

## AVIFAUNA OF THE FOUR CANYON PRESERVE, ELLIS COUNTY, OKLAHOMA

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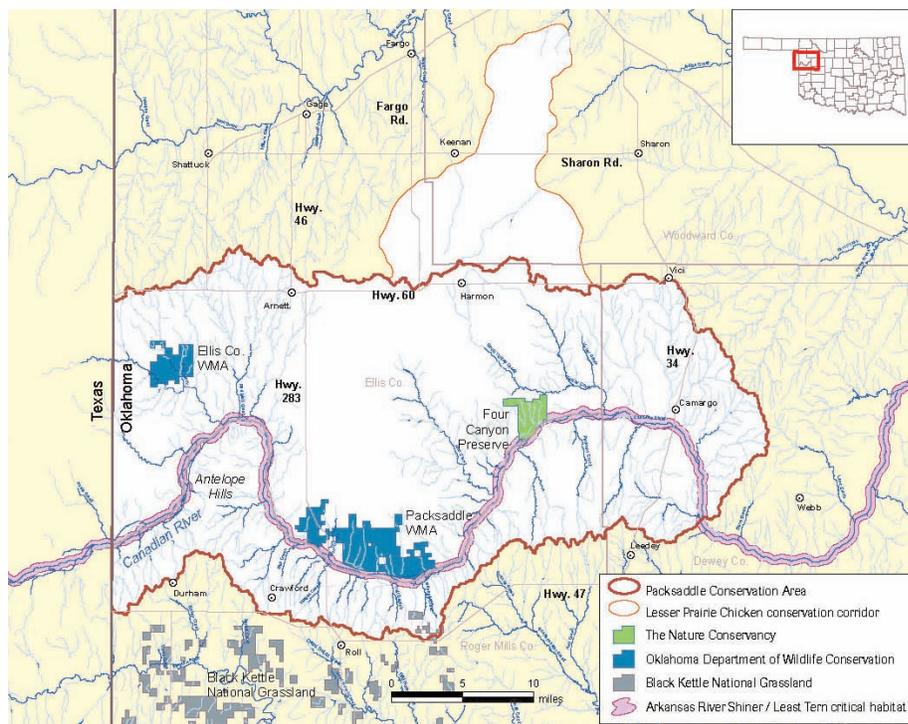
**ABSTRACT.**—In 2004 the Nature Conservancy established a new preserve in the mixed prairie of northwestern Oklahoma. Our year-round surveys of the preserve in 2005 yielded 97 bird species. With additional species recorded by others, the site list stands at 111 native species and two non-native species. We confirmed nearly one-fourth of these species as breeders on site, and an additional fourth of the species probably or possibly breed on site. Among the species we recorded on site were Interior Least Terns (*Sterna antillarum athalassos*), and we report on the potential occurrence of resident Lesser Prairie-Chickens (*Tympanuchus palidicinctus*) and migrant Whooping Cranes (*Grus americanus*). We also compiled a list of additional species likely to occur on the preserve as migrants, breeders, or winter visitors.

### INTRODUCTION

Western Oklahoma sits at a biogeographic crossroads, a place where East meets West. The predominant pre-settlement habitat was mixed grass prairie interspersed with shallow, wooded canyons and occasional floodplains. Extensive ranching has reduced shrub cover and decreased vegetation complexity in upland prairie and shrubland in western Oklahoma. Otherwise, this habitat has changed little save for an expansion of eastern red cedar (*Juniperus virginiana*) throughout the region (Engle et al. 1996, Briggs et al. 2002, Reinking 2005).

Habitat on The Nature Conservancy's new Four Canyon Preserve (Fig. 1) in southern Ellis County, Oklahoma, is typical of this description: uplands support mixed grass prairie with some invasion by *Juniperus*, wooded canyons cut through the site, and the broad floodplain of the Canadian River forms the southern boundary (Fig. 2). This 1375-ha preserve thus supports a diversity of habitats, and it lies near the eastern edge of the vast shortgrass prairie that extends from central Canada south to eastern New Mexico. The habitat diversity in turn predicts a wide diversity of birdlife, which our surveys of the site documented.

Figure 1. Location map of The Nature Conservancy's Four Canyon Preserve, Ellis County, northwestern Oklahoma.



