Kansas Ornithological Society
BULLETIN
PUBLISHED QUARTERLY
Vol. 49 September, 1998 No. 3

ROOKERY IN MEADE COUNTY, KANSAS

By
Thomas L. Flowers

Introduction

The playa lakes of southwestern Kansas are critical habitat for a wide variety of birds. Each year new species are observed utilizing playa habitat.

During the summer of 1997, Cattle Egrets (*Bubulcus ibis*), Black-crowned Night-Herons (*Nycticorax nycticorax*), and White-faced Ibis (*Plegadis chihi*) nested on a Meade County playa lake. This represents the first documented nesting of these species on a playa lake in Kansas.

Methods and Materials

On 10 July 1997, Sebastian Patti noticed a White-faced Ibis displaying nesting activity on Lakeview, a large playa lake, seven miles east of Meade, on US highway 160, Meade County, Kansas.

Tom Flowers and Mark Goldsberry investigated a potential rookery site in the playa on 16 July. Nearly 200 nests were found and birds were actively building additional nests.

On 27 July we returned to the rookery to band those nestlings large enough to tolerate standard United States Fish and Wildlife Service aluminum leg bands (permit no. 22849). Twenty-seven Cattle Egrets and Black-crowned Night-Herons were banded. Dozens of White-faced Ibis and hundreds of Cattle Egrets were too small to band as of that date. Black-crowned Night-Herons and Cattle Egrets over 14 days old were not readily captured and were seldom banded.

Photo 1 — Cattle Egret chicks at about 14 days of age. *Photograph by Thomas Flowers.*

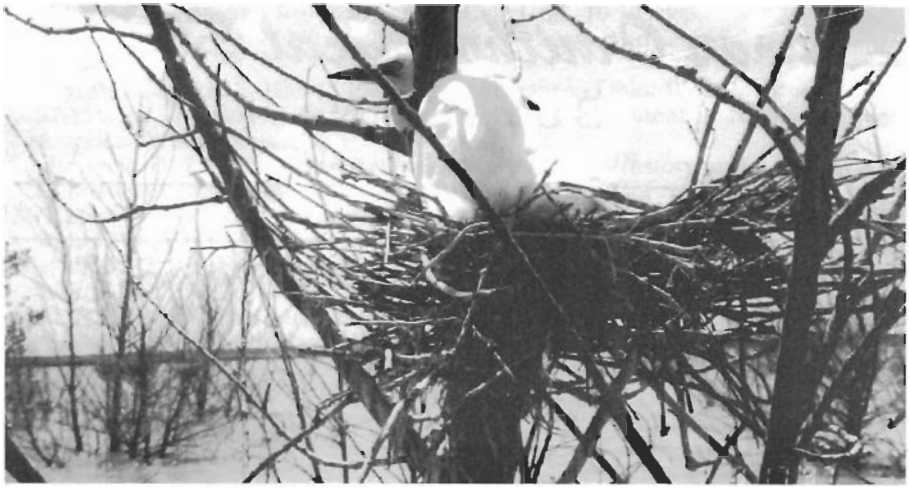

Photo 2 – Cattle Egret chicks at about 21 days of age. *Photograph by Thomas Flowers.*

Additional banding excursions were made to the site in August and September. By 7 September, no young too small to band were observed and no new nests or fresh eggs were found.

On each visit to the site, food boluses and food items found in the nests were examined for content.

Results and Discussion

Lakeview is one of the largest playa lakes in southwestern Kansas covering over 100 acres when full (Flowers, 1995). As with most playa lakes, water in Lakeview is seasonal and is dependent upon heavy rainfall to fill the basin. This lake has held water continuously for three consecutive years.

Lakeview has a long history of cultivation but is no longer cultivated, being enrolled in the United States Department of Agriculture's Conservation Reserve Program. This lack of recent cultivation has allowed a small grove of Plains Cottonwood (*Populus deltoides)* and willow (*Salix sp.*) to become established near the west end.

