Kansas Ornithological Society

BULLETIN

PUBLISHED QUARTERLY

Vol. 14 December, 1963 No. 4

A SECOND BREEDING COLONY OF THE DOUBLE-CRESTED CORMORANT IN KANSAS

By David F. Parmelee and H. A. Stephens

The Double-crested Cormorant (*Phalacrocorax auritus*) was observed nesting at Cheyenne Bottoms, Barton County, Kansas, during August of 1951 by Otto Tiemeier, who apparently observed "several nests, eggs, and small young," according to Tordoff (Univ. Kansas Publ., Mus. Nat. Hist. 8, 1956: 307–359). The species has not, however, been known to nest there since that time.

Fig. 1.—The Kirwin Colony. Double-crested Cormorants standing in the nests are young of the year. Photographed June 20, 1963, by Edward J. Ryan.

Since the spring of 1959, a more stable colony has been flourishing within the Kirwin National Wildlife Refuge, Phillips County, in the north-central part of the state. Information concerning the colony was recorded by personnel of the Fish and Wildlife Service, notably by Mr. Robert H. Shields, refuge manager. Data concerning the species at the Kirwin Refuge from 1959 through 1962 are summarized below:

First Arrival		Peak Numbers		Latest Departure		Total	Total
Number	Date	Number	Date	Number	Date	Nests	Young
150	4-11-59	150	4-11-59	3	12- 8-59	5	10
11	3-29-60	45	4-30-60	6	10-26-60	7	12
5	4- 5-61	65	4-27-61	2	11- 3-61	12	?
11	3-26-62	300	4-13-62	1	10- 1-62	19	38*

* Estimated count.

In 1963, the species was first seen on April 1 (47 birds), the peak numbers occurring on April 12 (110 birds). We first visited the colony on May 9 that year and with the assistance of Mr. Shields attempted to determine the size of the breeding population.

The colony was easily seen with binoculars from the Refuge Headquarters overlooking the upper waters of the reservoir. The nests were situated in the upper dead branches of three large, partly submerged cottonwoods about a quarter-mile from land. As we approached the nesting trees by boat, about 48 birds flew from the nests or nearby branches. Thirty-six of them, conceivably nesting individuals, continued to circle the colony during our stay. There were 23 nests in all. Seven of these had four eggs each, four had three eggs each, one had one egg, and four were empty, one being freshly lined. We were not able to check the remaining seven nests. Some eggs from the four-egg clutches were placed in water and found to contain large embryos of uncertain age, suggesting that incubation was well under way.

On June 20 we returned to the colony, this time accompanied by Dr. Edward J. Ryan and Mr. Marc Marcellus of Emporia. At this late date, at least 12 young immediately bolted from the nests as we approached. Not quite fledged, they fell straight down to the water, where they swam off unharmed. Thirty birds remained in the nests, now numbering 24, nearly all of which we checked. Most of these young were large and not far from fledging, but one nest held three small downy young and another held a single, very small "naked" young; still another held three obviously well-incubated eggs. No dead young were noted, and only one nest held an addled egg.

The young cormorants displayed amazing ability to hang on to the nests or limbs with feet and bill. Some even moved along the more horizontal branches from one nest to another and back again. Before leaving the colony, Mr. Shields banded ten young that could be safely reached.

At least 42, and probably 50 or more, young hatched at this colony in 1963. It seems likely that most of them fledged. In any event, the colony has been successful and has shown an annual gain. The cottonwoods will not last many more years, however, and whether the birds will move to other, partly submerged trees some distance away is uncertain.

These observations were made under joint research studies being conducted by the University of Oklahoma and Kansas State Teachers College and financed by the National Institutes of Health (AI 05232-01).

Biology Department, Kansas State Teachers College, Emporia, and University of Oklahoma Medical Center, September 15, 1963.

ETHOLOGICAL OBSERVATIONS ON THE EVENING GROSBEAK

By John D. Newman

From February to May, 1962, I observed nine captive Evening Grosbeaks, *Hesperiphona vespertina,* at the Cornell University Laboratory of Ornithology, Ithaca, New York. Casual observations of wild individuals in the area were also made at this time. The caged birds, three males and six females, were kept in a single, outdoor flight cage measuring 2½ by 5 by 5½ meters, and were provided with a seed mixture and water. One of the females was a nearly complete albino (sex confirmed by surgery). Each captive bird was color-banded, and distinctively marked on the chest and back with a black liquid crayon. This greatly facilitated individual recognition at a distance.

