

BIRD INVENTORY AT LITTLE RIVER CANYON NATIONAL PRESERVE, ALABAMA, 2003-2005

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INTRODUCTION

Little River Canyon National Preserve (LRCNP), located on Lookout Mountain east of Fort Payne in Cherokee and DeKalb counties in northeastern Alabama, became a National Park Service unit in 1992. One of the longest mountaintop rivers in the eastern United States, the LRCNP also encompasses one of the most extensive gorge systems and possesses one of the cleanest rivers in that region. Little ornithological fieldwork has been conducted in the LRCNP, however, and therefore, the primary objectives of this research were to determine the relative status and seasonal abundance of the birds inhabiting the LRCNP and to collect evidence of breeding.

METHODS

Study area. — LRCNP (34°23'N, 85°37'W) protects about 5670 hectares (14,000 acres) of the Little River watershed. Elevation at LRCNP is highest at the northern end of the preserve near DeSoto State Park (425 m [1400 ft]); to the south the preserve's elevation along the river decreases considerably, falling to 180 m (600 ft) at Canyon Mouth Park at the extreme southern end of the preserve. Habitats within the LRCNP are dominated by fairly mature mixed forest, with smaller areas of wetlands (including a beaver pond, small swamp-like areas and bogs), sandstone glades and shrub-scrub. Mature forests are comprised of a variety of upland types, as well as riparian areas along the river. The evergreen component of upland forests suffered a Southern Pine Beetle (*Dendroctonus frontalis*) outbreak from 2000 to 2003, resulting in a temporary increase in shrub-scrub habitat. Prior to the beetle outbreak, a rotational burn plan was employed for many years throughout the preserve.

Inventory methods.— Thirty-three point counts were conducted during late May and early June of 2003 and 2004. The protocol for these counts entailed standing at the center of a 100-meter diameter plot and counting all birds heard

and seen for 10 minutes; birds were recorded as occurring at one of four distance intervals (< 25 m; 25-50 m; 50-100 m; and >100 m) or as flyovers; birds were also recorded as occurring within one of three temporal intervals (0-3 min; 3-5 min; 5-10 min) (Hamel 1992, Hamel et al. 1996). Any birds flushed during approach to the plot center were included among the birds recorded at the point. Birds believed to have been already counted at one point were not counted if detected at an adjacent point.

During spring and fall, survey walks were also conducted 3-4 times per season. The walks typically lasted 1-2 hours, covered a distance of about 1.5 km, and species seen or heard were recorded. Because LRCNP varies greatly in elevation and habitat, survey walks were conducted in as many habitats and at as many elevations as possible.

In winter, raptor surveys (including owls) were conducted by automobile. Surveys lasted 2-4 hours during late morning and early afternoon. Because LRCNP has extensive roads that could not all be covered in one winter day, raptor counts were conducted over two days. Raptor surveys were supplemented by scanning from overlooks along survey routes. Night surveys were also conducted to detect the presence of owls, nightjars, and woodcocks during the appropriate season and environmental conditions (i.e., good weather and full moon). A tape recording of owl calls (federal permit obtained) was used to survey for owls.

Data were also collected by informal but systematic sampling of many habitats by foot, automobile, and canoe. Because grassland and shrub-scrub habitats are quite limited in LRCNP, most of the shrub-scrub sites were walked at all seasons and most of the grassland areas (i.e., wildlife plots) were walked each fall, winter, and spring. When conditions were promising for migrant shorebirds (i.e., after rain events), all accessible sites in the preserve that might provide habitat for them (e.g., the beaver pond, Canyon Mouth Park sandbars, and the riverbed just north of the State Route 35 bridge) were checked for these species. Portions of Little River north of State Route 35 were canoed at least three times to check for waterfowl and riparian birds; all accessible sites along the river were walked numerous times during all seasons.

During the breeding season, which includes most of the spring and summer, efforts were made to record breeding evidence for all species breeding in the preserve. The breeding designations were based on the following criteria. "Confirmed breeding" was noted for a species if an individual was observed carrying nest material or food, constructing a nest, performing a distraction display, or incubating. Further, the discovery of a nest with eggs or young, a

used nest, or dependent short-tailed young also confirmed breeding. “Probable breeding” was indicated for a species if a pair was found in suitable habitat, if courtship behaviors were observed or if agitation behaviors often associated with nest disturbance were noted. A “possible breeding” designation was given if a species was found in suitable habitat within safe dates determined by the Alabama Breeding Bird Atlas project.