On the night of 10 July, the Lakeview area experienced a severe thunderstorm. Seven inches of rain fell in the immediate drainage area of the playa causing the water to rise to the highest levels in recorded history. Access to the rookery was made by canoe. There was a grove of young cottonwood and willow trees standing partially submerged in over six feet of water. These trees were either dead or contained only a few green leaves. Many nests at the site were destroyed by the rapid rise in water on 10 July, as evidenced by rotting eggs along the shoreline. Despite the destruction, nearly 200 nests remained, and birds were actively building additional nests. These nests included 20 White-faced Ibis, 10 Black-crowned Night-Herons with the remainder being Cattle Egrets. One nest of a Common Grackle (*Quiscalus quiscula*) was found in an isolated tree on the periphery of the rookery.

The nesting data on each species follows.

White-faced Ibis – Johnsgard (1979) considers the White-faced Ibis to be a "rare and erratic nester" in the Great Plains. Ryder and Manry (1994) say "In the 1960's and 1970's, nesting populations and numbers of colonies in North America decreased precipitously because of pesticide contamination and loss of habitat to drought and drainage." This, in part, led Kansas officials to list the White-faced Ibis as "threatened".

White-faced Ibis usually nest in emergent vegetation or low trees and shrubs over shallow water or sometimes on the ground on small islands, nesting in various types of marshes and in "islands" of emergent vegetation with most nests being in various types of rushes (Ryder and Manry 1994). Nests previously found in Barton and

Stafford Counties in Kansas have all been located in cattails and rushes (Busby, pers.comm). Nests found in the Salt Plains National Wildlife Refuge near Jet, Oklahoma were on bare ground or in low weeds including Horseweed (*Conyza canadensis*) (Shepperd, 1996) and in trees (Koenen et al, 1996). Shepperd (1996) also lists one nest found by Dakota R. Cagle as being "nestled in the fork of a cottonwood sapling about one meter above the water."

The nest of the White-faced Ibis in Meade County is a tightly woven affair, made of grass and a few twigs. Lacking the typical building material of cattails and rushes, old corn and sorghum leaves were used in the lining. All nests were located in dead or nearly defoliated, partially submerged, cottonwood and willow trees 1.5 to 3 feet above the water surface.

The eggs of the ibis are easily distinguished by their brighter blue-green color than the other species in the rookery. Nests contained two to four eggs, all hatching within a few days of each other, making chicks very uniform in size. There were no identifiable food items in the nests.

Ibis chicks were much less precocial than either the Cattle Egret or Black-crowned Night-Heron, remaining in the nest tree until fledging.

On approaching the nest, adult birds flew 50 to 100 yards away, perched in a tree and watched. They quickly returned to the nest after we left.

This represents an unusually late nesting period for this species and may be a second attempt. On 27 July, of the 20 ibis nests examined, most contained eggs and only a few contained chicks too small to band.

At twilight, flocks of as many as 150 birds would come into the rookery to roost. It was never determined if these birds were young or adult.

Black-crowned Night-Heron – The first check of the site on 16 July showed eggs to already fledged young. It was difficult to get an accurate count on night-heron nests due to the similarity of the nest to that of Cattle Egrets. Several nests originally thought to be that of Black-crowned Night-Herons were later found to be Cattle Egret nests.

The nest of the night-heron is nearly indistinguishable from that of the Cattle Egret, being a flimsy structure of small twigs, Russian Thistle (*Salsola iberica*) and Kochia (*Kochia scoparia*). There is no soft lining to the nest. Nests were located from three to five feet above the water surface in dead or nearly defoliated cottonwood trees.

Due to the rapid abandonment of the nest by the chicks, no food items were found within the nests. Boluses produced by chicks showed the main food to be toads (*Bufo spp.*) and other unidentifiable items. No ponds containing fish or minnows are in the vicinity of Lakeview.

Once feathered, the night-heron chicks became very mobile, climbing to the tops of trees or swimming to nearby trees. We found these birds to be very agile swimmers and quite difficult to catch.

Adult birds were seldom seen at the site.

This represents a very late nesting period for this species and may be a second attempt.

Cattle Egret – Cattle Egrets were actively building nests on 16 July and were increasing in numbers throughout the county, but never reached the number of birds present in 1995, when they were suspected to have also nested at Lakeview.

The nest of the Cattle Egret is a twig nest and is nearly indistinguishable from those of the Black-crowned Night-Heron. Many nests were destroyed by rising water, the actions of young birds, and by wind. Nests were from less than one foot to ten or more feet above water level and were located in dead or mostly defoliated cottonwood and willow trees.