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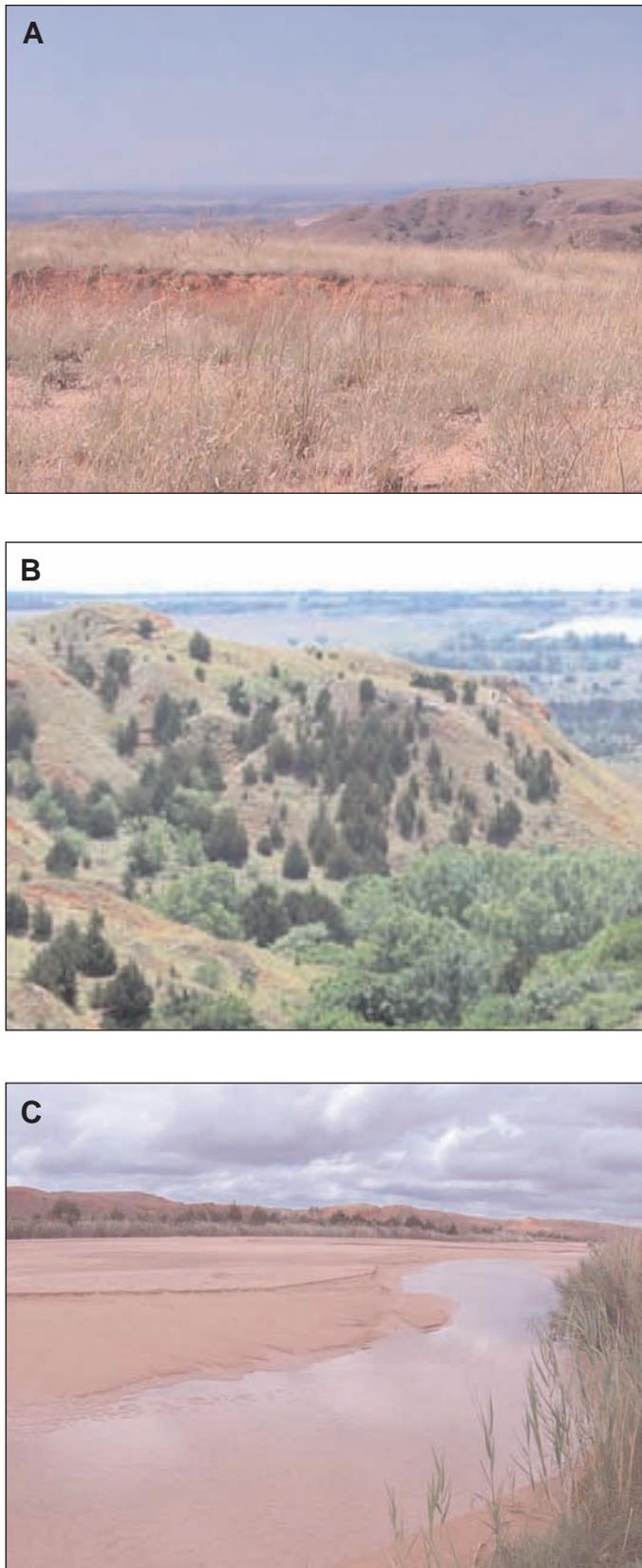


Figure 2. Upland (A), canyon bottom (B), and floodplain (C) habitat on the Four Canyon Preserve, Ellis County, Oklahoma.

## METHODS

We conducted site-wide avifaunal surveys of the Four Canyon Preserve from April to December 2005, with survey visits distributed to include all four seasons. Each visit consisted of either one or two observers surveying for either 8 or 16 hours over one or two consecutive days. Specific dates for the surveys were 27 April, 24-25 May, 19-20 June, 27 July, 18 September, 26-27 October, 04 December, and 21-22 December. At least one of the authors took part in each survey. We attempted to visit all major habitat types within the preserve on each visit, and used survey techniques similar to those used in Christmas Bird Counts, in which observers travel at will within the search area and record all birds seen or heard.