Maintenance activities.—"Comfort activities" such as preening and feather-fluffing made up a large portion of the caged birds' daily activity. Extended periods of preening are often followed by resting. After a final vigorous shake, during which the head and body feathers are ruffled, an individual crouches on its perch, fluffs its body feathers, draws in its neck, and closes its eyes. The shaking, crouching, and fluffing procedure may be repeated two or three times. During this period of "settling down," a bird often leans to one side or stands on one leg. No bird was seen shifting from one side, or one leg, to the other in any given rest period.

Rest periods average about 10 minutes. Resumption of activity begins with a restless shifting about on the perch, followed, first by preening, then by flying or feeding.

Agonistic behavior.—Social contacts resulting in agonistic displays were observed in grosbeaks feeding outdoors and in the captive birds when two or more birds were close together on the same perch.

When two males are side by side on a feeding tray, attack behavior, that is, direct approach by the attacker to the opponent, was often seen. Such encounters result either in the supplanting of one male, or in "fighting." Fighting consists of much "raspy" vocalization, wing-flapping, bill-thrusting, and, occasionally, bill-fencing, and is probably the result of a contact between two males of more-or-less equal dominance. Bill-thrusting and bill-fencing contain similar motor patterns, oriented jabs of the head and neck, but bill-fencing also contains elements involving physical contact with the opponent's bill, as well as movements that can best be described as "parries" and "thrusts." A bout of fighting ends when one of the birds flies off, or the participants are chased by another male.

Contacts involving females, either female–female or female–male, are characterized by less aggression, attack elements rarely (bill-fencing, never) being seen. Female–female contacts typically involve one bird supplanting another, although apparently harmonious side-by-side feeding is not uncommon. There are few overt signs of aggression, supplanting taking place with virtually none of the fighting seen in feeding males. In female–male contacts the male is usually the aggressive member, often attacking the female with bill thrusts and raspy vocalizations. Females were never observed to attack in return, either flying off, or otherwise avoiding pursuers. Often, with several males on the feeding tray, a female would attempt to alight and feed. She invariably would be thwarted, unless the males were fighting.

Elements of complete threat display are orientation toward an opponent, extension of head and neck, raspy vocalization, and sleeked plumage. By adding locomotion to these elements, attack behavior is obtained. "Attack" and "escape," then, are not distinguishable as separate displays. Instead, the locomotory element is lost as the attack tendency wanes. As the attack tendency decreases further (and, perhaps, the escape tendency increases), the vocal element is lost, although the mandibles remain open. But the mandibles are closed in threat displays of birds with still less intense attack tendency.

Certain elements of threat (and attack) behavior in this species appear to be identical with some of those observed in flight "intention movements." More specifically, these elements are sleeked plumage, forward-leaning body, and bill, neck, back, and tail all held in a straight line.

High intensity escape, as well as displays indicating lesser degrees of escape tendency, were observed in the caged birds. High intensity escape, *i.e.*, locomotion away from an attacking or threatening individual, removes the stimulus eliciting attack behavior, but does not reduce the aggressor's attack tendency. "Appeasement" displays also reduce the attack tendency in another bird, probably by causing the activation of a tendency incompatible with the attack tendency. Displays indicating various degrees of "moderate" escape tendency contained elements of feather-fluffing (head and body), crouching and neck-withdrawal (hunching), and "sleeping." All of the motor patterns used in these elements are virtually identical with those seen in certain maintenance activities.

Bill-wiping, another pattern associated with comfort activities, also was observed in the flight cage in agonistic situations. This behavior appears to express considerable conflict between escape and attack, and was performed when another individual (probably of similar dominance quotient) made mild threats. Because bill-wiping appeared out of normal context (namely, comfort activities), and under conditions of high stress, it is probably "displacement" behavior. Whether the attack or escape tendency is dominant for any given situation might be indicated by the orientation of the bill-wiping procedure, with respect to the location of the antagonizer. Orientation toward a part of the perch between the antagonizer and the performer may result from a stronger attack tendency. Orientation toward a part of the perch on the other side of the performer, away from the antagonizer, may indicate a stronger escape tendency.