Cattle Egret nests contained from 2 to 5 eggs each, with hatching dates within a single nest being as much as 21 days apart. Usually two eggs hatched in a short time and the others later, possibly indicating egg dumping by other Cattle Egrets. A large number of eggs never hatched, remaining in the nest to rot. These eggs were often in nests containing healthy chicks.

A considerable number of food items were found in the nests and varied by date and composition. In July, food consisted almost entirely of grasshoppers and

crickets while in August nearly all food was small toads (*Bufo spp.*) and Plains Leopard Frogs (*Rana blairi*). In September, mice (unidentified), the Western Plains Garter Snake (*Thamnophis radix*), and Tiger Salamanders (*Ambystoma tigrinum*) were also found.

Although fledged young stayed in the area when we approached, few adult Cattle Egrets were ever seen at the site. Adults were regularly seen foraging in nearby fields adjacent to cattle and farm machinery.

This represents a late nesting period for this species with unhatched eggs still present as late as 7 September, and may be related to available prey items or presence of water.

Predation and Depredation

Throughout the banding period, dead egrets, ibis, and night-herons were found in nests, the number being greatest during periods with air temperatures in excess of 100° F. Tyler (1933) and Kingery (1988), quoted in Ryder and Manry (1994) note that "Extremely high temperatures ...can be fatal to nestlings." Other egret chicks were found dead, hanging upside down, their feet entangled in small branches. Ibis and night-herons were found dead in their nest as well. Nearly all these birds had multiple "stab wounds", apparently inflicted by other birds. Dead ibis were found to be severely mutilated and often decapitated. The greatest incident of depredation was found on 17 August with three White-faced Ibis, two Black-crowned Night-Heron, and numerous (not counted) Cattle Egret chicks being killed. It was noted on that date that nearly every "new" egret nest contained at least one dead chick. Terres (1984) notes that Black-crowned Night-Herons "may even eat young of colonially nesting birds (including) young egrets, herons, ibises (and) chicks of terns."

Brian Harrington (pers. comm.), has seen what he calls "selective predation" in mixed rookeries, but suspected Barn Owls (*Tyto alba*) or Great-horned Owls (*Bubo virginianus*) to be responsible. He reported that the chicks of Glossy Ibis (*Plegadis falcinellus*) and Little Blue Herons (*Egretta caerulea*) suffered damage while Snowy Egrets (*Egretta thula)* were hardly touched. He also noted "lots of beheaded individuals."

Stephanie R. Schmidt (pers. comm.) says "Nests that are presumably attacked by the Great-horned Owl tend to be destroyed with either the sticks on the ground or in disarray. Great-horned Owl intrusion seems to be at the periphery of the colony and we usually see chicks and adults without heads and their abdomen eaten out or just a pile of feathers." She also implicates raccoons (*Procyon lotor*) in colony destruction. "This year (1997) we had numerous Glossy Ibis skinned with their heads taken off. We attribute this to a raccoon, who will surplus kill as well as mustelids, but this has not been confirmed. We also see remains of adults that suggest raccoon and these are birds with heads intact but their abdomen eaten."

Shields and Parnell (1986) report the American Crow (*Corvus brachyrhynchos*) contributing to egg and nestling mortality with the latter being mostly smaller nestlings.

Cattle Egrets have been known to engage in cannibalism, eating both eggs and nestlings (Telfair, 1994). Black-crowned Night-Herons have also been known to prey on Cattle Egret chicks (ibid.) and have been known to patrol seabird colonies for a meal (Shealer and Kress, 1991).

Depredation of White-faced Ibis chicks occurred only in nests located in trees containing multiple nests of multiple species. Ibis nests located in isolated trees, removed from the colony by 20 or more yards were not damaged.

Cattle Egret chicks were repeatedly seen in ibis nests and egret chicks were repeatedly observed "fighting" with nest mates in the nest. Telfair (1994) lists "sibling aggression" among the many causes of mortality for Cattle Egrets. At the Lakeview site, it is suspected that Cattle Egrets, through their aggressive actions contributed to or directly caused the death of nest mates and other nestling birds, including White-faced Ibis in the same or nearby trees. Cattle Egrets were repeatedly observed "sparing" and "stabbing" one another and were seen making leaps of six feet or more to nearby trees containing nests of other individuals.

