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A NOTE ON THE RANGE EXPANSION OF THE BLACK VULTURE (*Coragyps atratus*) INTO SOUTHWESTERN OKLAHOMA AND NORTH-CENTRAL TEXAS

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Abstract—During the past 20-odd years, the Black Vulture (*Coragyps atratus*) has occurred with increasing frequency westward from eastern parts of Oklahoma. In southwestern Oklahoma and adjacent north Texas, only nine records were known before 1990, but by 2014 this species had become so numerous there that it is now considered a resident in several counties. This is thought to reflect a synonymous range expansion throughout the southern Great Plains.

INTRODUCTION

The Black Vulture (*Coragyps atratus*) breeds in the New World tropics and much of the southern U. S., including central and southwest Texas northward through southeastern Oklahoma. The species usually occurs throughout the year in most of its breeding range (Buckley 1999).

In Oklahoma, this species was considered, until the 1990's, an uncommon resident in southeastern counties, rare and local elsewhere in eastern Oklahoma, and a "very rare visitant westward" (Baumgartner and Baumgartner 1992). Within recent years, however, Black Vultures have increasingly spread to regions of the southern Great Plains where previously rare or unknown. For instance, they are now regular rare summer residents in southeastern Kansas where they are suspected of again breeding and have been reported as far west as Sedgwick (2004) and Sumner counties (2007) in south-central Kansas (Thompson *et al.* 2011, pers. comm. E.A. Young). Furthermore, they are now frequent throughout northeastern Oklahoma, and a few have been sighted as far west as Oklahoma City in central Oklahoma (see eBird records: http://ebird.org/ebird/map/blkvul?neg=true&env.minY=&env.maxX=&). Prior to 1990, only nine records were known for the Black Vuture in southwestern Oklahoma and adjacent north Texas (pers. field notes). By 2014, their numbers and range had expanded to the point that, in the 13 counties comprising southwestern Oklahoma, the Black Vulture was considered a resident in Caddo, Comanche, Cotton, Grady and Stephens counties (Oklahoma Bird Records Committee 2014; author's field notes).

RECORDS

In the following discussion, records prior to 2005 are from Tyler (2005). In southwestern Oklahoma, the first known occurrence of this species was on 9 March 1951, when W. E. Southern and H. C. Land saw a single bird soaring with 10 Turkey Vultures (*Cathartes aura*) above the Wichita Mountains Wildlife Refuge (WMWR) in Comanche County (pers. comm. WES). The following year, there were two valid sightings, one on 1 June 1952, near Mangum in Greer County, by A. Lovett and S. P. Gordon (National Audubon Society, NAS, 1952), the other of two birds seen at Duncan Lake, 13 km east of Duncan, Stephens Co., by G. M. Sutton on 13 October 1952 (Sutton 1982). For nearly two decades, no Black Vulture was recorded in the region until on 10 October 1969, when J. and E. Messerley spotted one at Quartz Mountain State Park in Kiowa County (pers. comm. EM). R. Roberts saw one at the WMWR on 9 August 1978 (eBird). Another isolated record occurred on 1 April 1982, when L. Payne and L. Adams saw one at Fort Sill, Comanche County (pers. comm. LP). The earliest known occurrences for mid-winter were on 16 February 1986, when D. Simbeck saw the species at Wichita Falls, Wichita County, Texas (eBird), and 6 February 1993, when I found two near the Red River a few miles south of Ringling, Jefferson County, Oklahoma.

Beginning in the fall of 1996, observers in Stephens County, Oklahoma, noticed a few Black Vultures in the vicinity of several large lakes east and north of Duncan. On 30 December 1996, during the Stephens County Audubon Society (SCAS) Christmas Bird Count (CBC), 20 Black Vultures were tallied (NAS 1997). The species continued to be encountered sporadically, especially during spring and winter (pers. field notes). Notable were the 70 Black Vultures seen during the SCAS CBC on 28 December 2001 (SCAS 2002).

Though the WMWR lies only about 65 km east of the Stephens County lakes, Black Vultures were not seen regularly in the refuge area until, beginning in 2008, V. Fazio III saw two birds at the refuge on 10 June (eBird) and M. Lord found two at nearby Lake Lawtonka on 30 December (pers. comm. ML). This was more than a decade after the species was first detected in Stephens County. Since 2008, it has been encountered in the refuge vicinity with increasing frequency. Usually, only one or two birds have been seen at a time, most of them near water. On 29 January 2012, Lord discovered 15 roosting with as many Turkey Vultures on a tall cell phone tower 13 km north of Lawton, Comanche County, and continued to find varying numbers there until the following September; on 19 December 2012, she photographed a Black Vulture at Lake Lawtonka during the WMWR CBC (NAS 2012).

