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BREEDING ECOLOGY AND DISTRIBUTION LIMITS OF PHOEBES IN WESTERN KANSAS

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Broad geographic overlap exists in the breeding distribution of Eastern (*Sayornis phoebe*) and Say's (*S. saya*) Phoebes in the northern Great Plains (AOU 1983). East to west relationships of other closely related species in the Great Plains (Rising 1983, Dixon 1989), as well as that of Say's and Black Phoebes (*S. nigricans*) in western Texas (Ohlendorf 1976), are well-known; yet there is little comparative information about these species (see McClure 1946).

Bent (1942) describes life histories of both phoebes, but recent studies of the breeding ecology of Eastern Phoebes (Klaas 1970, 1975; Graber et al. 1974; Weeks 1978, 1979; Faanes 1980; Hill and Gates 1988; Conrad and Robertson 1992) are more prevalent compared to Say's Phoebes (Ohlendorf 1976). In this study of Eastern and Say's Phoebes I compare and discuss density, habitat use, interspecific contact, site tenacity, timing of breeding, nest building, clutch size, nesting success, causes of mortality, and distribution limits in western Kansas.

STUDY AREA AND METHODS

Nest site data were collected in Ellis County, Kansas (center 38° 55'N, 99° 19'W) during 1973 and 1974. This 2300 km^2 area is located in the Smoky Hills physiographic region in west-central Kansas, a landscape of primarily mixed grass prairie interspersed with rock outcrops; forestland is limited to the banks of permanent or intermittent streams (Kuchler 1974).

This study focused on nest sites on bridges over major streams and their tributaries. I began visiting bridges in mid-March and, after nesting began, checked nest status at 2-3 day intervals. The number of eggs or young and possible causes of nest loss were recorded (see Hill and Gates 1988). A few nests found during incubation were backdated for estimates of initiation of egg laying. Some adults and young (10 to 12 days old) received standard United States Fish and Wildlife Service (USFWS) bands. Mist nets erected at open ends of bridges helped capture adults. Additional observations were made of distribution and habitat use in western Kansas from 1989 to 1992. Some data on distribution and density came from the North American Breeding Bird Survey (BBS) conducted by the USFWS from 1966-1990.

RESULTS AND DISCUSSION

Observers report the Eastern and Say's Phoebe on 25 BBS routes (unpublished data, USFWS) in the northern Great Plains (Kansas 9, Nebraska 8, South Dakota 4, and North Dakota 4). BBS routes (39° 20'N, 98° 47'W and 39° 41'N, 99° 13'W) with a mean $\geq$1.0 birds/route/year for each species are limited to the Smoky Hills region of west-central Kansas.

I found 20 and 22 pairs of Eastern Phoebes in 1973 and 1974, respectively, in Ellis County. Annual density of Eastern Phoebes averaged about one pair/110.0 km^2 in this study area compared to that of one pair/1.4 km^2 in eastern Kansas (Klaas 1970). Ellis County consists of <1% forestland whereas Douglas County (study area of Klaas 1970) is about 16.5% forestland (Spencer et al. 1984). Nest sites of Eastern Phoebes typically have some woody vegetation in the vicinity (Klaas 1970, Graber et al. 1974, Weeks 1979, Hill and Gates 1988). However, Hill and Gates suggested they may not need forestland nearby but can use scattered trees and man-made structures for perches. Most

nest sites of Eastern Phoebes in this study were found along continuously wooded streams (Figure 1). This species occasionally used bridges along streams and tributaries where woodland habitat was discontinuous or patchy, but rarely did they use sites in open areas.