Conclusions

Lakeview is one of the most significant rookeries in southwestern Kansas. Twenty-two Black-crowned Night-Herons, 167 Cattle Egrets and 12 White-faced Ibis were banded from July-September 1997. Late July and August nesting at the Lakeview site probably represents second nesting attempts for these species. Nests at the Lakeview site were located singly or five or more in a tree. Koenen et. al. (1996) reported a similar nest density of 5.25 nests per tree at a rookery at the Salt Plains National Wildlife Refuge in Oklahoma. White-faced Ibis nesting success was greatest at the Lakeview site when their nests were isolated from those of other species, preventing depredation.

Excessive heat and depredation were major causes of mortality for all species using the Lakeview rookery. American Crows, Barn Owls and Great-horned Owls were never observed at the site but cannot be eliminated as being responsible for at least a portion of the observed nesting mortality. This location may be inaccessible to raccoons and other mammalian predators due to distance and depth of water. This lack of mammalian predators is supported by the finding of rotting eggs and chicks along the shoreline.

Young Cattle Egrets found hanging from the tree branches were most likely the result of the precocial but uncoordinated activities of young birds. Bent (1926) noted similar losses in a Black-crowned Night-Heron colony saying "I have seen many a dead young heron, hanging by wing or foot, where it was caught and was unable to free itself." Terres (1980) says severe windstorms shake young from the nest, causing the young egret to die by hanging suspended from the tree or bush. Wind damage was not directly observed at the Lakeview site.

Other heron and egret species often associated with rookeries, were not observed to be using the Lakeview site. This may be a reflection of the late date that this rookery developed. The Lakeview site is unique in that it is the first documented nesting of Black-crowned Night-Herons, White-faced Ibis and Cattle Egrets on a playa lake in Kansas.

Additional study needs to be done on the interactions of Cattle Egrets and White-faced Ibis to see if Cattle Egrets significantly affect the nesting success of the state threatened White-faced Ibis. The causes of predation and/or depredation on chicks needs to be better identified and studied for all three species.

Acknowledgements

I would like to thank Brian Harrington, Kathy Parsons and Stephanie R. Schmidt of the Manomet Center for Conservation Sciences. They contributed greatly to this paper, and gave me numerous references on predation and nest destruction. Max Thompson and Charles Ely provided me with their insights on the rookery and provided valuable references. Sebastian Patti who first notified me of the possible rookery deserves thanks as well.

Thanks also go to my wife Audrey, who learned to canoe so she could assist me. Also to Steven, Robin, Ron, Ellen and John Flowers, Mark Goldsberry and Jeff Smith who all helped at some time during the banding process.

Bill Busby provided a critical review of this manuscript and provided many insightful comments on its content and structure.

My very special thanks go to Mary Jane Edwards and her son Phil who granted me permission to band birds on this site. Their concern for wildlife will insure that this site is protected for future generations.

Literature Cited

Bent, Arthur Cleveland. 1926. Life histories of North American marsh birds. Government Printing Office, Washington, D.C. xii + 490 pp..

Davis, W. E., Jr. 1993. Black-crowned Night-Heron (*Nycticorax nycticorax*). *In* The Birds of North America, No. 74 (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

Flowers, Thomas L. 1995. A History and Distributional List of Meade County, Kansas Birds. Flowers Enterprises, Meade, Kansas. iii + 148 pp..

Flowers, Thomas L. 1996. Classification and Occurrence of the Birds of the Playa Lakes of Meade County, Kansas. Kansas Orni. Soc. Bull. 47(2):21-28.

Johnsgard, P. A. 1979. Birds of the Great Plains. University of Nebraska Press, Lincoln. pp.. 41.
Kingery, H. E. 1988. Mountain west. American Birds 42:1321-1324.
Koenen, Marcus T., Bryan R. Winton, Ronald S. Shepperd and David M. Leslie Jr. 1996. Species Composition of a Ciconiiform Rookery in Northcentral Oklahoma. Bull. Oklahoma Orni. Soc. 29(1):3-7.
Ryder, Ronald R. and David E. Manry. 1994. White-faced Ibis (*Plegadis chihi*). *In* The Birds of North America, No. 130 (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.
Shealer, D. A. and S. W. Kress. 1991. Nocturnal Abandonment Response to Black-crowned Night-Heron Disturbance in a Common Tern Colony. Colonial Waterbirds. 14:51-56.
Shields, M. A. and J. F. Parnell. 1986. Fish Crow Predation on Eggs of the White Ibis at Battery Island, North Carolina. The Auk 103:531-539.
Shepperd, Ronald S. 1996. White-faced Ibises Nest At Salt Plains National Wildlife Refuge, Oklahoma. Bull. Oklahoma Orni. Soc. 29(1):1-2.
Taylor, D. M., C. H. Trost, B. Jamison. 1989. The Biology of the White-faced Ibis in Idaho. Western Birds 20:125-133.
Telfair, R. C. II. 1994. Cattle Egret *(Bubulcus ibis). In* The Birds of North America, No. 113 (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural
Sciences; Washington, D.C.: The American Ornithologist' Union.
Terres, John K. 1980. The Audubon Society encyclopedia of North American birds. Knopf, New York. 1109 pp..
Thompson, Max C. and Charles Ely. 1989. Birds in Kansas. Volume I. Univ. Kansas Mus. Nat. Hist. Public Educ. Series No. 11.