TABLE 1

"WINS" AND "LOSSES" FOR EACH CAGED BIRD[1]

Code letter[2]	A	B	C	D	E	F	G	H	I
Sex[3]	f	m	f[4]	m	f	m	f	f	f
"Wins"	5	1	38	6	5	53	10	15	2
"Losses"	18	6	1	25	23	4	25	26	7

[1] Total encounters = 135. A bird scored a win every time it caused another bird to move from its place on the perch. Losses were scored in a comparable way.
[2] Each bird was given a code letter for recording use.
[3] Females are designated by "f," males by "m."
[4] This bird is a partial albino.

Vocalizations.—The raspy call of males in agonistic situations has already been mentioned. Female vocalization in similar situations consists of a soft, melodious "*quee*?" note, usually given singly. Whether females ever emit a raspy note like that of males was not determined.

Both sexes have a "gathering" call, a sharp, metallic "*pink*!" (often heard by bird watchers), which seems to bring a flock into vocal contact with one another. The call was given by the first individuals (usually males) to arrive at a feeding tray, and was answered by other, not yet visible, members of the flock. The same call was given by members of a flock leaving a feeding or resting site, or flying overhead.

The only other vocalization heard was a noisy cry, given by caged birds held in the hand. After a minute or so in the hand, a bird would cease crying. Capturing the birds was necessary several times during the study; with each subsequent capture this vocalization decreased until, when I caught the birds to free them, few cried at all. One female even emitted the "*quee*?" note already mentioned, suggesting a lessening of her "fear."

Social hierarchy.—As was mentioned earlier, the nine captive grosbeaks were frequently involved in agonistic contacts. It is reasonable to assume that frequent contacts between a small, confined group of birds enables each individual to learn which of the others it can dominate, and which it cannot. This often results in some kind of social ordering, or hierarchy, among the group's members.

Although linear hierarchies have been observed in other carduelines (*e.g.*, by Dilger, *Wilson Bull.*, 72:114–132, 1960), no evidence for this type of hierarchy was seen in Evening Grosbeaks (Table 1). Furthermore, except for birds C and F, the relative position of each bird's dominance quotient is unclear (see Table 2). Bird C, the albino female, consistently dominated the rest of the group; bird F dominated the others with the exception of bird C. As indicated in Table 1, birds B and I had considerably fewer encounters with the rest of the group than did the other birds. The reason for this is unclear. Perhaps it is a result of the relatively few total encounters recorded.

ACKNOWLEDGMENTS

I am grateful for the valuable advice and assistance of William C. Dilger during the course of the study and while the manuscript was in preparation. Thanks are due

TABLE 2

DOMINANCE RELATIONSHIPS BETWEEN THE CAGED BIRDS[1]

Code	A	B	C	D	E	F	G	H	I
A	—	1	1	1	0	0	0	2	0
B	0	—	0	0	0	1	0	0	0
C	5	1	—	8	10	2	2	10	0
D	0	2	0	—	1	0	0	3	0
E	2	0	0	0	—	0	3	0	0
F	7	0	0	12	8	—	9	10	7
G	3	2	0	3	0	1	—	1	0
H	0	0	0	0	4	0	11	—	0
I	1	0	0	1	0	0	0	0	—

[1] Expressed in terms of wins and losses. Read wins horizontally, losses vertically.

Richard F. Johnston, Richard Andrew, and E. Raymond Hall for critical readings of the manuscript.

Laboratory of Ornithology, Cornell University, Ithaca, New York, September 30, 1963.

Food of the Barn Owl and Development of Its Young in Southeastern Kansas.— On October 14, 1962, a nesting pair of Barn Owls (*Tyto alba*) with seven young was found in an abandoned mine tipple in Cherokee County, Kansas, one mile west of the town of Galena. The owls were nesting in an iron tub, three feet in diameter and three feet deep, in the lower room of the tower, some sixty feet above the ground. The nest site was protected on all sides except the north, where a series of windows was devoid of glass. The room was confluent with an upper room some eight feet higher. The young owls were in downy plumage and differed greatly in size and development. The primaries of the oldest were present, but ensheathed, and it appeared to be about two weeks old. The youngest individual was covered with a light down and its eyes were just opening (Fig. 1).

