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STATUS OF THE BLACK RAIL IN OKLAHOMA, WITH RECOMMENDATIONS FOR FUTURE RESEARCH

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Abstract.—We compiled all records of the Black Rail (*Laterallus jamaicensis*) in Oklahoma to provide an overview of timing and location of occurrences. Most accounts were from published works, but some were from unpublished field notes of ornithologists. To these records we add details of various calling birds in northwestern Oklahoma in spring and summer 2006. Although there is but 1 confirmed breeding record of the Black Rail for Oklahoma, recent records and established populations in southern and central Kansas suggest that the Black Rail may be a rare breeding species in Oklahoma. Intensive and systematic surveys of suitable habitat are needed to clarify this species' status in Oklahoma.

Introduction.—The Black Rail (*Laterallus jamaicensis*) is the smallest of North America's rails. It inhabits fresh and saline marshes and low-lying meadows with shallow standing water and breeds in habitats supporting fine-stemmed emergent plants, particularly grasses, sedges and rushes (Eddleman et al. 1994). There are 2 subspecies in the United States, the nominate *L. j. jamaicensis* of the East Coast and scattered sites inland and the smaller, darker *L. j. coturniculus* of coast of California and desert of southeastern California and western Arizona (Ripley 1977).

Most research on the Black Rail has been conducted in coastal regions of the United States, such as Florida and California (Legare et al. 1999, Legare and Eddleman 2001, Conway et al. 2004). In those states, specific needs of populations are well understood. By contrast, little is known about this species and its status inland, despite possible breeding populations and current records.

No studies have been conducted on the Black Rail in Oklahoma, and most published works that cite Oklahoma records lack detail. Our goal was to compile all known accounts of the Black Rail in Oklahoma and to highlight gaps in our knowledge of this species in the State. Herein we summarize historical and recent accounts of the Black Rail in Oklahoma and make recommendations for future research on the species in the region.

Historical Records (1915–1977).—Between 1915 and 1977 there were 10 reports of the Black Rail in Oklahoma (Table 1, Fig. 1). The State's first record is from 1915 (no specific date was given), when a bird was caught in a garden north of Gate, Beaver County, following a heavy autumn rain (Lewis 1930). The next record is from 16 May 1924, when a bird was collected at Mussel Shoals in Norman, Cleveland County, by C. E.

Table 1. Records of the Black Rail (*Laterallus jamaicensis*) for Oklahoma. Records supported by physical evidence—specimen, photograph, or audio recording—are displayed in bold typeface. Institutional abbreviations for specimens are: OMNH = the Sam Noble Oklahoma Museum of Natural History in Norman; CUMZ = Cameron University's Museum of Zoology in Lawton.

County	Year	Date	No.	Notes
Beaver	1915		1	sight report (Sutton 1967)
Cleveland	**1924**	**16 May**	**1**	**specimen (Nice 1931, OMNH 08446)**
Greer	1940		1	sight report (Tyler 2005)
Johnston	1951	11 October	1	sight report (Baumgartner 1992)
Johnston	1957	16 September	1	sight report (Baumgartner 1992)
Johnston	1971	23 April	1	sight report (Baumgartner 1992)
Alfalfa	1971	4 May	1	sight report (Baumgartner 1992)
Alfalfa	**1971**	**19 August**	**1**	**photograph, breeding record (Sullivan 1976)**
Alfalfa	1973	29 August	1	sight report (Sullivan 1976)
Noble	1973	22 September	1	sight report (Bartrush 1975)
Osage	1977	7 June	1	sight report (Baumgartner 1992)
Beaver	**1999**	**14 September**	**1**	**specimen (Tyler 2005, CUMZ 1172)**
Tillman	1999	26 September	1	sight report (Tyler 2005)
McCurtain	2002	27 August	1	sight report (W. D. Arbour pers. comm.)
Beaver	**2006**	**9 May–14 June**	**2+**	**audio recording (E. Beck et al.; Fig. 2)**
Woodward	2006	4 June	1	sight report (S. McConnell pers. comm.)
Ellis	2006	26 June–11 July	4+	sight report (S. McConnell pers. comm.)
Woodward	2006	27–30 July	1	sight report (S. McConnell pers. comm.)