During spring and summer visits, we classified breeding activity using a standardized scoring scheme similar to that in Oklahoma's breeding bird atlas (Reinking 2004). A confirmation of breeding followed the same stringent criteria: an active or old nest, an adult attending young (including carrying food), or the presence of dependent juveniles. "Probable breeding" was more lax—we followed the standard criteria (e.g., 7 singing males, pair bonding, territorial defense) but also included any species present consistently during our summer surveys that is known to breed in the vicinity (per Seyffert 2001, Reinking 2004). "Possible breeding" was the presence of 1-3 singing males on only one or two of the late spring or summer surveys. For our annotated list of species recorded on the preserve, taxonomy follows the American Ornithologists' Union (1998), with the exception of the Yellow-rumped Warbler (*Dendroica coronata*) complex, for which we follow Zink and McKittrick (1995). Subspecies taxonomy, where noted, follows Sutton (1967), with the exception of the Song Sparrow, for which we follow Arcese et al. (2002). We used four simple status codes to denote relative abundance of each species, by season: common, encountered often (many times per day) or in large numbers; fairly common, encountered daily in small numbers; uncommon, encountered on some surveys, generally only one or two individuals; and rare, encountered on only one survey or thought to be scarce in the region.

## RESULTS

We recorded 97 species of native birds—plus an identifiable subspecies of flicker and of junco—on the Four Canyon Preserve (Table 1). We confirmed breeding for 24 of these species and concluded that an additional 25 species probably (15) or possibly (10) breed on site (Table 1). We list an additional 14 native and 2

non-native species recorded by Nature Conservancy staff and volunteers (Chris Hise in litt.). Apart from Jay Pruett's April 2004 sighting of a King Rail (*Rallus elegans*), the species Hise reported to us were species we expected to occur on the preserve. In this vein, on the basis of species' known status and distribution in the region, we identified an additional 45 species that we feel are likely to occur on site (Appendix).

Common upland species on the preserve included the Lark and Grasshopper Sparrows, Dickcissel, Eastern Meadowlark, and Brown-headed Cowbird (Table 1). Canyons, by contrast, harbored a generally

distinct avifauna, an unsurprising result given the change from grassland to woodland. Common species in the canyons included the Carolina Chickadee, Bewick's Wren, and Painted Bunting (Table 1). The floodplain harbored species that occurred in the uplands (in open grassy or marshy habitat) and canyons (in wooded areas) and that occurred in neither area. Common or fairly common species in the floodplain included the Mourning Dove, Red-bellied Woodpecker, and Northern Cardinal (Table 1). Species such as the Least Tern, Bell's Vireo, and Yellow-breasted Chat were found only in the floodplain.

Table 1. Avifauna of The Nature Conservancy's Four Canyon Preserve, Ellis County, Oklahoma. Breeding codes: N = nesting confirmed; n = nesting probable; (n) = nesting possible. Habitat codes: U = upland; C = wooded canyons; F = floodplain (Canadian River). Status codes: c = common; f = fairly common; u = uncommon; r = rare. Those species listed in brackets were reported by Chris Hise (in litt.).

Species scientific name - English name	breeding	habitat	season			
			Sp	Su	F	W
<b>ANSERIFORMES</b>						
ANATIDAE						
<i>Branta canadensis</i> - Canada Goose		F				r
<i>Anas americana</i> - American Wigeon		U				r
<i>Anas p. platyrhynchos</i> - Mallard	N	U	u			u
<i>Anas discors</i> - Blue-winged Teal		U	r			
<b>GALLIFORMES</b>						
PHASIANIDAE						
[ <i>Tympanuchus pallidicinctus</i> - Lesser Prairie-Chicken]		U		r		
<i>Meleagris gallopavo</i> - Wild Turkey	n	U, C	f	f	f	f
ODONTOPHORIDAE						
<i>Callipepla squamata</i> - Scaled Quail	(n)	U		r		
<i>Colinus virginianus</i> - Northern Bobwhite	N	U, C, F	f	f	f	f
<b>CICONIIFORMES</b>						
ARDEIDAE						
[ <i>Ardea herodias</i> - Great Blue Heron]		U				
<i>Egretta caerulea</i> - Little Blue Heron		U				r
<i>Butorides virescens</i> - Green Heron	(n)	F	r	r		
CATHARTIDAE						
<i>Cathartes aura</i> - Turkey Vulture	(n)	U, F	f	f	f	
<b>FALCONIFORMES</b>						
ACCIPITRIDAE						
<i>Ictinia mississippiensis</i> - Mississippi Kite	n	F, U	r	r		
<i>Accipiter striatus</i> - Sharp-shinned Hawk		U, C, F	u		u	
<i>Accipiter cooperi</i> - Cooper's Hawk		U, C, F			u	r
<i>Circus cyaneus</i> - Northern Harrier		U	u			u
<i>Buteo jamaicensis</i> - Red-tailed Hawk	(n)	U, F	u	u	u	u
[ <i>Buteo regalis</i> - Ferruginous Hawk]		U				