RESULTS

Total species.— Sixty visits were made to the LRCNP, during all seasons of the year (14 days during spring, 20 days during summer, 12 days during fall, and 14 days during winter). In the course of these visits, 145 species (Table 1) were observed.

Breeding species.— Sixty-nine species were registered during point counts conducted during 2003, while 72 species were detected during point counts conducted in 2004. In all, point count effort led to data for 79 species of birds (Table 2), all of which occur in LRCNP during the breeding season. Evidence for breeding was found for 90 species (Table 1) including 18 (20%) possible breeders, 28 (31%) probable breeders, and 44 (49%) confirmed breeders.

TABLE 1. Species, status, seasonal abundance, breeding designations of birds observed at Little River Canyon National Preserve, Cherokee and DeKalb counties, Alabama 2003-2005.

Common Name	Status ^b	Sp	Su	Fa	Wi
Canada Goose *** a	PR	U c	U	U	U
Wood Duck **	PR	U	U	U	U
Mallard	TR			U	
Blue-winged Teal	TR			VU	
Wild Turkey ***	PR	FC	FC	U	U
Northern Bobwhite **	PR	U	U	U	VU
Great Blue Heron ***	PR	U	U	U	U
Green Heron **	SR	U	U	U	
Black Vulture **	PR	U	U	U	FC
Turkey Vulture *	PR	FC	FC	FC	FC
Osprey	TR	VU		U	
Bald Eagle	TR	VU		VU	VU
Sharp-shinned Hawk ***	PR	VU	VU	U	U
Cooper's Hawk	TR			U	U

TABLE 1. Continued.

Common Name	Status ^b	Sp	Su	Fa	Wi
Red-shouldered Hawk ***	PR	U	U	U	U
Broad-winged Hawk ***	SR	U	U	FC	
Red-tailed Hawk ***	PR	U	U	U	U
Golden Eagle	UN	R			
American Kestrel *	UN	R	R	R	
Merlin	TR	R			R
Sandhill Crane	TR				VU
Killdeer	VR			VU	VU
Spotted Sandpiper	TR		R		
Wilson's Snipe	TR				VU
American Woodcock *	PR	VU	VU	VU	U
Rock Pigeon	PR		R	R	
Mourning Dove *	PR	C	C	C	C
Yellow-billed Cuckoo ***	SR	U	FC	R	
Black-billed Cuckoo	TR	R			
Eastern Screech-Owl ***	PR	U	U	U	U
Great Horned Owl **	PR	U	U	U	U
Barred Owl **	PR	U	U	U	U
Northern Saw-whet Owl	UN				R
Common Nighthawk	TR	R		FC	
Chuck-will's-widow ***	SR	FC	FC		
Whip-poor-will ***	SR	FC	FC		
Chimney Swift *	SR	U	U	FC	
Ruby-throated Hummingbird **	SR	U	U	U	
Belted Kingfisher **	PR	U	U	U	U
Red-headed Woodpecker ***	PR	FC	FC	U	U
Red-bellied Woodpecker ***	PR	FC	FC	FC	FC
Yellow-bellied Sapsucker	WR	U		U	U
Downy Woodpecker ***	PR	FC	FC	FC	FC
Hairy Woodpecker ***	PR	FC	FC	U	U
Northern Flicker ***	PR	FC	FC	FC	U
Pileated Woodpecker **	PR	FC	FC	FC	FC
Eastern Wood-Pewee **	SR	U	FC	U	
Acadian Flycatcher ***	SR	U	FC	U	
Least Flycatcher	TR	VU		R	
Eastern Phoebe ***	PR	FC	FC	FC	U
Great Crested Flycatcher ***	SR	FC	FC		
Eastern Kingbird *	SR	U	U		

