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### NEW BREEDING BIRD RECORDS FROM THE RED HILLS REGION OF KANSAS

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The Red Hills region, encompassing much Barber, Clark and Comanche Counties along the southern Kansas border, is recognized as an area of ornithological interest. The Kansas Breeding Bird Atlas (KBBAT) conducted fieldwork here from 1992-1997. Since the conclusion of that project, additional findings have been made of breeding birds in this physiographic region which supplement information published in the Kansas Breeding Bird Atlas (Busby and Zimmerman 2001). The following is a brief discussion of some of these observations.

**Lesser Prairie-Chicken**- KBBAT observers located active leks of this species in two blocks in eastern Comanche Co. Game biologists with the Kansas Dept. of Wildlife and Parks have also identified a number of active leks in Comanche Co. I observed one of these leks with well over 50 birds present, so the species seems to be holding its own in this area of widespread grasslands and little cultivation. On 18 May 2002, I observed an active lek in Barber Co., about 5 miles (8.1 km) east of the Comanche Co. Lesser Prairie-Chickens were not recorded in Barber Co. during KBBAT, nor to my knowledge has it previously been considered breeding there. This site probably represents very nearly the eastern edge of the species' distribution. In Oklahoma, the species is not considered resident in adjacent Woods Co., apparently occurring no further east than Harper Co. (Gryzbowski et al. 1992).

**Virginia Rail**- The Virginia Rail has been proven to be of annual summer occurrence in Comanche Co. at the Coldwater Marsh (author's place-name), including many records of multiple birds from late May and early June. While no higher evidence of nesting has yet been found, a nesting population undoubtedly exists here. The Coldwater Marsh is just southwest of the city of Coldwater, Kansas and is at the upper end of Coldwater Lake, a large recreational lake in Comanche Co. The marsh is separated from the recreational areas of the lake by extensive dense brush, several barbed wire fences, and an elevated railroad track. The track embankment has helped to retain the shallow water in this low-lying area. The resulting wetland is dominated by dense *Spartina* grasses, cattails and other wetland plants, and is surrounded by sandy prairie dunes. This area is owned by the City of Coldwater, and is used for cattle grazing. It is relatively undisturbed, and has undoubtedly been so for many years. Much could be learned from a comprehensive study of this unique site, where 4 species of rails have been found, along with other wetland bird species.

**Black Rail**- KBBAT records for the Black Rail in the Red Hills came from a very small ephemeral wetland located 7 miles (11.3 km) northwest of Hardtner in Barber Co., and also from Coldwater Marsh. Black Rails have been found at Coldwater Marsh during late May and June each year since that time, and many of these records have been of multiple birds. This marsh is probably home to a nesting population of the species, although confirming evidence, such as nests or fledged young has not yet been found. On 23 July 2000, Matt Gearheart and I heard a Black Rail call at Hargis Lake, in extreme southeastern Barber Co. Wetlands in adjacent portions of Harper Co., especially in the Salty Creek and Little Sandy Creek watersheds, and the Isabel Marsh in southern Pratt Co., appear very similar to the Coldwater and Hargis sites. In addition, some wetlands associated with Cavalry and Nescatunga Creeks in Comanche Co. appear to have appropriate habitat for this species. Further fieldwork in years of abundant rainfall at these locations may locate Black Rails in the future. This species is very difficult to census, due to its nocturnal habits and secretive behavior.

**Black-necked Stilt**- During the summer of 2000, Dennis Angle and others documented successful nesting by a pair of Black-necked Stilts at Hargis Lake, a wetland covering roughly 200 acres, located near Hazelton, in extreme southeastern Barber Co. The specific nest site was a very shallow playa pond located about 183 m distant from the main body

of water. The nest was apparently located somewhere within a substantial stand of 0.61 – 0.91 m rushes, which was surrounded on all sides by shallow water and mudflats. Angle first observed a pair of Black-necked Stilts at Hargis Lake on 23 June 2000. He subsequently observed three downy fledglings on 10 July 2000. On 23 July, Angle showed the nest site to several other birders and me. Two juvenile Stilts were observed, showing the white nape and brown-plumaged back typical of the juvenal plumage. Throughout the nesting period, all observers noted vigorous defense of the nest site. The stilts aggressively attacked other birds, animals, and people that approached the playa. I observed the adults very actively chasing Lesser Yellowlegs and Killdeer from the playa on 23 July. The only other known nesting attempts of Black-necked Stilts in Kansas have been at Quivira NWR, Cheyenne Bottoms Wildlife area, and at McCoid Lake in Liberal. The species also nests approximately 35 miles (56.3 km) from this location at the Great Salt Plains in Oklahoma. Hargis Lake is located on a tributary stream to Great Salt Plains. So these birds could have dispersed from that population. Water management practices have since changed at this site, and this combined with little rainfall over the succeeding years may have reduced suitable nesting habitat.