It was not feasible (because of inaccessible private property) to locate more pairs of Say's Phoebes, but results of the BBS (unpublished data, USFWS) and field observations

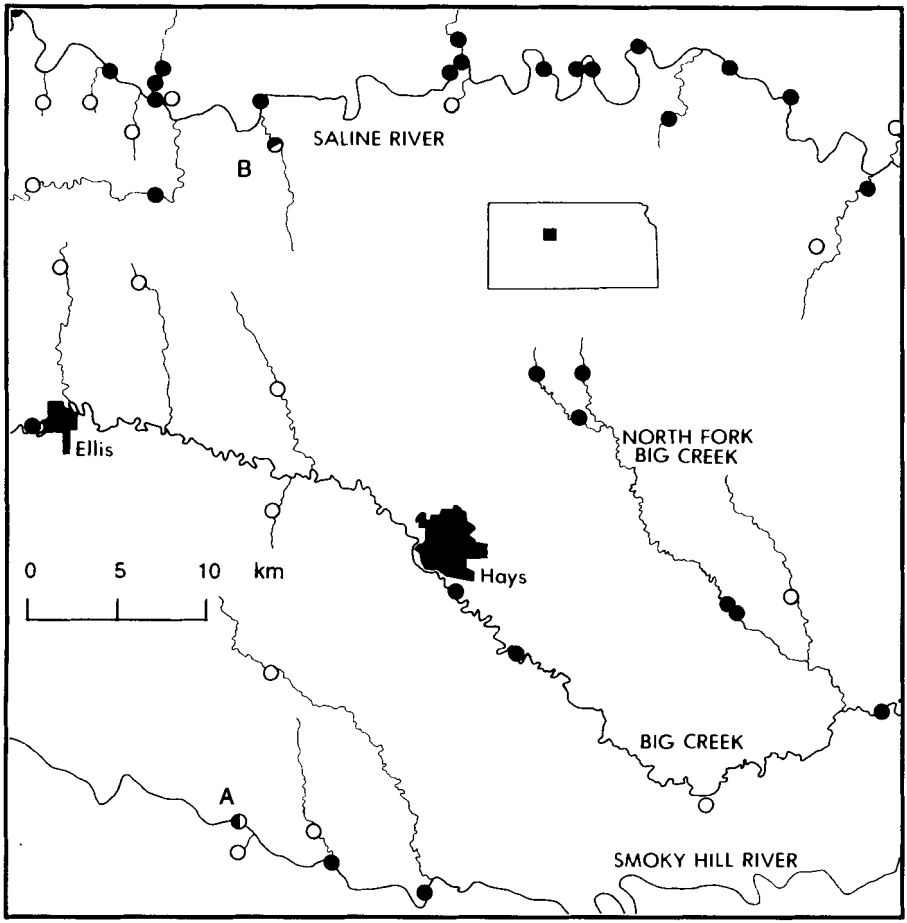

FIGURE 1. Map of Ellis County shows the distribution of Eastern Phoebes (solid circles), Say's Phoebes (open circles) and sites where both have occurred (half solid circles indicated by letters A and B).

suggest a density similar to that of the Eastern Phoebe. Say's Phoebes occupied nest sites with structural support and protection (e.g., bridges, buildings, rock outcrops) in open areas over most of the study area (Figure 1). Occasionally nest sites had scant patches of woodland nearby, but I rarely encountered breeding evidence of Say's Phoebes in areas with continuous riparian woodland. In North Dakota, Stewart (1975) reports of an unusual Say's Phoebe nest on a bridge along a wood bordered stream as a " . . situation where one might expect to find an Eastern Phoebe . . . ".

Interspecific use of nest sites was observed at two of 45 localities. Contact between these phoebes occurred at a bridge over the Smoky Hill River (Figure 1, site A), a site characterized by continuous to intermittent patches of woodland. A Say's Phoebe relined a nest built the previous year by an Eastern Phoebe (Schukman 1976). While I was

checking the site, a Say's Phoebe chased an Eastern Phoebe, albeit briefly.

