) have also shown that area-sensitive species, a group of great concern to conservationists, rarely use these forests. Moreover, the amount of forest cleared is conservatively estimated to be <5% of the total amount of riparian forest that occurs along the Platte River in central Nebraska (C.A. Davis unpublished data). The clearing of large tracts is uncommon. For example, the Platte River Whooping Crane Trust has cleared a 287 ha forest tract and Central Nebraska Public Power and Irrigation District has cleared a 128 ha forest tract (Potter 2004b) to restore grassland habitats along the river. Most clearings along the river range in size from <1 to 3 ha and are typically restricted to islands and riverbanks, not the gallery forest. These small clearings may actually be beneficial to edge species such as Bell's vireos and willow flycatchers (two species of concern), especially as these clearings become early successional shrub communities.

A much larger issue facing woodland birds along the Platte River may be the replacement of the cottonwood-willow riparian forest by eastern redcedar and Russian-olive (*Elaeagnus angustifolia*). Johnson (1994) suggested that cottonwood-willow riparian forests along the Platte River will decline in the future and likely be replaced by later-successional tree species such as green ash, eastern redcedar, and Russian-olive. The replacement of cottonwood-willow riparian forests by later-successional tree species could potentially affect cavity-nesting birds because the later-successional trees provide fewer nesting cavities (Sedgwick and Knopf 1990). Knopf and Scott (1990) noted that the displacement of the native cottonwood overstory in the Platte River headwaters would likely result in the loss of all species in the cavity-nesting guild.

Additionally, conservationists should be concerned about the overall changes in the composition of the avian community that accompany the invasion of eastern redcedar and Russian-olive (see Coppedge et al. 2001a, 2001b). It is very likely that many of the species that now commonly occur in these forests will not occur in forests dominated by eastern redcedar and Russian-olive.

Management of Platte River habitats presents a challenge to conservation organizations. In particular, how do conservationists balance the needs of species that have conflicting habitat requirements? Whooping cranes and sandhill cranes require wide, unobstructed river channels that now occur on only a few stretches of the Platte River (Davis 2003). Grassland birds, which have experienced steeper population declines than any other group of birds in North America (Samson and Knopf 1994), require large, unfragmented tracts of grasslands, and many of the remaining grasslands along the Platte River are severely degraded because of overgrazing and encroachment by eastern redcedar and Russian-olive (Davis 2001). It would seem that maintaining and enhancing habitats (i.e., open channel and grassland habitats) for species that are declining or have been severely impacted by the expansion of riparian forests should be a high priority. However, placing a higher priority on grassland birds and cranes does not mean disregarding the needs of woodland bird species that are currently thriving along the Platte River and appear to have stable and, in many cases, increasing populations. Clearly, conservationists and managers of Platte River habitats should consider both the benefits and detriments of their management practices and make their management decisions accordingly.

### Acknowledgments

I thank the National Audubon Society's Lillian Annette Rowe Sanctuary and the Nature Conservancy's Platte River/Rainwater Basin Project Office for allowing access to their lands. William Giuliano provided helpful comments on an earlier version of the manuscript. Financial support for this study was provided by the Platte River Whooping Crane Trust.

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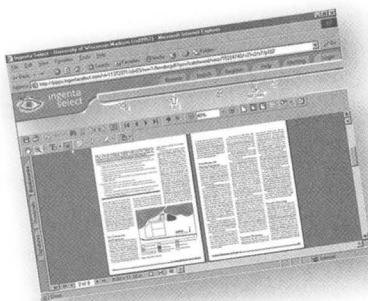


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