TABLE 1. Continued

Common Name	Status ^b	Sp	Su	Fa	Wi
White-eyed Vireo ***	SR	FC	FC	U	
Yellow-throated Vireo **	SR	U	U	U	
Blue-headed Vireo **	SR	C	C	U	
Philadelphia Vireo	TR			VU	
Red-eyed Vireo **	SR	A	A	U	
Blue Jay ***	PR	A	A	A	A
American Crow ***	PR	A	A	A	A
Common Raven d	UN		R		
Horned Lark	VR				R
Purple Martin	VR	U	U		
Tree Swallow *	UN		R		
Northern Rough-winged Swallow **	SR	U	U		
Cliff Swallow	UN		R		
Barn Swallow **	SR	U	U		
Carolina Chickadee ***	PR	A	A	A	A
Tufted Titmouse ***	PR	A	A	A	A
Red-breasted Nuthatch	WR	VU		R	VU
White-breasted Nuthatch ***	PR	C	C	U	U
Brown-headed Nuthatch *	PR		VU	VU	VU
Brown Creeper	WR	VU			U
Carolina Wren ***	PR	A	A	A	A
House Wren	TR	VU		VU	
Winter Wren	WR	VU		VU	U
Marsh Wren	TR			R	
Golden-crowned Kinglet	WR			VU	FC
Ruby-crowned Kinglet	WR	U		U	FC
Blue-gray Gnatcatcher ***	SR	C	C	U	
Eastern Bluebird ***	PR	U	U	U	U
Gray-cheeked Thrush	TR			VU	
Swainson's Thrush	TR	U		U	
Hermit Thrush	WR	VU		U	U
Wood Thrush **	SR	C	C	U	
American Robin **	PR	U	U	C	A
Gray Catbird *	SR	U	U	U	
Northern Mockingbird *	PR	VU	VU	VU	
Brown Thrasher ***	PR	U	U	U	U
European Starling *	PR	U	U	U	FC
American Pipit	WR			R	

ALABAMA BIRDLIFE

TABLE 1. Continued

Common Name	Status ^b	Sp	Su	Fa	Wi
Cedar Waxwing *	PR	U	U	U	FC
Tennessee Warbler	TR	U		FC	
Northern Parula **	SR	FC	U	U	
Yellow Warbler *	TR	U	R		
Chestnut-sided Warbler	TR	U	R	FC	
Magnolia Warbler	TR	U		FC	
Cape May Warbler	TR	U		R	
Yellow-rumped Warbler	WR	FC		FC	FC
Black-thr. Green Warbler **	SR	C	FC	U	
Blackburnian Warbler	TR	U		U	
Yellow-throated Warbler ***	SR	C	C	FC	
Pine Warbler ***	PR	A	C	C	U
Prairie Warbler ***	SR	C	C	U	
Palm Warbler	TR	U		U	
Bay-breasted Warbler	TR	C		U	
Blackpoll Warbler	TR	C			
Cerulean Warbler *	SR	U	R		
Black-and-white Warbler **	SR	C	C	FC	
American Redstart	TR	U		U	
Worm-eating Warbler ***	SR	C	C	U	
Swainson's Warbler *	SR	VU	VU		
Ovenbird **	SR	C	C	FC	
Northern Waterthrush	TR	U		VU	
Louisiana Waterthrush ***	SR	U	U	VU	
Kentucky Warbler ***	SR	FC	FC		
Common Yellowthroat **	SR	A	A	U	
Hooded Warbler **	SR	U	C	U	
Wilson's Warbler	TR	U			
Canada Warbler	TR	U			
Yellow-breasted Chat ***	SR	A	A	U	
Summer Tanager **	SR	FC	FC	FC	
Scarlet Tanager **	SR	FC	FC	FC	
Eastern Towhee ***	PR	C	C	C	C
Bachman's Sparrow *	SR	R	R		
Chipping Sparrow ***	PR	FC	FC	C	U
Field Sparrow ***	PR	C	C	C	FC
Fox Sparrow	WR			R	VU
Song Sparrow **	PR	VU	VU	U	FC

