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REVISIONS TO THE STATUS OF THE RUFIOUS-CROWNED SPARROW IN KANSAS

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New records of Rufous-crowned Sparrows in recent years have changed our understanding of the status of the species in Kansas. This is a review of current information on their distribution.

The first Kansas specimen of the Rufous-crowned Sparrow was collected at Swartz Canyon (now part of the Merrill Ranch) in southeastern Comanche Co. on 7 June 1936 (KU 29222, male). This specimen remained unidentified in the KU collection until about 1950 (Fredrickson 1951). Exactly 60 years were to pass before another record of this species came from Comanche Co. While conducting survey work for the Kansas Breeding Bird Atlas (KBBAT) in Swartz Canyon, Sebastian Patti and Mike Rader found a singing male on 6 June 1996. Swartz Canyon is located south of the Salt Fork of the Arkansas River, the largest of several fairly impressive and extensive canyons south of the Salt Fork in southeast Comanche Co. Portions of the canyon exceed 40 meters in depth. A number of other canyons of significant size are found nearby in both directions from this canyon (Fig. 1).

Bill Busby returned to the area on 3 July 1997, and found several territorial singing males at this same location. These birds displayed agitated behavior in response to tapes of their song. Dee and Phyllis Scherich, who have managed the Merrill Ranch for some years, reported to Busby that they had at times observed these sparrows during earlier years. Based on these sightings of territorial males, the species was considered a probable breeding species at this location by the compilers of KBBAT. The habitat was described as a "steep rocky canyon with large boulders ...vegetation was mixed grass prairie with patches of woodland" (Busby and Zimmerman 2001). These sightings were more fully discussed by Busby et al. (1999). They concluded that the species "may breed at this site, and may have done so for many years".

More records of Rufous-crowned Sparrows from Swartz Canyon followed these initial sightings. During the KOS spring meeting, on 1 May 1998, a group of more than 20 birders observed at least three singing males. Jim Nickel and I found three singing birds at Swartz Canyon 26 July 1998. Chet Gresham and Tyler Hicks observed five singing



Figure 1 – Typical Rufous-crowned Sparrow habitat in Swartz Canyon. The distant line of trees is Salt Fork.

males and one apparent female at Swartz Canyon on 8 - 9 July 2000. In all of these sightings, the singing birds favored short deciduous shrubs on the canyon rims. On 18 May 2002, a large group of birders surveyed Swartz Canyon and a number of other adjacent canyons. While surveying an area about 1 mile west of Swartz Canyon, a party composed of Brad Bergstrom, Ken Brunson, Kyle Driggers, Chet Gresham, John Harter, and I encountered a group of four or five Rufous-crowned Sparrows, including at least two individuals in fresh juvenal plumage. The juvenile had fine streaking all across the breast, streaked brown crowns, brown malar stripes, white eye-rings, and were much warmer brown overall compared with the very gray adult birds. This obvious family group was consistent with existing literature on the natural history of the species. Most accounts mention the pronounced family fidelity which this species exhibits for several weeks or more after the fledging of the young (Erlich et al. 1988, Kaufman 1996). In addition to this family group, at least four other Rufous-crowned Sparrows were found in various canyons within two miles of this site on the same date by other birders.

Based on the presence of recently fledged juveniles, this sighting represented the first full confirmation of nesting by Rufous-crowned Sparrows in Kansas. Bergstrom documented this sighting with a video of both adults and juveniles. Due to light conditions, the quality of the images was not good, but some field marks can be discerned. A copy of this video was given to the Kansas Bird Records Committee. John Harter made a global positioning latilong reading at this site. The coordinates were 37° 06.703' N, 99° 02.062' W. The sighting occurred in a steep (20 m) but narrow ravine, much like those where Rufous-crowned Sparrows had been found elsewhere on the Merrill Ranch. There were significant outcrops of thick gypsum strata at the rim of the canyon, with the underlying strata composed of heavily eroded ferrous sandstone. Heavy equipment had at some point been used to excavate a rudimentary road from the canyon floor to the rim of the bluffs in this small canyon. The majority of the vegetation was mixed grass prairie typical of the area. There were small thickets of aromatic sumac atop and just below the rim, and mature red cedar, red elm, hackberry and other trees along the slopes and in the bottom of the ravine. Gresham felt that one of the adults exhibited some agitation as he neared a thicket below the rim, but the steep grade of the slope made it impossible to search for a nest there. In general, these birds appeared to be unusually tame and approachable, compared to the typical secretive behavior of this species.