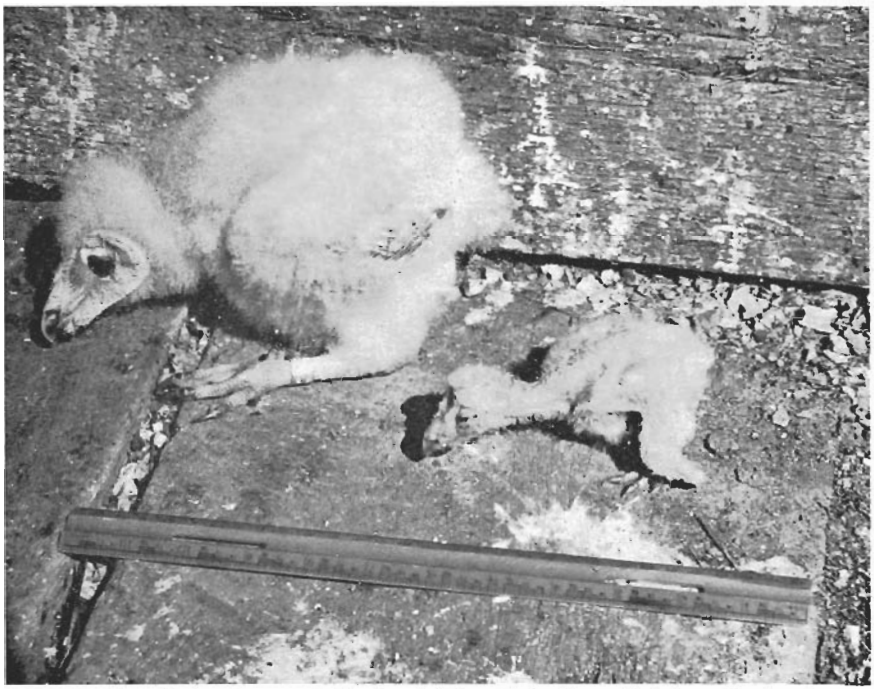

Fig. 1. The oldest and youngest of a brood of Barn Owls (*Tyto alba*) from Cherokee County, Kansas, × 2/5.

Files of the Kansas Breeding Bird Survey indicate that the breeding season of the Barn Owl spans at least April to July; breeding elsewhere may be almost continuous when food is abundant (Wallace, *Mich. St. College Agric. Exp. Sta. Tech. Bull.* 208, 1948:17). The plumage of the oldest individual suggested that it hatched in the first week of October. As the incubation period is from 30–34 days (Kendeigh, *Ill. Biol. Monog.* 22, 1952:214) the clutch was begun in the first week of September. These young Barn Owls could have resulted from a late clutch or a second brood.

A second visit was made to the tipple on October 21, 1962, and the young birds, then six in number were weighed and banded. Weights of the six (A–F) in grams were: A, 445; B, 413; C, 317; D, 291; E, 234; F, 94. The nest site was again visited on November 21, 1962. Only four young owls remained alive: A, B, D, F. The remains of C and E were found in the room.

TABLE 1

AN ANALYSIS OF PELLET REMAINS FROM BARN OWLS

	Loose Material	Pellets		Total	Frequency in percent
		Oct. 14 & 21[1]	Nov. 21[2]		
Mammals					
Cryptotis parva	–	1	2	3	1.3
Scalopus aquaticus	–	1	–	1	0.4
Sylvilagus sp.	2	–	–	2	0.8
Peromyscus sp.	–	1	3	4	1.7
Sigmodon hispidus	47	64	40	151	63.7
Microtus sp.	25	32	13	70	29.5
Rattus norvegicus	–	–	1	1	0.4
Mus musculus	–	–	1	1	0.4
Birds	2	1	1	4	1.7

[1] 97 pellets.
[2] 78 pellets.

The young owls hissed and clacked their bills when approached. They wagged their tongues between clacks and dilated their pupils rapidly, while swaying back and forth. As the bottom of the nest was being probed the largest individual would spread his wings and strike out with both feet. None of the other individuals exhibited this behavior. No adults were present in the vicinity of the nest.

On February 3, 1963, the bodies of B and D and that of a Great Horned Owl (*Bubo virginianus*) were recovered from the base of the tipple. The dead Barn Owls weighed 609 g (B) and 327.5 g (D). The smaller of the two owls had a broken wing, but this was the only injury on either of the birds. Subsequent dissection of the birds revealed no internal injuries that would have accounted for their deaths. As we approached the tipple two Barn Owls, presumably A and F, left the upper room.