TABLE 1. Continued

Common Name	Status ^b	Sp	Su	Fa	Wi
Swamp Sparrow	WR	U		R	U
White-throated Sparrow	WR	FC		FC	C
White-crowned Sparrow	WR	VU			R
Dark-eyed Junco	WR	U		FC	C
Northern Cardinal ***	PR	A	A	A	A
Rose-breasted Grosbeak	TR	U		U	
Blue Grosbeak **	SR	FC	FC	U	
Indigo Bunting ***	SR	A	A	U	
Red-winged Blackbird **	SR	VU	VU	VU	
Eastern Meadowlark	VR	VU	VU		R
Common Grackle ***	PR	U	U	U	C
Brown-headed Cowbird ***	PR	C	C	U	
Orchard Oriole *	SR	U	VU		
Baltimore Oriole	TR	R			
Purple Finch	WR			VU	VU
House Finch *	PR	VU	VU	VU	VU
Red Crossbill d	VR			R	
Pine Siskin	VR			VU	VU
American Goldfinch ***	PR	FC	FC	FC	FC

^a * = possible breeding. ** = probable breeding. *** = confirmed breeding.

^b PR = permanent resident; SR = summer resident; TR = transient; VR = visitor; WR = winter resident.

^c C = common; FC = fairly common; U = uncommon; VU = very common; R = rare

^d = Known only from historical records supplied by G. Jackson.

Count results indicated that the breeding bird density, especially for the warblers, was quite low in the riparian zone along the Little River both in the section north of State Route 35 and in the gorge section. Densities of Acadian Flycatchers and Wood Thrushes, however, were quite high along the river in these sections. Surprisingly, low breeding bird densities were also recorded in the old growth deciduous forest plot on the lower gorge side at Canyon Mouth Park.

DISCUSSION

Total Species.— The species encountered were very much in line with the species listed by Region in Imhof (1976), as well as with the species recorded in northern Alabama during the recent Alabama Breeding Bird Atlas project

ALABAMA BIRDLIFE

TABLE 2. Species and individuals counted at 33 Points (10 minutes each) at unlimited distance during May and June, 2003 and 2004, at Little River Canyon National Preserve, Cherokee and DeKalb counties, Alabama.

Common Name	Points counted ^a	Individuals ^b	Points counted	Individuals
Canada Goose	--	--	1	2
Wood Duck	1	2	2	2
Wild Turkey	4	4	5	5
Northern Bobwhite	2	3	5	7
Great Blue Heron	3	4	--	--
Green Heron	2	2	--	--
Black Vulture	1	2	1	1
Turkey Vulture	1	3	--	--
Red-shouldered Hawk	3	3	2	2
Broad-winged Hawk	2	2	4	4
Red-tailed Hawk	--	--	1	1
Mourning Dove	16	28	24	48
Yellow-billed Cuckoo	6	7	11	11
Barred Owl	--	--	2	2
Chuck-will's-widow	--	--	1	1
Whip-poor-will	1	1	--	--
Chimney Swift	1	3	3	6
Ruby-throated Hummingbird	3	3	2	2
Belted Kingfisher	1	1	2	2
Red-headed Woodpecker	5	8	3	4
Red-bellied Woodpecker	9	11	7	12
Downy Woodpecker	9	11	9	13
Hairy Woodpecker	6	8	4	7
Northern Flicker	7	9	6	8
Pileated Woodpecker	11	13	12	20
Eastern Wood-Pewee	1	2	3	3
Acadian Flycatcher	3	5	8	14
Eastern Phoebe	3	3	3	4
Great Crested Flycatcher	6	8	9	15
White-eyed Vireo	8	14	9	12
Yellow-throated Vireo	3	3	5	5
Blue-headed Vireo	12	19	12	14
Red-eyed Vireo	28	75	30	85
Blue Jay	15	30	13	32
American Crow	18	49	19	59
Purple Martin	3	10	5	9
Tree Swallow	--	--	1	2
Northern Rough-winged Swallow	2	4	2	4
Barn Swallow	2	6	--	--