There was circumstantial evidence of interspecific interference competition for a nest site located in open rangeland with little woodland nearby (Figure 1, site B). While an Eastern Phoebe was incubating, a Say's Phoebe was singing about .5 km from the site. On my next visit (2 days later) the Eastern Phoebe had disappeared and its eggs were cold. An old nest of a Barn Swallow (*Hirundo rustica*) on an adjacent beam subsequently contained four Say's Phoebes eggs; all eventually fledged. The following year an Eastern Phoebe again appeared at this site but I observed it only once. Say's Phoebes successfully nested at this site again and I recaptured one banded adult here the following year.

Interseasonal philopatry was observed in both species. Five of 20 banded adult Eastern Phoebes and three of 167 young were recaptured the following year, all at nest sites

TABLE 1. Comparative nesting success of Eastern and Say's Phoebes.

Sources	Nests	Eggs	Mean Clutch Size (SD)	Egg Success (%)	No. Fledged/ Nest
		Eastern Phoebe			
This study-both years	56(a)	257	4.59(.63)	46.4(b)	2.13
[1973]	24	109	4.54(.59)	55.3	2.52
[1974]	32	148	4.63(.66)	38.9	1.79
Klaas (1970,1975)	296(a)	1285	4.34(.81)	45.2	1.53
Graber et al (1974)	127	608	4.79(.53)	——	——
Weeks (1978,1979)	171	808	4.73(.55)	61.2	2.74
Faanes (1980)	110	502	4.56(.70)	69.3	3.16
Hill and Gates (1988)	84	373	4.44(1.06)	61.4	2.73
Murphy (1989)	120	546	4.55(.89)	——	——
		Say's Phoebe			
This study-both years	24(a)	109	4.54(.72)	44.8(c)	2.00
[1973]	16	74	4.63(.72)	43.8	2.06
[1974]	8	35	4.38(.74)	46.7	1.91
Ohlendorf (1976)	45	169	3.76(.30)	56.8	2.13
Murphy (1989)	77	334	4.34(.77)	——	——

(a) nonparasitized nests.
(b) includes 289 eggs found in 63 nests.
(c) includes 125 eggs found in 28 nests.

along the Saline River. Two of nine adult Say's Phoebes returned to their respective nest sites.

Eastern Phoebes typically construct a nest foundation of mud mixed with moss which adheres to the supporting surface when dry (Bent 1942, pers. obs.). This would limit them to riparian or wet areas during nest building (unless they reuse an old nest). The nest foundation of Say's Phoebes consisted of coarse grasses with little or no mud.

The mean date for the initiation of egg laying of Eastern Phoebes (26 April, ± 10 days, 8 April to 17 May, $n=28$) was significantly (Student's $t=4.45$, $df=39$, $p<.001$) earlier compared to that of Say's Phoebes (9 May, ± 9 days, 24 April to 25 May, $n=13$).

Table 1 lists mean clutch size for this study, as well as others. Although model clutch size was five for Eastern Phoebes (3 eggs = 4, 4 eggs = 15 and 5 eggs = 37) and four for Say's Phoebes (4 eggs = 16, 5 eggs = 7 and 6 eggs = 3) in this study, average clutch size for the two species, 4.59 and 4.54 respectively, was not significantly different (Student's $t=.25$, $df=79$, $p>.05$). Ohlendorf (1976) reports .78 fewer eggs per clutch for Say's Phoebes in desert scrub (Texas) compared to that found in grasslands (Kansas) in this study. Ricklefs (1980) reports a similar mean clutch size difference (.7) between a large number of species in comparable habitats, and he shows clutch size is directly related to the ratio between summer productivity and density of breeding adults.