There have been recent sightings of Rufous-crowned Sparrows at other locations in the Red Hills. On 27 November 1998 (well outside of the breeding season), Galen Pittman observed two Rufous-crowned Sparrows at the base of a steep cliff near the dam at Clark Co. Lake, about 50 miles from these Comanche Co. sightings. This was the first recorded sighting of Rufous-crowned Sparrows in Clark Co. The steep canyons at Clark Co. Lake are very similar to those found along the Salt Fork. There are other rocky canyons seemingly suitable for this species south of the lake, within the Bluff Creek watershed (Pittman, pers. comm.). On 18 May 2002, while traveling to Swartz Canyon for the above-mentioned bird survey, Sebastian Patti, Scott Seltman, and others found an adult Rufous-crowned Sparrow at the scenic overlook on Highway US 160 about 10 miles west of Medicine Lodge, in Barber Co. This represented a first county record for Barber Co. Again, certain portions of rugged topography in western Barber Co., especially south of the Medicine River, appear similar in some aspects to the Merrill Ranch nest site.

Prior to these Red Hills sightings, almost all reports of this species in Kansas were from Morton Co., in the southwestern corner of the state. Cable et al. (1992) considered the species uncommon there. The Morton Co. records came primarily from the prominent rocky outcrop known as Point of Rocks along the Cimarron River, where a specimen was taken on 12 November 1985 (FHSU 4396). This was a male taken incidentally in a mousetrap by mammalogist Michael Reed at Point of Rocks (Charles Ely, pers. comm.). On 13 June 1990, Paul Lehman and Shawneen

Finnegan found a singing bird at Point of Rocks, but did not see a mate, nor was any further evidence or breeding observed (Cable et al. 1992). There is at least one spring record from Point of Rocks: a single bird observed on 21 April 2001 by Scott Seltman and Mike Rader. The species has been observed almost annually at Point of Rocks in recent years. Most of these have been fall and winter sight records of single birds seen between early September and early January. Several reports have been of multiple individuals. Three birds were seen at Point of Rocks on 4 January 1975, and on 29 October 1989 (Cable et al. 1992). While no evidence of breeding has been found in Morton Co., this accumulation of records, including spring and summer reports, suggests that the species may be a resident in very small numbers there. While the area is visited very frequently by birders, most of these visits occur well after the breeding season, and it is plausible that nesting birds may have been overlooked, even at a place as well known to birders as Point of Rocks is.

Two records from the Manhattan area in the northern Flint Hills are of interest. In Geary Co., John Zimmerman saw a single bird 26 December 1982, during a Christmas Bird Count. In Riley Co., near Tuttle Creek Dam, a single bird was well seen by a group of often experienced birders from Omaha, Nebraska on 29 May 1999, and was observed again by Lowell and Wanda Johnson on 6 June 1999 at the same location. The species is considered quite sedentary within its range. Desante and Pyle (1986) did not record vagrants from any state other than Kansas, so these two seemingly extra-limital records by experienced observers are significant. They are also among the most northerly records for the species anywhere in the interior of the continent.

The status of Rufous-crowned Sparrows in Oklahoma and Colorado has some bearing on the discussion of the occurrence of this species in southern Kansas. Andrews and Righter (1992) classify this species an uncommon permanent resident in southern portions of Las Animas and Baca Counties, in extreme southeastern Colorado. They consider it possibly less common, but more likely simply less conspicuous, in the winter months. Collins (1999) also mentions populations in Bent and Otero Counties in Colorado.