Table 1. Continued.

<u>Species</u> scientific name - English name	<u>breeding</u>	<u>habitat</u>	<u>season</u>			
			Sp	Su	F	W
FALCONIDAE						
<i>Falco sparverius</i> - American Kestrel	N	F	u	u	u	r
GRUIFORMES						
RALLIDAE						
[ <i>Rallus elegans</i> - King Rail]		F				
GRUIDAE						
[ <i>Grus canadensis</i> - Sandhill Crane]		F				
CHARADRIIFORMES						
CHARADRIIDAE						
<i>Charadrius vociferus</i> - Killdeer	n	U	r	r		r
SCOLOPACIDAE						
[ <i>Tringa melanoleuca</i> - Greater Yellowlegs]		F				
[ <i>Catoptrophorus semipalmatus</i> - Willet]		F				
[ <i>Actitis macularius</i> - Spotted Sandpiper]		F				
<i>Bartramia longicauda</i> - Upland Sandpiper		U	r			
<i>Calidris melanotos</i> - Pectoral Sandpiper		F				r
LARIDAE						
<i>Sterna antillarum athalassos</i> - Least Tern	n	F		u		
COLUMBIFORMES						
COLUMBIDAE						
<i>Zenaida macroura</i> - Mourning Dove	N	U, C, F	c	c	c	f
CUCULIFORMES						
CUCULIDAE						
<i>Coccyzus americanus</i> - Yellow-billed Cuckoo	N	C, U		u		
<i>Geococcyx californianus</i> - Greater Roadrunner	n	U	u	u	u	u
STRIGIFORMES						
STRIGIDAE						
[ <i>Megascops asio</i> - Eastern Screech-Owl]		C				
<i>Bubo virginianus</i> - Great Horned Owl	(n)	C	u	u	u	u
[ <i>Strix varia</i> - Barred Owl]		C				
CAPRIMULGIFORMES						
CAPRIMULGIDAE						
<i>Chordeiles minor</i> - Common Nighthawk	(n)	U		u		
<i>Caprimulgus carolinensis</i> - Chuck-will's-widow		C			r	
APODIFORMES						
TROCHILIDAE						
<i>Archilochus colubris</i> - Ruby-throated Hummingbird		U	r			
CORACIIFORMES						
ALCEDINIDAE						
<i>Ceryle alcyon</i> - Belted Kingfisher	(n)	F	r	r		

Table 1. Continued.