Overall egg success (Table 1) was 46.4% and 44.8% for Eastern and Say's Phoebes, respectively. Calculating egg success using Mayfield's (1975) method, the probability of an Eastern Phoebe egg surviving egg laying and incubation ($.982^{21}$), hatching (.946), and the nestling stage ($.976^{16}$) was .438. In the same way, the chance of a Say's Phoebe egg surviving egg laying and incubation ($.971^{21}$), hatching (.955) and the nestling stage ($.984^{16}$) was .398. Assuming a pair usually nests at the same site for multiple broods (Klaas 1970, Weeks 1978, Conrad and Robertson 1992), estimates of the number fledged/nesting attempts were: 3.94/1.94 in 1973 and 2.67/1.62 in 1974 for Eastern Phoebes; 2.83/1.42 in 1973 and 2.33/1.22 in 1974 for Say's Phoebes. The later mean date of initiation of egg laying in Say's Phoebes may preclude more double brooding, thus lower productivity.

Predation caused 25.8% of all eggs or young lost in nests of Eastern Phoebes. Flooding of nests (all in 1974) accounted for 22.6% of all losses in this study, and can be an important factor in regulating Eastern Phoebe densities (Klaas 1970). The effects of parasitism by the Brown-headed Cowbird (*Molothrus ater*) caused 12.2% of all losses. The frequency of parasitism was 9.7% (6/62). Other losses were caused by nest mites (14.2%), unknown (8.4%), desertion (7.1%), unhatched eggs (3.9%) and human interference (2.6%). I attributed 3.2% of all losses to competitive interference with Say's Phoebes. Similarly, predation was the most important cause of nest loss, 36.2%, of Say's Phoebes, followed by weather-related causes (29.0%, four nests because of high winds), unknown (15.9%), desertion (14.5%) and unhatched eggs (4.4%).

Climatic and vegetational changes appear to have a major effect on the density of Eastern Phoebes in western Kansas. Since climate is more variable and arid from east to west in the Great Plains (Rising 1974, Cody 1985), temperature, precipitation, evaporation and wind can effect biophysical conditions and ultimately nest site selection. In an eastern Kansas study (Klaas 1970) the abundance of Eastern Phoebes and forestland is greater by ratios of 75:1 and 29:1, respectively, compared to that found in west-central Kansas. Woody dependent species, such as the Eastern Phoebe, are probably not "bottleneck tolerant" to the climatic instability found in grasslands (Zimmerman 1992).

Evaluating limitations to the east for Say's Phoebes is less clear considering this xeric-adapted species is probably more tolerant of climatic extremes compared to that of its eastern counterpart. Historically I suspect Say's Phoebes were limited to isolated areas with protective rock bluffs found in the Smoky and Red Hills of west-central Kansas. Breeding evidence (Thompson and Ely 1992; pers obs.) suggests that they have expanded locally only to man-made structures. The foraging niche of this species is positioned close to the ground, using rocks, weeds, and low bushes for perches primarily in open country (Bent 1942). Ryser (1985) states that " . . . they can forage effectively only in low, sparse vegetation." The tallgrass prairie/forest mosaic to the east could contribute to limits as a foraging barrier.

It is not unusual that segregation of sympatric birds can be determined by differences in habitat structure, and that in intermediate habitat, behavioral responses to variability can result in interspecific competition (Cody 1985) and labile distributions (Bull 1991). However, in this study observations of interspecific contact and competition for nest sites (at two of 45 localities) was rare, probably because of low densities and widely spaced nest sites. I think densities and chance co-occurrence (see Martin 1986) need to markedly increase before competitive exclusion could limit the distribution of these phoebes.

ACKNOWLEDGMENTS

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LITERATURE CITED

American Ornithologists' Union. 1983. Checklist of North American birds. 6th ed. Washington: American Ornithologists' Union.