Northeast of the refuge, Lord has seen one or two birds intermittently in northeastern Comanche County and southern Caddo County for the

past few years (pers. comm. ML) and on 13 January 2013, I counted 17 Black Vultures soaring 21 km southwest of Chickasha in southern Grady Co. W. G. Voelker first noticed Black Vultures in the region on 10 December, 2006, when he saw one 2 km SE of Cyril in southeast Caddo Co. (pers. comm.). In Oklahoma, arranging records by lunar season, of the 29 records prior to 2008, the majority were from winter (41%, n = 12), and since 2008, of the 76 records, almost equal numbers were observed in winter (38%, n = 29) as in spring (33%, n = 25, Table 1). The total number of sightings increased for each season during these periods (Table 1).

Table 1. Number of sightings of the Black Vulture (*Coragyps atratus*) in southwestern Oklahoma based on the lunar season. The 2015 records are for January only.

Lunar Season	Pre-2008	2009-2015	TOTAL
Spring (21 March-20 June)	9	29	38
Summer (21 June-20 Sept)	2	13	15
Fall (21 Sept-20 Dec)	6	9	15
Winter (21 Dec-20 March)	12	25	37
TOTAL	29	76	105

For the three north Texas counties of Clay, Wichita and Wilbarger (E to W), the earliest known record was of eggs collected near Vernon, Wilbarger County, by R. L. More on 21 April 1930 (Oberholser 1974). The westernmost occurrence was about 24 km NE of Paducah, Texas, in Cottle County, where C. Langea saw one Black Vulture on 1 January, 2015 (eBird). This site is approximately 75 km WSW of the closest record near Vernon in Wilbarger County, Texas. Prior to 2008, there were 13 Texas records with about equal numbers in spring (39%, n = 5) and fall (31%, n = 4, Table 2). Since 2008, of the 27 records, the majority were from spring (37%, n = 10, Table 2), although the number of sightings increased for each season (Table 2).

Table 2. Number of sightings of the Black Vulture (*Coragyps atratus*) in Clay, Wichita, and Wilbarger counties Texas based on the lunar season. The 2015 records are for January only.

Lunar Season	Pre-2008	2009-2015	TOTAL
Spring (21 March-20 June)	5	10	15
Summer (21 June-20 Sept)	2	6	8
Fall (21 Sept-20 Dec)	4	6	10
Winter (21 Dec-20 March)	2	5	7
TOTAL	13	27	40

DISCUSSION

In summary: In southwest Oklahoma and adjacent north Texas, only a handful of sightings of the Black Vulture were known before 1990. Between 1951 and 1 February, 2015, however, a total of 145 sightings have accrued, primarily from Comanche (60) and Stephens (19) counties, Oklahoma, and Clay County (22), Texas. A majority of these sightings date from about 2008. Based on lunar season, the greatest number of sightings occurred during the spring (37%, n = 53), followed by winter (30%, n = 44), with about equal numbers in summer and fall (Table 3). Records have increased each decade since 1990 and continue to increase among seasons (Table 3). There has been a disproportionate increase in sightings since 2010, a period covering only half a decade.

Table 3. Number of sightings of the Black Vulture (*Coragyps atratus*) in southwestern Oklahoma and adjacent Texas based on lunar season and decades since 1950. The 2015 records are for January only.

Lunar Season	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2015	TOTAL
Spring (21 March-20 June)	1	1	0	1	4	12	34	53
Summer (21 June-20 Sept)	0	0	1	0	0	5	17	23
Fall (21 Sept-20 Dec)	1	1	0	0	2	8	13	25
Winter (21 Dec-20 March)	1	0	0	1	7	9	26	44
TOTAL	3	2	1	2	13	34	90	145

Curiously, there are only two known breeding records for this region. The first was in 1930 (Oberholser 1974) and the other is very recent. On 21 June 2010, B. Steiner located a nest-site that held a single egg on the south face of Rabbit Hill on Fort Sill, in Comanche County, Oklahoma (pers. comm. V. Fazio lll).

From these observations I raise two questions: why is the Black Vulture only now spreading westward after arriving in Stephens County, Oklahoma, more than a decade ago? And why the sudden and considerable expansion of numbers toward more westerly reaches since about 2008?