**Common Poorwill-** KBBAT observers saw or heard Common Poorwills in several blocks in both Barber and Comanche Counties, but confirmations of nesting were not made. On 1 May 1998, during a KOS spring field trip, a small party of birders located a Common Poorwill nest at Swartz Canyon on the Merrill Ranch. Observers were Debarah Arnett, Kevin and Laura Groeneweg, Pete Janzen, and Dave Williams. The Poorwill remained on the nest until the party approached to within a few yards. After searching for a few minutes, Laura Groeneweg found the nest, which had two eggs. Photos of the nest and the general site were taken. The nest was located on a rocky cliff overlooking the canyon (Fig. 1). The site had much exposed crystalline gypsum, with some sparse grasses. The nest was next to one of the tussocks of grass. This was the first confirmation of nesting by this species in the Red Hills, although it is fairly common in areas with favored exposed rock formations.

**Chuck-wills-widow-** Jim Nickel and I found a predated or hatched Chuck-wills-widow egg along Salt Fork near Swartz Canyon on 25 July 1998. Notes were taken on the pigmentation and approximate size of the eggshell, although the specimen was not saved. Henry Pelzl, retired curator at the American Museum of Natural History, was consulted on the identification of the egg and assured the author that no other species with an egg that size has pigmentation matching that description (pers. comm.). The egg was nearly complete, and was found in heavy leaf litter about 9.1 m from the bank of the river. There were multiple singing Chuck-wills-widows in the gallery woodland along the Salt Fork of the Arkansas River on the evening of that day. While the species occurs well west of this location to at least Meade Co., this represents the first actual confirmation of nesting in Comanche Co. by this nightjar.

**Louisiana Waterthrush-** On 1 May 1998, Stan Roth and others observed a Louisiana Waterthrush apparently gathering nest material in one of moist ravines of Swartz Canyon. While the species is known to turn leaves over while foraging, the observers felt that the bird was actually gathering nest material, and not simply feeding. This species arrives in



**Figure 1 -** View from the Poor-will nest site on cliff overlooking Swartz Canyon.

many nesting areas in eastern Kansas as early as the first week of April, and would be a late migrant by early May. On 8 July 2000, Tyler Hicks and Chet Gresham observed another singing male at Swartz Canyon. On 18 May 2002, Alexis Powell and others again observed a singing Louisiana Waterthrush. While all of these sightings suggest possible nesting of the species in Swartz Canyon, the July record is the most suggestive. The possibility of a migrant bird at this late date is not likely. This sighting most strongly suggests that the species may actually be nesting at this location. Existing Kansas nesting records in Kansas do not extend any further west than the Flint Hills gallery woodlands in Butler and Cowley Counties in the southern part of the state. However in Oklahoma, the species nests much farther west, at least to Major and Blaine Counties (Gryzbowski et al. 1992) which are at the same longitude as Swartz Canyon, although at least 50 miles (53.2 km) south. The habitat in Swartz Canyon appears to be appropriate and extensive enough to sustain a small population of this warbler.

**Cassin's Sparrow-** On 24 July 2000, Jim Nickel and I observed recently fledged Cassin's Sparrows with attending adults on Painted Post Road, north of Aetna, in western Barber Co. On 18 May 2002, Chet Gresham and others observed several displaying males in sagebrush prairie north of Deerhead. Both of these locations are in western Barber Co. KBBAT recorded Cassin's Sparrow in 10 blocks within the Red Hills. The majority of these came from Clark Co. in the western portion of the area. There were two KBBAT records from Comanche Co. Thompson and Ely (1992) indicated that Cassin's Sparrows have nested in Barber Co. KBBAT coverage was very thorough in this area and found no Cassin's Sparrows in Barber Co. Both Comanche Co. sightings came from areas with extensive sagebrush prairie. Cassin's Sparrows probably move into these more eastern areas in some years when drought or other unfavorable conditions occur within their usual nesting range. Sagebrush prairie does not occur any further east than central Barber Co., and these records probably delineate the eastern extreme edge of the breeding range of Cassin's Sparrows.