Bent, A. C. 1942. Life histories of North American flycatchers, larks, and swallows, and their allies. Bull., U.S. Natl. Mus. 179:166-173.
Bull, C. M. 1991. Ecology of parapatric distributions. Annu. Rev. Ecol. Syst. 22:19-36.
Cody, M. L. 1985. Habitat selection in grassland and open-country birds. In "Habitat selection in birds" (M. L. Cody, ed.) Academic Press, Orlando. 558 pp.
Conrad, K. F. and R. J. Robertson. Intraseasonal effects of clutch manipulation on parental provisioning and residual reproductive value of eastern phoebes (*Sayornis phoebe*). Oecologia. 89:356-364.
Dixon, K. L. 1989. Contact zones of avian congeners on the southern Great Plains. The Condor. 91:15-22.
Faanes, C. A. 1980. Breeding biology of Eastern Phoebes in northern Wisconsin. Wilson Bull. 92:107-110.
Graber, R. R., J. W. Graber, and E. L. Kirk. 1974. Illinois Birds: Tyrannidae. Illinois Nat. Hist. Surv., Biol. Notes No. 86.
Hill, S. R. and J. E. Gates. 1988. Nesting ecology and microhabitat of the Eastern Phoebe in the central Appalachians. Am. Midl. Nat. 102:313-324.
Klaas, E. E. 1970. A population study of the Eastern Phoebe and its relationships with the Brown-headed Cowbird. Ph.D. Thesis, Univ. of Kansas., Lawrence. 115 pp.
Klaas, E. E. 1975. Cowbird parasitism and nesting success in the Eastern Phoebe. Occ. Pap. Univ. Kansas Mus. Nat. Hist. 41:1-18.
Kuchler, A. W. 1974. A new vegetation map of Kansas. Ecology. 55:586-604.
Martin, T. E. 1986. Competition in breeding birds: On the importance of considering processes at the level of the individual. Curr. Ornithol. 4:181-210.
Mayfield, H. F. 1975. Suggestions for calculating nest success. Wilson Bull. 87:456-466.
McClure, H. E. 1946. Phoebes in central Nebraska. Auk. 63:211-213.
Murphy, M. T. 1989. Life history variability in North American breeding tyrant flycatchers: phylogeny, size of ecology? Oikos 55:3-14.
Ohlendorf, H. M. 1976. Comparative breeding ecology of phoebes in Trans-Pecos Texas. Wilson Bull. 88:255-271.
Ricklefs, R. E. 1980. Geographical variation in clutch size among passerine birds: Ashmole's hypothesis. Auk 97:38-49.
Rising, J. D. 1974. The status and faunal affinities of the summer birds of western Kansas. Univ. Kansas Sci. Bull. 50:347-388.
Rising, J. D. 1983. The Great Plains hybrid zones. Curr. Ornithol. 1:131-157.
Ryser, F. A. Jr. 1985. Birds of the Great Basin. Univ. of Nevada Press. 604 pp.
Schukman, J. M. 1976. Unusual nesting of Eastern and Say's Phoebes in an area of sympatry. Kansas Orni. Soc. Bull. 27:43-44.
Spencer, J. S. Jr., J. K. Strickler and W. J. Moyer. 1984. Kansas forest inventory, 1981. U.S. Dept. Agri., Kansas State Extension Forestry. 134 pp.
Stewart, R. E. 1975. Breeding birds of North Dakota. Tri-college Center for Environmental Studies. Fargo, N.D.
Thompson, M. C. and C. A. Ely. 1992. Birds in Kansas, Vol. 2. Univ. of Kansas Mus. of Nat Hist., Public Education Series.
Weeks, H. P. Jr. 1978. Clutch size variation in the Eastern Phoebe in southern Indiana. Auk 95:656-666.
Weeks, H. P. Jr. 1979. Nesting ecology of the Eastern Phoebe in southern Indiana. Wilson Bull. 91:441-454.
Zimmerman, J. L. 1992. Density-independent factors affecting the avian diversity of the tallgrass prairie community. Wilson Bull. 104:85-94.
14207 Robin Rd., Leavenworth, KS 66048.

First Record of Costa's Hummingbird for Kansas. In July 1993, Mrs. Shirley Chisum showed us a specimen of a Costa's Hummingbird (*Calypte costae*) that she had found dead at her farm, ca. 5 km N, 6½ km W Sharon Springs, Wallace County, Kansas, during the summer in about 1990. She froze the bird, which has subsequently become dessicated.