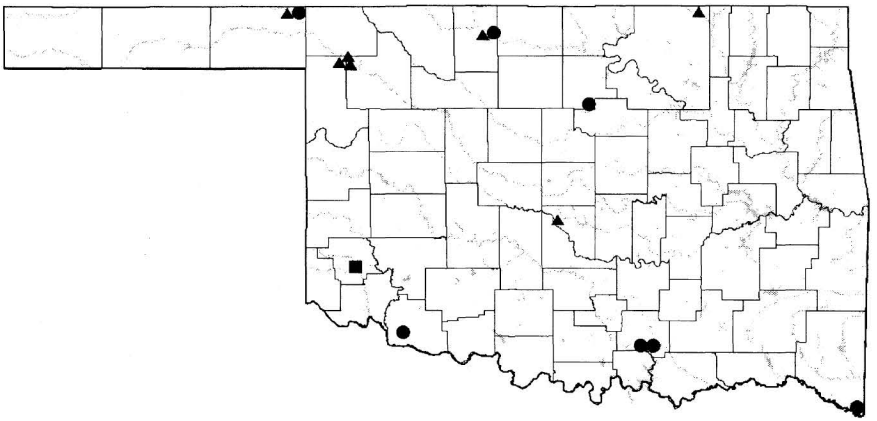

Fig. 1. Black Rail (*Laterallus jamaicensis*) locations in Oklahoma, 1915–2006. Legend: ▲ = spring records (mid-May to mid-June); ● = fall records (late August to mid-October); ■ = date unknown.

Fleming (Sam Noble Oklahoma Museum of Natural History, specimen OMNH 08446). The record from 19 May 1971 provided Oklahoma's single breeding record. A bird too young to fly was captured and photographed; the photo was sent to the National Museum of Natural History at the Smithsonian Institution, where the identification was confirmed by Storrs S. Olson, Richard C. Banks, and John S. Weske as being a juvenile Black Rail (Sullivan 1976).

Recent Records (1999–2006).—There are 5 recent records of the Black Rail in Oklahoma (Table 1, Fig. 1), beginning with 1 in northeastern Beaver County, where a bird was hit by a truck north of Gate on 14 September 1999. The carcass was salvaged by J. D. Tyler and deposited in the Cameron University Museum of Zoology (CUMZ 1172). An adult was "viewed briefly" at Hackberry Flats Wildlife Management Area, Tillman County, on 26 September 1999 by D. J. Farrell and K. N. Dorrell (Tyler 2005). In the southeastern Oklahoma, W. D. Arbour (pers. comm.) flushed an immature Black Rail onto plowed ground while disking a dry wetland unit at the Red Slough Wildlife Management Area, McCurtain County, on 27 August 2002.

Additional records are from different locales in northwestern Oklahoma during spring and summer 2006; it is possible that multiple birds were present in each location. In Ellis and Woodward Counties, S. McConnell (pers. comm.) located various Black Rails, including hearing as many as 4 birds calling on 1 occasion (Table 1).

The senior author located calling birds at a privately owned location north of Gate, near the Cimarron River in northeastern Beaver County, on 9 May 2006. Those birds subsequently were heard with 7 other observers in the early morning or after sunset on 7 separate days between 9 May and 14 June 2006. Three recordings were made from those observations, 2 by the senior author (Fig. 2) and 1 by B. A. Heck. The record, supported by those recordings, was accepted by the Oklahoma Bird Records Committee (Grzybowski et al. 2006).

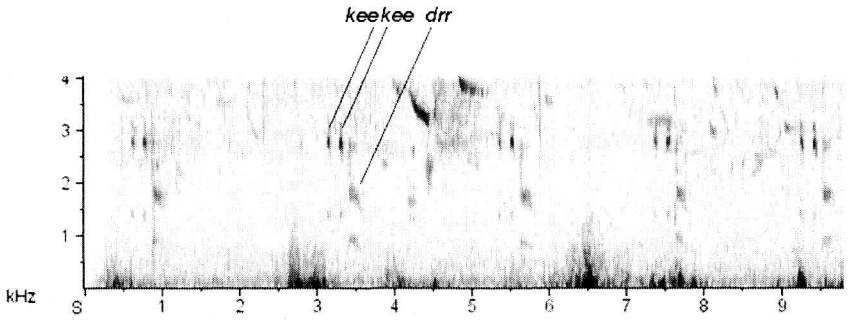

Fig. 2. Sonogram of a calling Black Rail (*Laterallus jamaicensis*) near Gate, Beaver County, Oklahoma, on 9 June 2006. This sonogram was created using Raven Lite 1.0 software (Cornell Laboratory of Ornithology, Ithaca, New York) from a recording taken from a digital video by Eric Beck.

The first location where multiple birds were heard had water 2–10 cm deep. As the summer progressed the area dried completely and no other calling birds were heard. Nearby wetlands were searched and 1 calling individual was located on 7 June 2006 at 0607 h. The area had scattered water-filled depressions that also soon dried; however, a nearby pond 10 m in diameter was surrounded by marsh vegetation held water continually. The 2 locations with calling individuals were in the same marsh complex but were about 150 m apart. Two responses to the taped *kee-kee-drr* calls broadcast at the first location fit the description of a female's *croo-croo-croo* (see Eddleman et al. 1994).