Rufous-crowned Sparrows are found in a number of disjunct areas in Oklahoma where appropriately rough, rocky topography occurs. Sutton (1967) identified all Oklahoma specimens to the subspecies *eremoeca*, and all Kansas individuals probably belong to that subspecies as well. The Oklahoma Biological Survey has specimen records from 13 counties, and sight records from an additional 12 counties (Dan Hough, Oklahoma Biological Survey, pers. comm.). In the Panhandle, the species is regular in the rocky terrain of western Cimarron Co., Oklahoma, where it is fairly common. It does not occur farther east in the Panhandle, and there are apparently no records for Harper Co., Oklahoma. The Oklahoma specimen record closest to Comanche Co. was taken in Blaine Co.. There are multiple sight records for both Woods and Woodward Counties. One of the several Woods Co. records was made less than 25 miles from Swartz Canyon in 1965 (Sutton 1967). The most recent relevant information comes from the Oklahoma Breeding Bird Atlas, which completed fieldwork in 2000. In northwestern Oklahoma (excluding the Panhandle), Rufous-crowned Sparrows were confirmed breeding in one block in northern Blaine Co., and considered a probable breeding species in one block in northern Woods Co. The Woods Co. block is centered about 4.5 miles south of Kansas and about 5 miles east of the Barber/Comanche Co. line. (Dan Reinking in press). This location is also less than 25 miles from Swartz Canyon.

The seasonal status of Rufous-crowned Sparrows in Oklahoma is similar to that found in Colorado. Oklahoma nesting dates cover a wide temporal range. Adults carrying food have been observed as early as 17 April, and a nest with young as late as 3 June. Based on a singing male with greatly enlarged testes taken in the Arbuckle Mountains at the very late date of 11 September 1953 (a year of severe drought), Sutton (1967) postulated that this species might delay nesting "until fall precipitation assures growth of vegetation and supply of insect food". Rising (1996)

also states that nesting can begin as late as August and may in part be influenced by seasonal rainfall. The winter status of the species in Oklahoma is similar to that in Colorado. Sutton (1967) noted that there was "No evidence that the species descends to lower elevations or changes habitat in any way in winter".

Kaufmann (1996) and others state that the species is a permanent resident throughout its range, and that it may simply be overlooked at the northern edge of the range outside of the breeding season. Other authors suggest that this sparrow retreats to the south somewhat in the winter months, especially in the northeastern part of the range, which would include Kansas (Erlich et al. 1988). Collins (1999), in the most recent and comprehensive monograph on the species, states that the species is not migratory except for occasional movement to lower elevations in severe winters. Rufous-crowned Sparrows become less common and more local at the edge of their range, including northern Oklahoma, southeastern Colorado and elsewhere in the southwestern states. They also become much more secretive and difficult to find in the fall and winter months. These facts obscure our understanding of this species' seasonal status in Kansas and adjacent locations. It may be somewhat migratory in winter but there is very little evidence to either support or refute this hypothesis.

The status of the Rufous-crowned Sparrow in Kansas should be revised. Thompson and Ely (1992) considered the species casual in Morton Co. and a vagrant elsewhere in Kansas. This sparrow, however, has been shown to have a stable nesting population on the Merrill Ranch, among the rock formations south of the Salt Fork in southeastern Comanche Co. While it is extremely local, it appears to nest annually in this restricted area. Other recent records from nearby areas of similar appropriate habitat in Barber and Clark Counties suggest the possibility that other very local breeding populations may exist elsewhere in the Red Hills physiographic region. In Morton Co., the number of fall and winter records for the species, combined with several spring and summer records, suggest that the species may possibly also sustain a similar small permanent population there as well.

These findings probably do not represent an actual range expansion, but rather a new awareness of a population that has likely been present for a long time. Rising (1996) noted a recent increase in Rufous-crowned Sparrow records both in southwestern Kansas and in west-central Arkansas, but considered it more likely that this was a result of increased birding coverage rather than an actual range expansion. In the Red Hills area of Kansas, sightings from nearby areas of Woods Co., Oklahoma, some dating back over 35 years, suggest that may be the case. However, other bird species with southerly distributions are expanding northward, possibly as a result of climate change, and this may also explain the recent increase in records from southern Kansas.