TABLE 2. Continued

Common Name	Points counted ^a	Individuals ^b	Points counted	Individuals
Carolina Chickadee	18	38	21	42
Tufted Titmouse	20	42	22	45
White-breasted Nuthatch	8	15	9	17
Brown-headed Nuthatch	--	--	1	1
Carolina Wren	18	38	26	79
Blue-gray Gnatcatcher	9	15	11	22
Eastern Bluebird	2	3	3	6
Wood Thrush	8	12	17	24
American Robin	--	--	2	2
Gray Catbird	1	1	--	--
Brown Thrasher	4	7	5	7
Northern Parula	4	4	3	3
Yellow Warbler	--	--	1	1
Black-throated Green Warbler	1	2	2	2
Yellow-throated Warbler	13	17	12	14
Pine Warbler	23	42	20	47
Prairie Warbler	8	23	7	26
Cerulean Warbler	1	1	--	--
Black-and-white Warbler	11	12	12	17
Worm-eating Warbler	8	13	11	14
Swainson's Warbler	--	--	1	1
Ovenbird	19	27	18	38
Louisiana Waterthrush	4	5	5	5
Kentucky Warbler	6	9	11	15
Common Yellowthroat	3	5	4	6
Hooded Warbler	19	34	20	33
Yellow-breasted Chat	11	30	11	30
Summer Tanager	8	9	10	15
Scarlet Tanager	10	11	20	37
Eastern Towhee	11	20	17	52
Chipping Sparrow	2	4	2	6
Field Sparrow	6	17	6	16
Northern Cardinal	16	53	30	95
Blue Grosbeak	3	6	4	8
Indigo Bunting	20	66	28	89
Red-winged Blackbird	1	2	1	4
Common Grackle	1	1	5	12
Brown-headed Cowbird	6	15	5	11
House Finch	--	--	1	2
American Goldfinch	3	6	3	9

^a = total number of points for which species was counted.

^b = total number of individuals counted from all points.

(S. W. McConnell, pers. comm. and R. West, pers. comm.).

Weather influences.— An effort was made to visit LRCNR during periods when the weather was conducive for registering the maximum number of species, so the influence of weather on the results was generally positive. However, the late spring and summer of 2003 produced much stormy weather and high levels of rainfall. The Little River at the Falls was sometimes 3.5 m (15 ft) above “normal” levels during most of May and June 2003, and many small streams in the park were up to a meter higher than normal during the same period. Besides the wet conditions, temperatures were cooler than normal for much of the same months. Conditions during spring and summer 2004 were not much drier and were just as cool. Such weather could have caused delayed nesting or nesting failures. Without control data from breeding seasons with more normal weather, it is hard to know if the point count data collected during 2003 and 2004 are representative or not.

The fall seasons of 2003 and 2004 were each warmer and drier than the norm with few cold fronts, which would have caused migrants to be grounded and to linger. Thus, detection of fall migrants may have been hampered. These factors certainly influenced the data collected during these seasons, but to what extent is hard to say.

The winter seasons of 2003-2004 and 2004-2005 were milder than “normal.” Snow was almost absent each winter. No “winter finch” (i.e., Evening Grosbeak, etc.) irruptions took place either winter, probably reducing the species encountered in the park as a result.

Species richness.— The overall bird list generated by this study is only moderately long, with 145 species. However, the LRCNP is rich in breeding Neotropical migrants that find the extensive mixed forest of the preserve conducive to their needs. The assemblage of migratory passerines, especially warblers, however, fell below what was expected. Weather events during the migration seasons of the inventory likely adversely affected the results.

Breeding species.— The low density of birds, especially warblers, in the riparian zone may have been due to high rise in the river following rain events. Ground and understory nesters may be especially vulnerable to flood conditions. The low breeding bird density recorded in the old growth deciduous forest plot is difficult to explain. Perhaps the high disturbance levels from users of this area of the preserve can account for it. Overall, the preserve’s breeding avifauna is rich in species diversity but densities were lower than expected.

Unexpected results.— The presence of Sharp-shinned Hawks, as plentiful migrants and as possible breeders at two locations, was unexpected. A single

spring Golden Eagle was recorded near the gorge, which contains potential nest sites for this species. Because this raptor has nested in northwest Georgia and many juveniles have been hacked north of Chattanooga at Hiwassee Wildlife Refuge, a nest at LRCNP is a possibility, albeit quite unexpected. Merlins were sighted three times during migration seasons; this once-rare falcon is making a strong comeback, but these sightings suggest that LRCNP is a good place for individuals of this species to forage and to roost during migration.

Shorebirds were fewer than expected, but spring flooding in the rivers certainly played a role in reducing registrations of those species. Furthermore, LRCNP is not on a major migration flyway, reducing the chances of encountering these birds. Additionally, the few sites where shorebirds might be seen are quite small, typically less than 0.1 hectares (0.25 acres) in extent. American Woodcocks were present in low density, but were found in suitable forest openings throughout the preserve.