Species scientific name – English name	breeding	habitat	season			
			Sp	Su	F	W
PICIFORMES						
PICIDAE						
<i>Melanerpes erythrocephalus</i> – Red-headed Woodpecker		C		r		
<i>Melanerpes carolinus</i> – Red-bellied Woodpecker	n	F, C	f	f	f	u
<i>Sphyrapicus varius</i> – Yellow-bellied Sapsucker		C				r
<i>Picoides pubescens</i> – Downy Woodpecker	N	C	u	u	u	u
<i>Picoides villosus</i> – Hairy Woodpecker		C			r	r
<i>Colaptes auratus luteus</i> – Yellow-shafted Flicker		U, C			f	f
<i>Colaptes auratus canescens</i> – Red-shafted Flicker					u	u
PASSERIFORMES						
TYRANNIDAE						
<i>Sayornis phoebe</i> – Eastern Phoebe	N	F, C	u	u	u	r
<i>Myiarchus crinitus</i> – Great Crested Flycatcher	N	C	u	u	u	
<i>Tyrannus verticalis</i> – Western Kingbird		U	r			
<i>Tyrannus tyrannus</i> – Eastern Kingbird	N	U	u	u		
<i>Tyrannus forficatus</i> – Scissor-tailed Flycatcher	n	U	f	f	u	
LANIIDAE						
<i>Lanius ludovicianus</i> – Loggerhead Shrike		U			u	u
VIREONIDAE						
<i>Vireo griseus</i> – White-eyed Vireo		C		r		
<i>Vireo bellii</i> – Bell's Vireo	n	F	r	r		
<i>Vireo olivaceus</i> – Red-eyed Vireo		C	u		r	
CORVIDAE						
<i>Cyanocitta cristata</i> – Blue Jay	n	C	u	u	u	u
<i>Corvus brachyrhynchos</i> – American Crow	(n)	U, C, F	u	u	f	f
ALAUDIDAE						
[ <i>Eremophila alpestris</i> – Horned Lark]		U				
HIRUNDINIDAE						
[ <i>Progne subis</i> – Purple Martin]		C				
<i>Stelgidopteryx serripennis</i> – N. Rough-winged Swallow	n	U, C	f	f	f	
<i>Petrochelidon pyrrhonota</i> – Cliff Swallow	N	F	u	u		
<i>Hirundo rustica</i> – Barn Swallow	N	U	f	f	f	
PARIDAE						
<i>Poecile carolinensis</i> – Carolina Chickadee	N	C	c	c	c	c
<i>Baeolophus bicolor</i> – Tufted Titmouse		C			r	
TROGLODYTIDAE						
<i>Salpinctes obsoletus</i> – Rock Wren	N	U, C	u	u	u	u
<i>Thryothorus ludovicianus</i> – Carolina Wren		C	r		r	
<i>Thryomanes bewickii</i> – Bewick's Wren	N	C	c	c	c	u
REGULIDAE						
<i>Regulus satrapa</i> – Golden-crowned Kinglet		C			r	
<i>Regulus calendula</i> – Ruby-crowned Kinglet		C			u	u
SYLVIIDAE						
<i>Polioptila caerulea</i> – Blue-gray Gnatcatcher	N	C	f	f		
TURDIDAE						
<i>Sialia sialis</i> – Eastern Bluebird		U		u	u	u
<i>Sialia currucoides</i> – Mountain Bluebird		U			r	
<i>Turdus migratorius</i> – American Robin		U, C			u	u

Table 1. Continued.