More work remains to be done to determine fully the status of the Rufous-crowned Sparrow in Kansas. This reflects a general scarcity of scientific information on the species, compared with other widely distributed sparrow species in North America (Collins 1999). There have been very few, if any, visits by birders to Merrill Ranch in the fall and winter months, so it is unknown whether the species remains in this area during those seasons. The late November record from Clark Co. suggests that this could be the case. Conversely, Morton Co. spring and summer bird records in general are surprisingly sparse, but the number of accumulated fall and winter records would seem to support the theory that the species may be a year-round resident there. Finally, as yet undiscovered local populations of these sparrows may eventually be found in Barber and Clark Counties, or possibly even elsewhere in Kansas.

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SUCCESSFUL NESTING BY BARN OWLS IN A NESTING BOX IN THE BAKER WETLANDS, LAWRENCE, KANSAS

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Nesting boxes for Barn Owls (*Tyto alba*) have been used successfully for many years (Oteni et al. 1972, Bunn et al. 1982, Colvin et al. 1986, Gubanyi et al. 1992). In a cooperative effort between Lawrence High School and Baker University in 1996, a nesting box was constructed and placed on a support tower within the Baker Wetlands near Lawrence, Kansas. This paper details the nesting efforts made by Barn Owls during 4 different nesting seasons.

The Baker Wetlands is a natural area of about 230 hectares (530 acres) along the south boundary of the city of Lawrence, Kansas. There are nearly 140 ha of mixed brush-grassland within the wetlands and about 18 ha of wet meadow habitat. Common prairie mammal prey species for the owls in the Wetlands include: *Sigmodon hispidus* (hispid cotton rat), *Peromyscus maniculatus* (deer mouse), *Microtus ochrogaster* (prairie vole), *Cryptotis parva* (least shrew), *Reithrodontomys megalotis* (Western harvest mouse), and *Blarina carolinensis* (Southern short-tailed shrew). Years of studies of Barn Owl pellets have shown that rodents that inhabit Midwest prairies are preferred prey (Hamilton and Neil 1981).

The Nestbox

In 1986, Highfill and his students constructed the owl house from $\frac{3}{4}$ in. (1.9 cm) plywood. Its original dimensions were 152.4 cm long by 125.7cm wide by 106.7 cm in height. The roof overhung the box 12.7 cm on each side as water protection. A hinged door was constructed on the back of the box and padlocked to control access. It was painted with two coats of exterior latex paint and a shingled roof was added. An entry hole of 20.3 cm diameter was cut in the front. Horizontal rows of 2.54 cm holes were drilled in the front and back of the house to allow additional ventilation. A work crew from Kansas Power and Light Company constructed a support platform that was placed on two support poles they had positioned in the soil. The base of the platform was bolted 3.2 m from the ground. Two cables were fastened across the box after it was elevated and positioned onto the platform. The box was secured onto the platform in the spring of 1997. Boyd nailed an aluminum sheeting mammal and snake shield (approximately 61 cm wide) 1.22 m from the ground on each support pole. One bale of hay was scattered in the box and another placed back about 2 ft from the front of the box to serve as a hiding place and roost for the owls.

In April of 2001, Boyd and his students replaced the roof on the owl house and reinforced sections of the walls. The roof was extended an additional 61 cm with the length now 183 cm and the width 152.4 cm and allowed a roof overhang of 30.5 cm on the ends and 12.7 cm on the sides. Tin sheeting was nailed to the roof for better protection and a landing perch was added to the entry hole. Highfill replaced the water-damaged floor. The open space in the south arch of the roof support (approx. 61 x 33 cm) improved ventilation for the owls (Fig. 1).