In riparian sites, Yellow-billed Cuckoo, a declining breeder in some parts of North America, was fairly common, an unexpected and positive discovery. The high density of nightjars was most unexpected (e.g., 21 Chuck-will's-widows along a 20-km (12-mi) section of Canyon Rim Drive 3 June 2003). This nightjar is scattered throughout the park in habitat where pines predominate, and they increase in density where the pine habitat had been burned the previous year. Whip-poor-wills are less dense in the canyon area but were found in deciduous or mixed forests. Densities appear to be greatest (3-4 per km) in the northern end of the preserve near riparian sites.

One of the most unexpected results was the detection of a calling Northern Saw-whet Owl in late December 2003, the 7th Alabama record and first since 1987 (G. D. Jackson, pers. comm.). This owl responded with a "toot" advertising call for about five minutes to a recording of a similar call in the higher elevations of the northeastern section of the preserve. The recording was played at approximately 20 other sites that night and at over 100 total sites during January, February, and March during the two-years of the inventory, but only the one response was heard.

Woodpeckers, especially Red-headed Woodpecker, were present in good numbers in the preserve, perhaps in the short term in response to beetle damage and perhaps in the long term in response to the preserve's burn policies. Brown-headed Nuthatches were present in far lower numbers than expected, being found only at a few sites near the river and at the beaver pond. The "high" elevation of the preserve may account for the low density. Wood

Thrush numbers in the park were good, though this species is declining in many areas of North America. It was unexpected to find them using sandstone glade habitat in the park.

Migrant warblers numbers were lower than expected. These species may use the park more in some years than they did during the inventory years, and weather may have been a factor in their low numbers, as well as loss of large pines on the ridgetops. Swainson's Warbler was found only twice during the breeding season, a singing adult once at Canyon Mouth Park and an adult with young once near the Little River north of Rt. 35. Additionally, before the breeding season, one was heard in the DeSoto State Park area. The habitat they prefer appears to be present along the East and West forks of the Little River, but access to this area is difficult. Somewhat unexpected was a Yellow Warbler in June, but the habitat where it was observed (beaver pond near cow pasture) was typical for the species. Only one Cerulean Warbler was located during breeding season, a singing bird in the northeastern part of the preserve during 2003; all efforts to locate Ceruleans during 2004 failed. Habitat for the species appears to be present. The wet, cool weather each breeding season possibly affected the presence of this species in the park in a negative manner. Additional searches for breeding Cerulean Warblers need to be conducted in the preserve. Quite unexpected, a Bachman's Sparrow was found during 2003, but it could not be located during 2004. It was probably present in 2003 because the specific habitat it requires (large, recent clearcuts) was present. Unless the specific habitat this species requires is maintained, it is unlikely to persist.

Birds not found.— The lack of Osprey sightings during migration and during the breeding season was unexpected. Pairs of this raptor may nest in the preserve in the future, though the sound of gunfire during spring turkey season may affect their willingness to stay and nest. No nesting Bald Eagles were detected during the inventory, but the presence of an immature Bald Eagle on several dates during winter and spring at Everhart Point suggests that one day they may do so. This raptor nests close to LRCNP at Weiss Lake. Although some habitat for Long-eared Owl is present in the preserve, no evidence of this species was obtained despite the fact recordings of its call were played at more than 25 sites during winter evenings. Searches for roost sites were also conducted but no owls were found. There are historical records for the Common Raven and the Red Crossbill in the preserve (G. Jackson, pers. comm.), but these species were not found in our survey.

Habitat for declining species.— The preserve's forests seem quite suitable

as wintering habitat for Northern Saw-whet Owl. However, the preserve lies far south of the species' usual winter range, so it will occur only periodically in winter during irruption years. Some sites seem to provide suitable mature forest habitat for Cerulean Warbler, so its general absence at all but one of these sites during two breeding seasons is puzzling. Most of the park's forests are not conducive to persistence of Bachman's Sparrow, which favor open habitats such as clearcuts. However, it is not recommended that additional areas of the park be altered to provide for its habitat.

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