Species scientific name - English name	breeding	habitat	season			
			Sp	Su	F	W
MIMIDAE						
<i>Mimus polyglottos</i> - Northern Mockingbird	n	U	u	u		u
<i>Toxostoma rufum</i> - Brown Thrasher	N	C	u	u	u	
BOMBYCILLIDAE						
<i>Bombycilla cedrorum</i> - Cedar Waxwing		C	c			c
PARULIDAE						
<i>Vermivora c. celata</i> - Orange-crowned Warbler		C	u			
<i>Dendroica coronata</i> - Myrtle Warbler		C	u			u
<i>Setophaga ruticilla</i> - American Redstart		C	r			
<i>Seiurus motacilla</i> - Louisiana Waterthrush		C	r			
<i>Geothlypis trichas</i> - Common Yellowthroat	n	F		u		
<i>Icteria virens</i> - Yellow-breasted Chat	(n)	F		r		
THRAUPIDAE						
[ <i>Piranga r. rubra</i> - Summer Tanager]		C				
EMBERIZIDAE						
<i>Pipilo maculatus arcticus</i> - Spotted Towhee		C	f			f
<i>Aimophila cassinii</i> - Cassin's Sparrow	(n)	U		r		
<i>Aimophila ruficeps</i> - Rufous-crowned Sparrow	n	U, C	u	u	u	u
<i>Spizella arborea</i> - American Tree Sparrow		U				u
<i>Spizella passerina</i> - Chipping Sparrow		C	u			u
<i>Spizella pusilla</i> - Field Sparrow	n	C, U	f	f		u
<i>Poocetes gramineus</i> - Vesper Sparrow		U				u
<i>Chondestes grammacus</i> - Lark Sparrow	N	U, C, F	c	c		
<i>Passerculus sandwichensis</i> - Savannah Sparrow		U			f	f
<i>Ammodramus savannarum</i> - Grasshopper Sparrow	N	U	c	c		
<i>Passerella iliaca zaboria</i> - Fox Sparrow		C			u	u
<i>Melospiza m. melodia</i> - Song Sparrow		C, F			f	f
<i>Melospiza lincolni</i> - Lincoln's Sparrow		C				u
[ <i>Zonotrichia albicollis</i> - White-throated Sparrow]		F				
<i>Zonotrichia querula</i> - Harris's Sparrow		U				u
<i>Zonotrichia l. leucophrys</i> - White-crowned Sparrow		U				u
<i>Junco hyemalis cismontanus</i> - Slate-colored Junco		U, C			c	c
<i>Junco hyemalis montanus</i> - Oregon Junco		U				r
CARDINALIDAE						
<i>Cardinalis cardinalis</i> - Northern Cardinal	N	C, F	f	f	f	f
<i>Passerina caerulea</i> - Blue Grosbeak	n	U, C		u	r	
<i>Passerina cyanea</i> - Indigo Bunting		C	r	r		
<i>Passerina ciris</i> - Painted Bunting	N	C, U		c		
<i>Spiza americana</i> - Dickcissel	N	U, F		c		
ICTERIDAE						
<i>Agelaius phoeniceus</i> - Red-winged Blackbird	n	F, U	u	u		
<i>Sturnella magna</i> - Eastern Meadowlark	N	U, F	c	c	c	u
<i>Sturnella neglecta</i> - Western Meadowlark		U				r
<i>Quiscalus quiscula versicolor</i> - Common Grackle		U	u			
<i>Molothrus a. ater</i> - Brown-headed Cowbird	N	U, C	c	c		
FRINGILLIDAE						
<i>Carpodacus mexicanus</i> - House Finch		U			r	r
<i>Carduelis pinus</i> - Pine Siskin		C				u
<i>Carduelis tristis</i> - American Goldfinch		C	u			f

Table 1. Continued.

<u>Species</u> scientific name - English name	<u>breeding</u>	<u>habitat</u>	<u>season</u>			
			Sp	Su	F	W
NON-NATIVE SPECIES						
STURNIDAE						
[ <i>Sturnus vulgaris</i> - European Starling]		U				
PASSERIDAE						
[ <i>Passer domesticus</i> - House Sparrow]		U				

## DISCUSSION

### Data Limitations

We likely recorded most breeding and wintering species on the Four Canyon Preserve. Without more intensive surveys, we could not confirm nesting for many suspected breeders, but we could, at least, document their presence. By contrast, our surveys identified only a small portion of the species that use the preserve when migrating. Avian migration through the Great Plains is characterized by “boom or bust” days. Favorable conditions for migrants may not be favorable for detecting the birds, and *vice versa*. As a result, we needed a good deal of luck if our surveys were to fall on days that were good for detecting migrants. We had little such luck. Daily visits throughout the fall (particularly September) and, especially, the spring (particularly mid-April to mid-May) would have increased the site list greatly. For example, Sutton (1936) collected Oklahoma’s first Veery (*Catharus fuscescens*) in southern Ellis County on 27 May 1936, and he reported various other migrants in the county during his 5-week stay that spring.

Prevailing weather also affected our surveys negatively. Statewide, it was the second driest spring since 1895, and although the summer was wet, it was followed by the thirteenth driest fall on record. For Ellis County specifically, spring was warmer and drier than average, summer was wetter with average temperatures, and fall was warmer and drier than average (“Seasonal summaries,” Oklahoma Climatological Survey 2005, [http://climate.ocs.ou.edu/seasonal\\_summary.html](http://climate.ocs.ou.edu/seasonal_summary.html), accessed 23 January 2006).

### Avifaunal Composition

Avifauna on the Four Canyon Preserve was characteristic of mixed grass prairie (e.g., the Northern Bobwhite, Dickcissel, Eastern Meadowlark, and Brown-headed Cowbird), but also included species commonly associated with wooded areas in south-central North America (e.g., the Red-bellied Woodpecker, Carolina Chickadee, Bewick’s Wren, and Painted

Bunting). The rocky bluffs on site add another dimension to the diversity, as they host both the Rock Wren and Rufous-crowned Sparrow, species with rather specific habitat requirements.