Owl Nesting

There was no indication of owl activity in the box for two years, until the fall of 1999. Highfill periodically tapped on the support poles and tossed a stick at the house during the nesting season. An owl never flew from the box, and no fecal splashes were observed on the exterior of the box. However, in the early fall of 1999, a dead, nearly fledged owlet was discovered as Highfill was cleaning the old hay from the house. The quantity of pellets and feces on the interior of the box indicated a successful nesting.

On 19 May 2000, Highfill observed six healthy owlets in the box (Fig. 2). During the banding of the owlets, an adult owl remained with the young for a matter of minutes, even in



Figure 1 – Barn Owl nesting box at the Baker Wetlands.

the presence of the bander. That observation may have explained why an adult owl had never flown from the box when the pole was repeatedly tapped in 1999. Through observations and banding, it was determined that all the owlets fledged.

Another successful clutch fledged from the owl house in 2001. Boyd banded all four owlets. In the spring of 2002, nine eggs were laid and seven owlets hatched (78%). Boyd banded six of the owlets in early June. Even though the seventh owlet was significantly smaller than the others at the time of the banding, all seven owlets eventually fledged.

While observing the owlets in early June, Highfill collected several specimens of a parasitic insect that were obvious in dried blood patches under the wings of six of the owlets (Fig. 3). Through the cooperation of Dr. Charles D. Michener of The University of Kansas, the flies were sent to Dr. Brian Brown of the Los Angeles County Museum and were identified as *Carnus hemapterus*. In a New Jersey study in which 103 young owlets (< 5 weeks) were examined, 88% of the young contained *C. hemapterus*. However, the parasite was not found in owlets over 5 weeks of age (Kirkpatrick *et al.* 1989). It has been suggested that more and larger black spots on the plumage of female Barn Owls may indicate a sign of fitness and the young of such females will have fewer numbers of *C. hemapterus* (Roulin *et al.* 2002).

Six of the infected, youngest owlets in the Baker Wetlands were treated once for the *C. hemapterus*. Hydrogen peroxide solution (3%) was added with cotton balls to the infected site, followed by after-shave skin conditioner. The following week, four of the owlets were treated again with the solutions. There appeared to be a reduction of inflammation and the numbers of *C. hemapterus* after the treatments.

In three successive breeding seasons an average of 5.67 young fledged per year (range 4 - 7); a total of 17 young. The range in mean number fledged from boxes over a six-year period in Utah was 1.5 to 4.8 (Marti and Wagner 1985). Only one clutch of eggs was found in the Wetlands so it is difficult to generalize about clutch size or hatching success.

Highfill positioned another similar owl box on a deer-hunting tower in Cowley Co., in southern Kansas. A pair of Barn Owls used this box successfully too. A suspected raccoon in that nest killed a May 2000 clutch. A steel plate on the front of the box and a loose aluminum overhang on the roof prevented additional loss of owlets. The owls re-nested there in 2000 and three young fledged. In June 2001, the owls abandoned the nest and the eggs were collected for The University of Kansas. Two fledged owlets were banded there on 2 September 2002.



Figure 2 – Barn Owl brood from summer of 2000, hiding behind protective hay bale.



Figure 3 – *Carnus hemapterus* infection on the underwing of a Barn Owl nestling. The ovoid-shaped specimens with the three distinct parallel dark bars are females.

With ample prairie habitat for prey, and few other available nest sites, nesting boxes may increase nesting by Barn Owls in Kansas. They make good roosting sites as well. Winter roost use of 30 nest boxes in Utah ranged from 53 – 97% (Marti and Wagner 1985). With small grant funding, a properly placed and maintained Barn Owl box might well serve as a research project for interested high school biology or college students. Involved teachers and other interested researchers might establish an e-mail bulletin board to maintain annual records of the Barn Owls nesting in the boxes. Class projects could include the analysis of collected owl pellets for prey remains.

The owl box at the Baker Wetlands is larger than is recommended by other researchers. However, with the extreme summer heat in Kansas, not all box styles appear to have ample space for the brood to withstand the heat, or to have room for the owlets to exercise. There are several recommended internet sites with specific plans for Barn Owl houses (The Raptor Trust 2002, Wilson 1983).

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