Their frequent occurrence around bodies of water suggests that, in addition to road-killed animals, Black Vultures depend to some extent on dead fish as a food source. Suitable roosting sites are also usually available around lakes. However, two large, longstanding Turkey Vulture roosts on the WMWR have disbanded in recent years (pers. comm., Steve Hodge, WMWR technician). Near one of these, where Little Medicine Creek empties into the southwest part of Lake Elmer Thomas, I observed two Black Vultures on a rocky hill with several

Turkey Vultures on 8 May 2009. Local Turkey Vulture populations have long been suspected of drifting southward across the Red River into north Texas during the harshest periods of winter, only to return when the weather has ameliorated (pers. field notes). There is little reason to think that Black Vultures behave differently. This behavior probably enhances their chances at finding food.

L. F. Kiff (2000) stated that the long-term trend of range expansion in this bird is probably being accelerated by global climate change. Increasingly milder winters and hotter, drier summers during the past several years in the southern Great Plains have undoubtedly had an adverse effect on food availability for wildlife, either directly or indirectly. For example, during the exceptionally dry year of 2011, extensive fires raged throughout the WMWR (an estimated 70% of the refuge burned; see article and map in *The Lawton (OK) Constitution*, 26 Aug., 2012, p. 5A), destroying great swaths of mast trees and other arboreal food sources. One result: populations of scavengers that might compete with vultures for food, including feral hogs (*Sus scrofa*), striped skunks (*Mephitis mephitis*), and probably others, are presently at abnormally low levels on the refuge (pers. comm., Steve Hodge).

There is also a bias in the numbers of active observers during different seasons. Thus, more sightings would be expected in spring, when more birders are afield (see above) and winter, especially during Christmas Bird Counts. A perusal of the 145 area records indicates that there were 24 contributors during the 10 years from 2000 to 2009, whereas 42 observers submitted sightings in the shorter five-year interval between 2010 and 2015.

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LITERATURE CITED

Baumgartner, F. M., and A. M. Baumgartner. 1992. Oklahoma bird life. Univ. OK Press, Norman.

Buckley, N. J. 1999. Black Vulture (*Coragyps atratus*). In A. Poole and F. Gill, eds., The Birds of North America, No. 411. The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

Kiff, L, F. 2000. The current status of North American vultures. Pp. 175-189 *in* R. D. Chancellor and B. U. Meyburg (eds.) Raptors at risk. World Working Group on Birds of Prey. Hancock House, Berlin/Blaine, WA.

National Audubon Society. 1952. Audubon Field Notes. 6:288-289.

_____. 1997. National Audubon Society Field Notes. 51:496.

_____. 2012. The Christmas Bird Count Historical Results [online]. Available: http://www.christmasbirdcount.org, reviewed 17 February 2015.

Oberholser, H. C., 1974, The bird life of Texas, Univ. Texas, Austin, p. 203

Oklahoma Bird Records Committee. 2014. Date Guide to the Occurrences of Birds in Oklahoma. Sixth edition. Oklahoma Ornithological Society. Edmond, Oklahoma.

Stephens County Audubon Society. 2002. The Kite Newsletter 35(3):2.

Sutton, G. M. 1982. Species summaries of Oklahoma bird records. OK Mus. Nat. Hist., Univ. Oklahoma, Norman. Unpubl.

Thompson, M.C., C.A. Ely, B. Gress, C. Otte, S.T. Patti, D. Seibel, and E.A. Young. 2011. Birds of Kansas. University Press of Kansas, Lawrence, Kansas.

Tyler, J. D., 2005. Birds of southwestern Oklahoma and north central Texas. Transcript Press, Norman.

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Notes on two Green Heron (*Butorides virescens*) nests in Comanche County, Oklahoma.— I studied the nesting activities of a pair of Green Herons (*Butorides virescens*) at a small pond in Lawton, Comanche County, Oklahoma, from 6 May to 16 July 1991. The pond was approximately 1.2 hectares (three acres) and was rimmed by black willows (*Salix nigra*). I discovered the first nest on 6 May at 0945 hrs. Both adult herons were near it, but it appeared to be only partially constructed. It had been built on a willow limb about 76.2 cm (30 in) above water at the south end of the pond. The next day, 7 May, an adult was incubating three dull turquoise eggs. Because both sexes incubate (Terres, J. K., 1987. The Audubon Society encyclopedia of North American birds. Alfred A. Knopf, N. Y.), it was uncertain which parent was on the nest. By 1920 hrs on 8 May the fourth egg had been laid. A. J. Meyerriecks (1960, Comparative breeding behavior of four species of North American herons. Publ. Nuttall Ornithol. Club No. 2) reported "the third egg was laid two days after the second, and all other eggs followed at one-day intervals," and incubation commenced with the third egg. Based on Meyerriecks (1960) the first egg of the aforementioned nest above would have been laid around the 4th of May with a presumed incubation starting on 7th of May.