Waterbird habitat on the preserve is limited to several small ponds in upland portions of the preserve and to the Canadian River floodplain. We detected a few species of geese, ducks, herons, and shorebirds in these habitats, but the total number of waterbird species that may occur on occasion, particularly as migrants, is likely much higher (Appendix).

In addition to expected species, we detected several species near the eastern limits of their respective ranges, such as the Scaled Quail and Cassin’s Sparrow, neither of which ranges much farther eastward in Oklahoma (Sutton 1967, Reinking 2004). In addition to these two species, which are associated with arid short-grass prairie and may well breed on the preserve, we detected several other species perhaps more associated with the arid, scrubby Southwest, including the Greater Roadrunner, Western Meadowlark, and House Finch. A potentially surprising miss was the Chihuahuan Raven (*Corvus cryptoleucus*), a species that Sutton (1936) “encountered constantly” in Ellis County and that he (Sutton 1967) reported as a widespread summer visitor and breeder to western Oklahoma. This raven’s range in Oklahoma has apparently shrunk since that time, as the state’s breeders are now found almost exclusively in the westernmost portion of the panhandle (Reinking 2004).

We detected several species near the western limits of their respective ranges (Reinking 2004), such as the Chuck-will’s-widow and White-eyed Vireo, both of which are casual visitors to the Texas Panhandle (Seyffert 2001). Given the status of these two species in the region and our detection of them only in May/June, it is likely our birds were migrants. The same could be said of the Black-billed Cuckoo (*Coccyzus erythrophthalmus*) that Reinking observed northwest of the preserve in late May, though Sutton (1936) found this species breeding in southern Ellis

County in May 1936.

#### *Species of Special Concern*

Despite a concerted effort, we did not detect the Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*) on the Four Canyon Preserve. Nonetheless, the species formerly occurred on site, and Preserve Director Chris Hise (pers. comm.) reported several in June 2005. We do not know whether these birds were part of a small local population that evaded our detection or had wandered south from established populations in northern Ellis County. Although the species is not protected under the federal Endangered Species Act, the Lesser Prairie-Chicken is declining throughout its small range—it is endemic to the shortgrass prairie of the south-central United States—and is especially vulnerable in Oklahoma (Patten et al. 2005). Accordingly, focused surveys for prairie-chickens on and surrounding the preserve ought to be a high priority.

Although little waterbird habitat occurs on the preserve, the floodplain has the potential to provide suitable stopover sites for migratory shorebirds and cranes. Regarding the latter species, we did not detect the Sandhill Crane on the site during our surveys, but we suspect it occurs in small numbers during late fall (mid-October to mid-December). The Four Canyon Preserve lies to the west of the main migratory corridor (see Meine and Archibald 1996) used by the small population of the Whooping Crane (*Grus americanus*), a species whose population along its historical migratory route from Alberta to Texas numbers under 250. Yet there are scattered records, some as recently as the late 1980s, for the Canadian River in Ellis County (Austin and Richert 2001), suggesting that the floodplain on site may host this critically endangered species on rare occasion.

We did not locate a nest, but *Sterna antillarum athalassos*, the Interior Least Tern, possibly breeds along the Canadian River, as evidenced by our May observation of an adult carrying food. This behavior could have signaled either an adult carrying food to nestlings or a male carrying food during ritualized courtship (see Thompson et al. 1997), meaning, respectively, that nesting on-site was either confirmed or probable. The Four Canyon area has supported a low density of this species for many years (Hill 1993). Provided it remains intact, the floodplain on site should continue to support low densities of this federally endangered subspecies.

#### *Management Recommendations*

The preserve manager has initiated manual

removal of eastern red cedar, an effort that should continue. Enacting a patch burning regime (see Fuhlendorf and Engle 2004) will likely deter spread of this species and may not be so labor intensive. It would also be desirable to remove the few patches of salt cedar (*Tamarix ramosissima*) from canyons before that invasive species spreads further. This effort could be coupled with the planting of native willows (*Salix* sp.). Removing salt cedar from the floodplain is likely infeasible at this point.