The specimen, which was donated to The University of Kansas, Museum of Natural

History (KU 85990), is, by plumage, a second-year male: the gorget is mostly colored with iridescent purple feathers that extend laterally along the throat, and the crown contains many iridescent purple feathers admixed with green ones. The tail is rounded, with the two lateral-most rectrices tipped with 3-4 mm of white, and the third rectrix on each side tipped with a thin edge of white. The inner webs of the primaries are not notched, as is characteristic of *Archilochus* (Johnsgard, P. 1983. Hummingbirds of North America. Smithsonian Institution Press, Washington, D.C., p. 162). Of Costa's Hummingbird, Bent (1940, Life histories of North American cuckoos, goatsuckers, hummingbirds, and their allies, Bull. 176 U.S. Natl. Mus., pp. 367-368) writes:

> ". . . the young male is much like the adult female, but . . . there usually some, often many, violet-purple feathers on the throat . . . Later in the season these metallic feathers appear in the crown, but there is usually not very much progress toward the fully adult plumage until the complete prenuptial molt [prealternate] molt takes place late in winter or early in spring, when young birds become indistinguishable from adults."

Thus, on the basis of the plumage, we infer that the specimen was picked up in late spring or early in the summer, and that it had not yet completed its prealternate molt.

The measurements (wing length, 45.5 mm; bill length [from anterior edge of feathers], 18 mm; tail length, 21 mm) fall within the range of those for male Costa's Hummingbirds (Ridgway, R. 1911, The birds of North and Middle America, Bull. 50, Part 5, U.S. Natl. Mus., p. 263).

This is the first record of Costa's Hummingbird for Kansas (Thompson, M. C. and C. Ely, 1989. Birds in Kansas Vol. 1, Univ. Kansas Publ. Mus. Nat. Hist., 1-404).

We thank Mrs. Chisum for her generosity in giving the specimen to the Museum of Natural History.

J. D. Dick, Dept. Ornithology, Royal Ontario Museum, Toronto, ON M5S 2C6, and *J. D. Rising, Dept. Zoology, Univ. Toronto, Toronto, ON M5S 1A1.*

White-throated Swift (*Aeronautes saxatalis*) from Cowley County, Kansas. As the naturalist/director of the Chaplin Nature Center, near Arkansas City, I receive numerous calls every year concerning birds, mammals, and other wildlife. On the evening of 8 April 1993, I received a call from an employee of ADM Milling Co., Arkansas City, concerning a "baby kestrel" that he had found while at work. The report was the bird could not fly and he wanted me to come and get the bird and take care of it. When I arrived to pick up the bird the next morning, the "baby kestrel" turned out to be a White-throated Swift. The bird was originally found in a small room at the top of one of their grain elevators. The room was 120 feet above the ground. The bird was discovered as they were moving several pieces of equipment.

What was the White-throated Swift doing here and why was it inside the elevator? First of all, 8 April 1993 was the same day that the Chimney Swifts (*Chaetura pelagica*) and Barn Swallows (*Hirundo rustica*) returned from their southern wintering grounds. The White-throated Swift, more than likely, was traveling with the Chimney Swifts and/or the Barn Swallows. The other factor affecting the location of the bird inside the elevator was the weather. The temperature on 8 April 1993 varied from 42-53° Fahrenheit with strong northerly winds of 30 miles per hour. The early morning temperature on 9 April was 38° Fahrenheit. The cold weather conditions might explain why

the bird was inside during the day. After quickly examining the bird, there were no apparent wing injuries found. The bird was kept in an uncovered plastic five gallon bucket and was unable to take flight from inside. After returning to the Nature Center, I photographed the bird. Since I already suspected that the bird could fly, I placed it on a post. It immediately took wing and flew out of sight.