The marsh complex in which these birds were located was 75–100 m south of the Cimarron River. Two wet meadows and about 4 marshes of varying depths were interlocked with one another and were sometimes separated by drier ground. The marsh harboring the rails was the largest of the complex. Dominant plants were of the family *Cyperaceae*; about 80% of the marsh covered by these plants. Remaining cover was cattail (*Typha latifolia*) and miscellaneous aquatic species. Vegetation was dense, and there was a thick understory of dead and dying matter that likely would provide suitable cover for nesting (Eddleman et al. 1988, 1994, Legard and Eddleman 2001).

Records and Breeding Status in Neighboring States.—The Black Rail occurs regularly in Kansas in spring and summer at Cheyenne Bottoms Wildlife Management Area, Barton County, and Quivira National Wildlife Refuge, Stafford County (Thompson and Ely 1989), and the species was located in 5 atlas blocks (Busby and Zimmerman 2001), although breeding remains unconfirmed. One potential breeding site, Coldwater Lake, Comanche County, is only a short distance north of Oklahoma and thus near our Beaver County site.

In other neighboring states, since 1991 Colorado has summering populations in the Arkansas Valley, but breeding is likewise unconfirmed (Kingery 1998); New Mexico added the Black Rail to its state list in 2006, when calling individuals were documented in May and June in Colfax and San Miguel counties (Williams 2006); and Texas has many records for the Gulf Coast (Eddleman et al. 1994) and 5 records for the Panhandle (Seyffert 2001), one each from Carson, Roberts, Hutchinson, and Potter counties and a record of 4 birds at Muleshoe National Wildlife Refuge, Bailey County, on 16 September 1974. Like many of Oklahoma's records, records from the Texas Panhandle are from May–July and September.

Possible Breeding in Oklahoma.—Accumulated spring and summer records (Table 1) hint at the possibility that the Black Rail breeds in Oklahoma. Given that a number of these records are from the same locations but from different years, it is possible that, with further work, small breeding populations may be located (Reinking 2004). For example, there are multiple records from the Salt Plains and Tishomingo national wildlife refuges and from northeastern Beaver County. Dates of observation for many records fall within the breeding season of the eastern subspecies of May–August, with peak egg laying in June (Taylor and van Perlo 1998).

Arbour's sighting at the Red Slough was of a juvenile bird. It is

possible this bird hatched at the Red Slough. The bird's age and the prevalence of good numbers of Yellow (*Coturnicops noveboracensis*) and King (*Rallus elegans*) Rails at Red Slough hints at the possibility of finding a breeding population of the Black Rail there. Moreover, records from spring and summer 2006 featured multiple birds at each location, and S. McConnell (pers. comm.) located birds in Woodward and Ellis counties that he felt were in suitable breeding habitat.

Recommendations for Further Studies.—Little is known about the Black Rail's habits, habitat preferences, and nesting in central North America. Our lack of understanding of this secretive species' status in the southern Great Plains could result in negative consequences for the population. Despite various records from spring and summer, there is but 1 confirmed breeding record for Oklahoma, and that was 35 years ago (Sulivan 1976). A Black Rail nest has yet to be discovered in Oklahoma.

A key first step is a thorough census of all suitable habitats in Oklahoma. Locations with recent or historical records should be surveyed first. Use of broadcast surveys has been successful in identifying populations in other areas (Conway et al. 2004, *cf.* Legare et al. 1999). If breeding populations are located, habitat should be quantified in detail, including a description of water levels and permanence. Habitat quantification should also be conducted at presumptive breeding sites in south and central Kansas.

It is important to identify the habitat requirements, but it is equally important to understand the breeding ecology of the Black Rail at inland sites. Determining nesting requirements, breeding dates, clutch sizes, and sources of nest failure will ensure that this extremely rare component of Oklahoma's avifauna can be managed and conserved.

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Unusually Large Prothonotary Warbler Clutch at Tishomingo National Wildlife Refuge.—Prothonotary Warblers (*Protonotaria citrea*) typically lay 3–7 eggs per clutch throughout their range (Petit 1999). Mean clutch size ranges from 4.31 eggs/nest in Wisconsin (Flaspohler 1996) to 4.98 eggs/nest in Michigan (Walkinshaw 1941). I observed a mean clutch size of 4.6 eggs/nest with a range of 1–6 eggs/nest for Prothonotary Warblers at Tishomingo National Wildlife Refuge (NWR) from 2003 to 2006.

On 19 June 2006, my field technician, Stormy Shoopman, found an unusually large number of Prothonotary Warbler eggs in a nest box at the Tishomingo NWR. She found 8 Prothonotary Warbler eggs in Box