Both the Lesser Prairie-Chicken and the Interior Least Tern were recorded on the Four Canyon Preserve in 2005. Nonetheless, our surveys could do little more than establish presence and a rough idea of relative abundance. We therefore recommend that focused surveys for these two species be undertaken to determine to what extent, if any, viable populations of them occur on the preserve.

#### ACKNOWLEDGMENTS

We thank The Nature Conservancy for financial support and Chris Hise for his cheerful help with access and logistics. Hise also shared bird sightings with us and commented on the manuscript. Bonnie Gall and Brenda D. Smith-Patten assisted with the field surveys. The map and habitat photographs are courtesy of The Nature Conservancy.

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Appendix. Additional species likely to occur on the Four Canyon Preserve as migrants (M), breeders (B), or winter visitors (W). We compiled the list on the basis of a species' documented status and distribution in northwestern Oklahoma (Sutton 1936, 1967, Oklahoma Bird Records Committee 2004, Reinking 2004) and the adjacent Texas Panhandle (Seyffert 2001).

Scientific name	English name	Potential occurrence
<i>Anser albifrons</i>	Greater White-fronted Goose	M
<i>Chen caerulescens</i>	Snow Goose	M
<i>Chen rossii</i>	Ross's Goose	M
<i>Branta hutchinsii</i>	Cackling Goose	M
<i>Anas strepera</i>	Gadwall	M
<i>Buteo swainsoni</i>	Swainson's Hawk	M, B
<i>Buteo lagopus</i>	Rough-legged Hawk	W
<i>Aquila chrysaetos</i>	Golden Eagle	W
<i>Falco columbarius</i>	Merlin	W
<i>Tringa solitaria</i>	Solitary Sandpiper	M
<i>Numenius americanus</i>	Long-billed Curlew	M
<i>Calidris minutilla</i>	Least Sandpiper	M
<i>Calidris pusilla</i>	Semipalmated Sandpiper	M
<i>Calidris fuscicollis</i>	White-rumped Sandpiper	M
<i>Calidris himantopus</i>	Stilt Sandpiper	M
<i>Gallinago delicata</i>	Wilson's Snipe	M
<i>Larus pipixcan</i>	Franklin's Gull	M
<i>Larus delawarensis</i>	Ring-billed Gull	M
<i>Tyto alba</i>	Barn Owl	B
<i>Phalaenoptilus nuttallii</i>	Common Poorwill	B
<i>Empidonax minimus</i>	Least Flycatcher	M
<i>Vireo gilvus</i>	Warbling Vireo	M, B
<i>Chaetura pelagica</i>	Chimney Swift	M

Appendix continued.

Scientific name	English name	Potential occurrence
<i>Corvus cryptoleucus</i>	Chihuahuan Raven	B
<i>Tachycineta bicolor</i>	Tree Swallow	M
<i>Troglodytes aedon</i>	House Wren	M, B
<i>Myadestes townsendi</i>	Townsend's Solitaire	M, W
<i>Catharus ustulatus</i>	Swainson's Thrush	M
<i>Catharus guttatus</i>	Hermit Thrush	M
<i>Dumetella carolinensis</i>	Gray Catbird	M
<i>Vermivora ruficapilla</i>	Nashville Warbler	M
<i>Dendroica petechia</i>	Yellow Warbler	M
<i>Mniotilta varia</i>	Black-and-white Warbler	M
<i>Wilsonia pusilla</i>	Wilson's Warbler	M
<i>Calcarius mccownii</i>	McCown's Longspur	M, W
<i>Calcarius lapponicus</i>	Lapland Longspur	M, W
<i>Calcarius ornatus</i>	Chestnutcollared Longspur	M, W
<i>Spizella pallida</i>	Clay-colored Sparrow	M
<i>Calamospiza melanocorys</i>	Lark Bunting	M
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	M
<i>Passerina amoena</i>	Lazuli Bunting	M
<i>Dolichonyx oryzivorus</i>	Bobolink	M
<i>Icterus spurius</i>	Orchard Oriole	M
<i>Icterus galbula</i>	Baltimore Oriole	B, M
<i>Icterus bullockii</i>	Bullock's Oriole	M, B