The staggering in the development of young raptors, resulting from the staggered dates of egg-laying and inception of incubation after the laying of the first egg, has been suggested to be of advantage in several ways, primarily in distributing the care of the young over a long period of time (Ingram, *Auk* 76, 1959:218). This is especially critical in forms dependent upon rodent populations for food, as these populations may fluctuate radically. If food is scarce, normally the larger and better-developed members of the brood would be better able to take anything placed in the nest by parents. This could mean vigorous survival of the larger young, rather than temporary persistence of a uniformly underfed whole brood. The survival of both the youngest and oldest of the brood studied in Cherokee County indicates that scarcity of food may not have been significantly related to the deaths of the other five nestlings.

One hundred seventy-five complete pellets (Table 1) were collected from the nest site in the course of the study. From them, remains of 159 small mammals and two birds were recovered (based on the number of crania, as they were the most abundant single element), or .95 individuals per pellet. Fifty-one of the pellets contained only long bones. The largest number of skulls in any one pellet was four. The skulls of an additional 74 mammals and two birds were recovered from the loose debris at the nest site. In all, the remains of 237 individuals were collected and identified.

The area adjacent to the mine tipple was devoid of trees, except around residences and along the highway. Short grasses dominated the area. Rain water stood in depressions left by the mining operation. On October 13, 1962, a line of 80 traps set overnight in the quarter section in which the tipple stood yielded the following mammals: 19 hispid cotton rats (*Sigmodon hispidus*), one prairie vole (*Microtus ochrogaster*), three deer mice (*Peromyscus maniculatus*), and one house mouse (*Mus musculus*). The predominance of *Sigmodon* in the trapline is consistent with the predominance of *Sigmodon* in the pellets, and both seem to reflect the present suitability of this habitat for this rodent.—JERRY F. DOWNHOWER, *Museum of Natural History, University of Kansas, Lawrence, Kansas, October 1, 1963.*

Marginal Occurrence of the Bay-breasted Warbler in Kansas.—On September 29, 1963, we observed a Bay-breasted Warbler, *Dendroica castanea,* foraging in a grove of American elms, *Ulmus americanus,* near the Kirwin National Wildlife Refuge, Phillips County, Kansas. The bird was taken in order that the identity of the individual be established beyond question; it was a first-year female with skull nearly completely ossified, had moderately heavy fat deposits, and weighed 11.7 g. The skin is now in the collections at the Museum of Natural History, The University of Kansas (KU 41301).

Bay-breasted Warblers breed in the northern coniferous forests from eastern Manitoba south to northeastern Minnesota and east to New Hampshire. The species winters in Central America and northern South America. The route of migration should take these warblers through eastern Kansas, and a few usually are observed in this area each year. The present record is clearly marginal and to our knowledge is the most westerly of the Bay-breasted Warbler in Kansas.—Ted R. Anderson and James D. Rising, *Department of Zoology, The University of Kansas, October 2, 1963.*

Distribution Records of Some Kansas Birds.—Observations summarized below were made by members of The University of Kansas summer session field course in vertebrate zoology while encamped on the Cimarron River, 7 miles north and 2 miles east of Elkhart, Morton County, Kansas, on July 17 and 18, 1963. That sector of Morton County is extensively grown to a grass–sagebrush cover on sandy soil. Near the river, extending in places for a quarter-mile from the banks, an open woodland of cottonwood trees abuts the sage, which in turn is nearly completely absent from the understory.

Mississippi Kite: *Ictinia mississippiensis.*—Two pairs of kites were evident along the Cimarron River on both July 17 and 18. All were in adult feather and we obtained no evidence that any of them bred in Morton County. Nevertheless, occurrence there in summer is unusual and suggests that these kites may even frequent southeastern Colorado in summer.

Sage Thrasher: *Oreoscoptes montanus.*—David A. Easterla found a family of these thrashers and we ultimately obtained a bird in juvenal feather on July 17. Members of the party saw two other adults; we do not know if they were paired. The young bird (KU 41709) represents the first breeding record and the fifth known specimen of the species in Kansas.