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## CALLING AND FORAGING BEHAVIOR OF WHIP-POOR-WILLS DURING A LUNAR ECLIPSE

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It has long been known that there is a relationship between bird song and light intensity (Leopold and Eynon 1961). There seems to be an inverse relationship between singing and light in nocturnal species. Observations of the Poor-will (*Phalaenoptilus nuttallii*) for example, showed that the initiation of activity at dusk and cessation at dawn coincide with a light intensity of less than one foot-candle (= 10.76 lux; Brauner 1952). Most nightjars (Caprimulgidae) are conspicuous nocturnal singers and many ornithologists have reported increased vocal behavior in bright moonlight (e.g. Bjorklund and Bjorklund 1983, Brauner 1952, Cooper 1981, Mengel and Jenkinson 1971). Only on moonless nights, or when the moon is obscured by cloud cover, are these birds relegated to singing at dawn and dusk. Not only does the Whip-poor-will (*Caprimulgus vociferus*) appear to be lunarphilic (moon-loving) with respect to its vocal activity, but it shows significantly higher levels of locomotory and nest activity during twilight and bright moonlight than under moonless conditions (Mills 1986, Cink 2002).

The prediction that normally vociferous Whip-poor-wills would decrease their singing in response to the diminished illumination of a lunar eclipse was confirmed during the night of 24-25 May 1975 in Georgia (Cooper 1981). However, the data collected were simply numbers of singing individuals from stops along several census routes, with no chance of detailed observations of locomotory activities or numbers of songs per individual. The observations were also made during the height of courtship and nesting for the species. A total lunar eclipse occurred in Kansas during the night of 16-17 August 1989. Totality, when the moon is completely submerged in the dark umbral part of Earth's shadow, lasted 96 min, only 11 min less than the possible maximum (Byrd 1989).

It presented an opportunity for me to test the prediction that both foraging and vocal behavior of Whip-poor-wills decrease during an eclipse, even at the end of the breeding season when vocal activity and territorial defense are reduced.

On the evening of 16 August, I positioned myself on the ridge of a hill overlooking Douglas County Lake, about 2 km NE of Baldwin City, Douglas County, Kansas. I knew from the previous two months of intense field work with the Whip-poor-will population of this woodland, that four territories converged near a tree-fall at this point. I was certain I would be able to both hear the birds distinctly and observe some of their foraging activity with an infrared scope. Whip-poor-wills at this stage of the season did not frequently give the three-noted "whip-poor-will" call that pronounce their name, but both adults and fledged young give their common contact "quirt" call (Cink 2002). Most foraging consists of sallies from a perch, in which the bird flies up in pursuit of a moth or beetle and then returns to its perch on a tree branch. I started observations at 20:00 hr CDT and finished at 24:00. The eclipse began at 20:21, the entire moon was covered at 21:20, the middle of the event occurred at 22:08 and the full moon re-emerged at 23:40 hr. Numbers of calls and foraging events were counted during three 90 min. time intervals: Interval I starting at full moon and continuing through the waning period, Interval II during the period of total eclipse, and Interval III starting at total eclipse and continuing through the waning period to full moon again.

The contrasts between periods were pronounced. The initial 30 min of Interval I started with only 9 contact (*quirt*) calls among the 4 birds (mean= 2.3 calls/individual) which was nearly identical to the 10 calls I had heard the night before in the same time interval. As the moon waned only 9 more calls were heard (total for period 18; mean 4.5 calls/individual). No *whip-poor-will* calls were heard. Interval II (during the eclipse) passed without a single call. In Interval III, 4 calls were heard in the initial 30 min (from 1 bird only) but by the time the moon was full, 26 calls were heard and I had difficulty separating the focus birds from those around them because the calls were louder and more vigorous. The total of 30 calls (mean 7.5 calls/individual) was nearly double that of the pre-eclipse period. More surprising were the 19 sustained *whip-poor-will* calls recorded (mean 4.8 calls/individual), the majority occurring when the moon was full again. A similar pattern occurred in several Chuck-will's-widows (*Caprimulgus carolinensis*) I could hear in the background, though I was too busy recording data on the focus birds to keep accurate records.

Foraging activity followed the same pattern. I observed 13 sallies during Interval I. I was only able to distinguish 3 separate Whip-poor-wills (mean 4.3 sallies/bird) because one calling bird was too far away to be seen. During the eclipse no foraging bouts were noted, even though I could see two birds perched through the infrared scope. These two remained nearly motionless during that time period. I observed 21 sallies in Interval III, with 4 separate individuals participating (mean 5.3 sallies/bird) but 12 of those came from 2 birds and most (70%) came during the three-quarter to full moon phases.

The results, though based on few individuals, clearly show the influence of the light of a full moon on both singing and foraging activity of Whip-poor-wills. When light intensities fall below a certain level they become inactive. Although this species, like many other Caprimulgidae, has a tapetum in its eyes to help it see both prey and conspecifics during twilight hours, it becomes inactive during periods of total darkness. Only with the additional light provided by the moon can it extend its periods of activity.

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