Between 9 and 19 May, I checked the nest at one to two-day intervals, each time finding four eggs. The adult bird usually flushed off the nest to some vantage point nearby and watched me. It usually flitted its tail nervously and emitted loud raucous "skraaa's" of protest to my presence.

On the night of 22-23 May, 10.16 cm (4 in.) of rain fell, continuing until noon on the 23rd. At 2020 hrs that evening, the adult heron was reluctant to fly very far from the nest, and its squawks seemed louder and more insistent than before. An additional 2.54 cm (1 in.) of rain fell during this evening, and at 1015 hrs the next day (24 May), there were still four eggs present.

E. M. Reilly, Jr. (1968, The Audubon illustrated handbook of American birds, McGraw-Hill, N. Y.) stated that the usual incubation period for this species is 19-21 days. At 1130 hrs on 27 May (1st day of incubation), there was a single downy young in the nest and three eggs. At 1830 hrs, two more eggs had hatched, one egg remained, with both parents in attendance. At 1000 hrs the next day, I watched the fourth egg hatch. The hatchlings were surprisingly alert and enveloped in long, smokey-gray down, eyes open. All faced outward at one side of the nest, with their necks stretched upward.

From 1-3 June, 5.72 cm (2.25 in.) more rain fell in Lawton. When the nest was visited at 1810 hrs on 5 June, one of the week-old herons clambered a short distance out of the nest. Reilly (1968) indicated that fledging takes place at 21 to 23 days. At 0820 hrs on 11 June (15 days post-hatching), one young bird (possibly the youngest) was still in the nest, another stood on the edge, a third was 1 m (3 ft.) away on the nest-limb above the water, and the last was still 45.72 cm (18 in.) farther out on the same limb. They were not yet fully feathered, but one had a light superciliary stripe above its eye. The adults were perched nearby.

June 10th was the first day without rain in a week. It must be a daunting and demanding task to feed four rapidly-growing youngsters while attempting to shelter them from the incessant rain.

All four young herons were occupying their nest at 0945 hrs on 13 June, despite two facts: first, more than an 2.54 cm (1 in.) of rain had fallen the previous night, and secondly, grass had been mowed to within 2-3 m (7-8 ft.) of the nest only a day or so before. No adults were seen.

At 1315 hrs on the very hot day of 16 June, the four almost full-size young herons were scattered about in the nest tree above the water, but nowhere near the nest. They were nervous at my presence. I did not see either parent. Two days later (18 June, 23 days after hatching), the young herons had acquired the colors characteristic of their species. They, however, still retained a downy crown. Their tails flicked constantly. They were now in the "hop-fly" stage, and at least the three older ones could probably fly if forced to. Their survival strategy now appeared to be hiding and "freezing" with bill pointed straight up, or scrambling as high up and as far from danger as possible.

On 22 June (27th day post-hatching), two of the young birds were observed flying, though they might have been doing so since 17 or 18 June (2nd or 3rd day after hatch). While searching the west side of the

pond for the other two fledglings, a Green Heron flushed from a second nest. The nest, with four eggs, rested on a willow limb about 2 m (6.5 ft.) above the water. The nest was approximately 40 m west of the earlier one. G. M. Sutton (1967, Oklahoma birds, Univ. Oklahoma Press, Norman) and R. A. Stuart (2004, Green Heron *Butorides virescens.* In D.L. Reinking, Oklahoma Breeding Bird Atlas, University of Oklahoma Press, Norman) reported that the Green Heron is double-brooded in Oklahoma. Because no more than two adult herons were observed here, I assumed this to be their second clutch. Returning to the area around the first nest, I located the other two young.

By 26 June, the four immature herons from the initial nest were flying strongly. They appeared to be dispersing about the pond, learning to hunt and fend for themselves. The last date all four of them were seen was the morning of 29 June, and at least three remained until 5 July, 61 days after the study began.

There was no adult at the second nest through 5 July, and it was assumed to be deserted. Then, on 9 July, a heron flushed from it; it held one egg and two hatchlings, one or two days old. Assuming that hatching occurred on 8 July, and an incubation period of 19 to 21 days, eggs would have been laid between 18 and 20 June, at the time the first brood were 23 to 25 days old, and in the process of fledging.

On 10 July, three downy young were in the second nest. The adult was on the nest from 12 July through 14 July, but the nest was empty on 16 July. Subsequently, no Green Herons of any age were seen at the pond. The fate of these nestlings is conjectural. At least one large diamond-backed water snake (*Nerodia rhombifera*) inhabited the pond, and raccoon (*Procyon lotor*) tracks were seen at the water's edge.

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