Vesper Sparrow: *Pooecetes gramineus.*—An adult (KU 41778) with regressing testes and well into the annual molt (primaries 1–3 ensheathed) provides questionable evidence of this species breeding in Kansas. It is not likely that the bird had undertaken migratory movement, in view both of the molt and of the relatively early date (July 17), but we have no way of knowing what the bird was doing earlier that summer, or if, indeed, there were any other Vesper Sparrows in southwestern Kansas. However, the species was fairly common in northeastern New Mexico this past summer, and much more so than published records indicate, suggesting that the species experiences periodic waxing of population numbers. Thus, the possibility that Vesper Sparrows breed at least occasionally in southwestern Kansas is real.—Richard F. Johnston, *Museum of Natural History, The University of Kansas, September 18, 1963.*

REVIEWS

The Birds. Roger Tory Peterson. New York, Time, Inc., Book Division (Life Nature Library), 1963. 192 pp., illustrated (64 in color). Price $3.95.—This book could be called an ornithological primer; it touches briefly on almost every phase of ornithology and assumes only that the reader understands English. The text is lively, accurate in matters of fact, and the drawings and photographs are wholly first-rate. The union between pictorial and textual material is good (as one might suspect from Mr. Peterson), and therein is much of the basis of the book's success.

An uncritical appraisal of the work leads a reader to think the book is better than it really is, so impressive is the pictorial matter. Yet, the text contains the inevitable oversimplifications attendant on restriction of space; some of these lead to erroneous

conclusions by the reader. On page 34, it is easy to assume that House Sparrows have a "lighter summer garb" distinct from plumage in winter, and of around 400 feathers less—but the summer "garb" is merely the worn winter "garb" minus adventitious feather loss.

More serious are errors of interpretation of current theory. For instance (p. 120), "The communication of birds is . . . a matter of inborn mechanisms, some of which are termed 'releasers,' 'imprinting,' and 'displacement.'" Behavioral and morpholgical releasers are certainly conceived of as inborn, but imprinting is a phenomenon best described as a form of learning (hence, inborn only in the sense that any capacity for learning is inborn), and displacement refers to behavior thought to stem from conflicting tendencies toward acting in two or more different ways (as fighting or fleeing). That the quoted material above is essentially meaningless will not be evident to anyone not current with ethological jargon. Again (p. 142) it is implied that clutch sizes are functions of mortality rates. David Lack, of course, has shown the weakness of this view, especially when it is opposed to the theory that clutch sizes are regulated by the maximum number of young that parents can attend. This idea, originally presented more than 15 years ago, is extensively developed in Lack's *The Natural Regulation of Animal Numbers,* cited (p. 187) in the Bibliography of *The Birds.* I cannot think that Mr. Peterson is responsible for the archaic interpretation, but I do not know who else can have done it.

One might also quibble with the tendency of the text to be concerned with the biggest, the smallest, the bizarre, the extreme, etc. But this is, after all, only the general approach used by *Time* and *Life,* consistent with their conception of what interests most North Americans—a conception not far off the mark but certainly becoming a bit wearisome and trite.

These considerations really ought not deter anyone from seeking out the book, either for personal use or as a gift—we would not notice the book here if it were otherwise. As I indicated above, it is a treat to look at (Mr. Peterson, with the birds, is eye-minded) and is easily the best first book of birds available today.—Richard F. Johnston.

Note: dates for the K.O.S. Winter Bird Count are December 19, 1963 to January 1, 1964. Appropriate forms are herewith sent to members who have cooperated in the past.—*Ed.*

OFFICERS

President . . . . Elizabeth Cole, 5535 Renner Rd., Shawnee 1, Kansas
Vice-President . . . J. C. Johnson, Kansas State College, Pittsburg, Kansas
Secretary . . . . . Amelia Betts, Baldwin, Kansas
Treasurer . . . . . L. B. Carson, 1306 Lincoln, Topeka, Kansas
Editor . . . Richard F. Johnston, University of Kansas, Lawrence, Kansas
Assistant Editors . . . . . J. C. Barlow, E. E. Klaas, M. C. Thompson

Regular Membership, $2.00 Student Membership, $1.00 Sustaining Membership, $5.00

Dues payable January 1 to the Treasurer

Subscription to the Bulletin *is included in any class of membership*

Published December 4, 1963