Thomas L. Flowers; P.O. Box 87; Meade, Kansas 67864

In Memoriam
E. Maurice Nuss

E. Maurice Nuss, 83, Topeka, a charter member of the Kansas Ornithological Society, died 14 March 1998 at a Topeka hospital. He was born 18 October 1914, in Topeka, the son of Frank D. and Florence M. Nuss. He attended Central Park and Lowman Hill elementary school and Boswell Junior High School. He was graduated in 1932 from Topeka High School where he was a member of the National Honor Society.

He received an AB degree in 1936 from Washburn University where he served his fraternity, Alpha Delta, as treasurer in 1934-35. he was sports editor of the Washburn Review newspaper and was a member of several Greek letter honor societies. He received a master's degree of business administration from Harvard University in 1938. He received a certified public accountant certificate from the University of Kansas in 1944.

Mr. Nuss worked for Arthur Andersen & Co., accountants and auditors, in New York City, Boston , and Kansas City from 1938-1945. He was employed from 1945 until 1952 by the Menninger Clinic, Menninger Foundation and Menninger Sanitarium Corporation as controller.

He joined Capper Publications as an auditor in 1952 and later became business manager of The Topeka Daily Capital and Topeka State Journal. He was named vice-president of finance in 1969. He retired in 1984, but served on the board of directors of Stauffer Publications from 1977-1992.

While at the newspaper, Mr. Nuss was instrumental in the Capital-Journal's first use of a computer when he devised the program for Statistical Performance Index, a computerized method of predicting the outcome of Kansas high school football games in the 1960's. The newspaper used the feature in its sports section several years.

He was a member of First Presbyterian Church where he served as an elder. He was a director of Blue Cross and Blue Shield of Kansas, Postal Savings and Loan Association and Civic Investments Inc., of Topeka. He was an Eagle Scout and had served as an assistant scoutmaster.

Mr. Nuss was president of the Topeka Regional Science Fair in 1970 and had been treasurer of the Lions Club in 1961. He also was a member of Topeka Country Club.

He was married to Mary Elizabeth Gillman 12 June 1940, in Topeka. She preceded him in death in 1987.

Survivors include sons, Larry Nuss, Fort Scott, and Ned Nuss, Farmington Hills, Michigan; a daughter, Susie Reichenberger, Andale; and four grandchildren.

Max C. Thompson, Editor

Who Parasitised Whom?--McHenry (1966) and Platt (1968) documented two instances of Northern Bobwhites (*Colinus virginanus*) parasitising the nests of Ring-necked Pheasants (*Phasianus colchicus*) in Kansas. In view of the literature on the subject of pheasant and bobwhite parasitism (Westemeier et al. 1989; Vance and Westemeier 1979; Rosene 1969, Holcomb 1968; Nickell 1966; Blain 1954; Leedy and Hicks 1945; Carlson 1943; Eklund 1942; Bennett 1936; Hamerstrom 1936; Leffingwell 1928), I believe it is prudent to question these observations since they have been cited in other publications and could serve to mislead other workers.

McHenry (1966), found ten pheasant eggs in a nest with six bobwhite eggs. Nearby he found a pheasant nest containing one pheasant egg. Several days later (number of days unspecified) he found that the pheasant/bobwhite nest had been abandoned. Platt (1968) flushed a pheasant hen from a nest containing eight pheasant eggs and two bobwhite eggs. Three days later there were 12 pheasant eggs and four bobwhite eggs, and ten days later the nest contained 18 pheasant eggs and one bobwhite egg plus the remains of three additional bobwhite eggs. This nest was disrupted when checked on 10 May, 16 days after first being observed.