Birds of Kansas (1989. Thompson Max C. and Charles Ely, Volume 1, p. 356. Univ. Kansas Mus. Nat. Hist. Public Educ. Series No. 11) reported two records of White-throated Swifts in Kansas. Sebastian Patti saw two swifts thought to be this species at Point of Rocks, Morton County, from 9-11 June 1972. Another bird was observed at Kansas State University, Manhattan, Riley County, on 2 November 1978 by Steve Fretwell and others. Two additional records have been recorded. One was observed at Junction City, Geary County, on 24 November 1990 (1992. 1991 Report of the Kansas Birds Records Committee. Kansas Orni. Soc. Bull. 43(2):18) by Lloyd Moore, and another was photographed at the University of Kansas campus, Lawrence, Douglas County, 17 April 1992, by Christopher Burris and Susan Frantz (1993. 1992 Report of the Kansas Bird Records Committee. Kansas Orni. Soc. Bull. 44(2):22). This Cowley County record is the fifth known record for Kansas and the second verified with a photograph (figure 1).

The sexes of White-throated Swifts are similar in appearance. They nest on coastal cliffs, steep mountain canyons, and rugged foothills of the west. The eastern edge of their breeding range includes southern British Columbia, Montana, northwest South Dakota, northwest Nebraska, southeast Wyoming, eastern Colorado, New Mexico, western Texas and then west to southern California, central Arizona and southward to Central America. They winter in the southern part of their breeding range and into Central America and return to their nest areas in March through May.

Gerald Wiens, Chaplin Nature Center, Arkansas City, KS 67005.

BOOK REVIEW

Iowa Birdlife. Gladys Black, Published by University of Iowa Press. XXV + 176 pp., 16 color plates and numerous black and white photographs. $15.95 paperback, $34.95 cloth.

Iowa Birdlife is an expanded edition of Gladys Black's 1979 book. It is a reprint of her articles published through the years in the Des Moines Register. These chatty species accounts do not cover all Iowa birds but only those that presumably were of major interest to the author. The color photographs reproductions are good. Probably the most valuable part of the book is the updated checklist of Iowa birds found in the back of the book. Profits from the book go to the Nature Conservancy's Iowa chapter.

Max C. Thompson, 1729 E. 11th Ave., Winfield, KS 67156.

Letter to the Editor. For the past several years, it has been my pleasure to have served as regional editor for the National Audubon Society's (NAS) annual Christmas Bird Count (CBC). In that capacity, I have edited CBCs conducted in Kansas. I have noticed a recurring, serious problem in data transmission that I believe demands the careful attention of all compilers.

Let me explain. When a compiler decides to submit count data on two separate forms, she/he fills out the first form and usually ensures the accuracy and precision of that first form. If the data is transferred to a second form, the mechanical act of taking the data from the first to the second form can lead to mistakes, particularly omissions of data. For example, if a compiler fills out a CBC form supplied by NAS and next fills out a different form (like the one provided by the KOS, for example) errors often occur. The only way I have discovered this fact is by comparing the annual KOS compilation of CBCs as published in the March Bulletin with the original NAS CBCs.

This year, I found five Kansas counts the results of which were submitted to NAS on NAS forms that had omitted count data that had been published in the KOS. I suspect that these compilers had filled out the KOS forms first. To remedy these omissions, I simply corrected the NAS form that I had in front of me. Similarly, I discovered that

the following three counts contained data submitted to NAS that were NOT published in the KOS Bulletin. I suspect that these compilers had filled out the NAS form first.

Oskaloosa-Perry Lake: Northern Mockingbird 16

Quivira NWR: Sandhill Crane 2655; American Robin 59

Wichita: Common Grackle 5

A first clue to these kinds of errors is that the total species or total individuals numbers don't correspond. I believe that these errors can be eliminated if compilers carefully check and recheck the second forms that they fill out.

Respectfully submitted

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