Both of these observations were cited by Westemeier et al. (1989), but fail to answer some key questions that are necessary to resolve whether the bobwhite or the pheasant was the nest parasite.

1. How were the nests constructed? Were they open cup (pheasant) or covered (bobwhite)?
2. Which eggs were on top of the clutch, pheasant or bobwhite?
3. Were pheasant or bobwhite feathers incorporated into the nests?

McHenry (1966) and Platt (1968) both failed to fully document the above information from the nests they observed. These notes should be cited with caution. It is unfortunate that more detailed descriptions were not published in the notes. If McHenry (1966) and Platt (1968) had supplied more detailed information, it would be easier for us to determine the species responsible for the parasitism. Pheasants are more widely recognized as nest parasites due to the process of egg dumping (Robertson 1997). Because pheasants are exotics in North America, they can be expected to be more successful than native galliforms in habitats that are less than optimal habitats for either or both species (Gause 1934; Vance and Westemeier 1979).

Literature Cited

Bennett, L. J. 1936. The ring-necked pheasant as a nesting parasite of other game birds. Iowa State Coll. J. Sci. 10:373-375.

Blain, A. W. 1954. Bob-white eggs in pheasant nest. Wilson Bull. 66:217.

Carlson, C. W. 1943. Unusual pheasant nests from Minnesota. Flicker 15:29-36.

Eklund, C. R. 1942. Ecological and mortality factors affecting the nesting of the Chinese pheasant in the Willamette Valley, Oregon. J. Wildl. Manage. 6:225-230.

Gause, G. F. 1934. An experimental investigation of the struggle for existence between *Paramecium caudatum, Paramecium aurelia,* and *Stylonychia mytilus.* Zool. Zh. 13:1-6.

Hamerstrom, F. N. Jr. 1936. A study of the nesting habits of the ring-necked

pheasant in northwest Iowa. Iowa State Coll. J. Sci. 10:173-203.
Holcomb, L. C. 1968. Further observation on ring-necked pheasant nesting. Bird-banding 39:133.
Leedy, D. L., and L. E. Hicks. 1945. The pheasant in Ohio. W. L. McAtee, Ed. Pp. 57-130. *In* The ring-necked pheasant and its management in North America. American Wildlife Institute, Washington, D. C.
Leffingwell, D. J. 1928. The ring-necked pheasant-its history and habits. C. R. Conner Mus., State Coll. of Washington (Pullman) OCC. Papers 1. 35 pp.
McHenry, M. G. 1966. Pheasant nest parasitized by bobwhite. Kansas Orni. Soc. Bull. 17:26.
Nickell, W. P. 1966. Ring-necked pheasants hatch in nest of blue-winged teal. Wilson Bull. 78:472-474.
Platt, D. R. 1968. Nest parasitism by the bobwhite. Kansas Orni. Soc. Bull. 19:18.
Robertson, P. 1997. Pheasants. Voyageur Press, Stillwater, MN. 160 pp.
Rosene, W. 1969. The bobwhite quail, its life and management. Rutgers Univ. Press, New Brunswick, NJ. 418 pp.
Vance, D. R., and R. L. Westemeier. 1979. Interactions of pheasants and prairie chickens in Illinois. Wildl. Soc. Bull. 7:221-225.
Westemeier, R. L., T. L. Esker, S. A. Simpson. 1989. An unsuccessful clutch of northern bobwhites with hatched pheasant eggs. Wilson Bull. 101:640-642.

Roger D. Applegate, Kansas Department of Wildlife and Parks, Research and Survey Office, P. O. Box 1525, Emporia, KS 66801-1525.

The Kansas Ornithological Society Bulletin will consider papers for publication on Kansas birds. Please send manuscripts plus 3½" floppy disk to the editor. Manuscripts up to 16 pages will be considered. Manuscripts exceeding 16 pages might be considered for a special publication on Kansas birds. These longer manuscripts can also be sent to the Bulletin editor.

Max C. Thompson, Editor, Department of Biology, Southwestern College, 100 College St., Winfield, Kansas. 67156-2499.

ISSN-0022-8729 07/25/98