Transactions of the Illinois State Academy of Science
(1999), Volume 92, 3 and 4, pp. 285-288
received 10/15/98
accepted 1/23/99

Oological Notes from Jasper County, Illinois

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INTRODUCTION

With the passage of the Migratory Bird Treaty Act (1918), the common practice of collecting eggs and nests was outlawed and scientific collecting closely regulated. The formal study of eggs and nests, oology, declined significantly thereafter. However, collecting during the nineteenth century had established large collections in the United States. A survey by Banks et al. (1973) found 638,840 nests or eggs and 4.2 million skins in collections in the United States and Canada.

Clutch sizes are frequently reported in studies of individual species, and parasitism by Brown-headed Cowbirds (*Molothrus ater*) has been an active field of investigation recently (e.g., Robinson 1992, Robinson et al. 1995). In recent decades, notes on egg dates have been made largely from incidental locations and compiled within local or regional treatments (e.g., Bohlen 1989). Egg dates are not often reported when a large sample of nests of many species are available from one location.

Knowledge of local nesting dates allows managers to minimize disturbance and destruction of breeding birds through restricting access and timing management practices such as cutting/haying, cultivation and prescribed burning. Likewise, investigators can appropriately time nest searching effort, both for efficiency and to avoid seasonality biases. Given the paucity of such natural history records from southeastern Illinois, we report on clutch sizes, egg dates and parasitism rates derived from 1,386 nests of 28 bird species from Jasper County, Illinois.

METHODS

We conducted nest searches of Prairie Ridge State Natural Area, Jasper County, Illinois, from May to mid-August 1996 and early-April to mid-August 1997 and 1998. Crews of three to eight people searched the grasslands primarily for the nests of Dickcissels (*Spiza americana*), Eastern Meadowlarks (*Sturnella magna*), Grasshopper Sparrows (*Ammodramus savannarum*) and Field Sparrows (*Spizella pusilla*). In addition, nests of Northern Harriers (*Circus cyaneus*) were monitored from 1994-1998. During 1997 and 1998, the searches included shrub-nesting species, both within Prairie Ridge State Natural Area and on adjacent private lands.

Nests were marked with flagging tape 10 to 25 m from the nest site. Nests of passerines were checked twice per week until fate was determined. Nests of nonpasserines were checked infrequently (less than one check per two weeks) or left undisturbed until after we believed hatching had occurred.

For each species, the mean and observed range in clutch sizes are presented (Table 1). Nests depredated during the laying stages are excluded from these calculations. Egg dates extend from the first egg laid in a nest until hatching. For nests found during incubation, we assumed the first egg day to be clutch size-1 day(s) before location (based on one egg laid per day, with the final egg being laid the same day as nest discovery). This approach is conservative, since nests could be well-advanced in incubation when located. For nests found in the nestling stage, we back-calculated egg dates from nestling age (date of hatch), through incubation time (Ehrlich et al. 1987, E. Kershner and J. Walk pers. obs.), and the number of days equal to only one-half clutch size (to err on the side of conservatism). These dates are compared to Illinois egg dates published in Bohlen 1989 or noted by V. Kleen in The Meadowlark volumes 1-7 (Table 1). If observed, the rate of nest parasitism is noted by species (Table 1).

RESULTS

Oologic notes from 1,386 nests of 28 species are listed in Table 1. Clutch sizes and egg dates observed in this study conform to other published records, although our egg dates for many species are up to ten days earlier or later than those reported. For a few species, egg dates are extended by several weeks. We recorded Mallards (*Anas platyrhynchos*), Northern Harriers, Greater Prairie-Chickens (*Tympanuchus cupido*), Short-eared Owls (*Asio flammeus*), Brown Thrashers (*Toxostoma rufum*), Eastern Towhees (*Pipilo erythrophthalmus*) and Red-winged Blackbirds nesting two weeks or more earlier than previously reported. American Bittern (*Botarus lentiginosus*), Greater Prairie-Chicken, Northern Mockingbird (*Mimus polyglottos*) and Grasshopper Sparrow eggs were found more than two weeks after other Illinois egg dates.

Nest parasitism by Brown-headed Cowbirds ranged from 0% to 19% among passerines with samples greater than 30 nests. One Greater Prairie-Chicken nest was found "parasitized" with two Ring-necked Pheasant (*Phasianus colchicus*) eggs. A single Mourning Dove (*Zenaida macroura*) nest contained four eggs, with intraspecific parasitism being a likely explanation for this abnormal clutch size. One Eastern Meadowlark nest contained two Northern Bobwhite (*Colinus virginianus*) eggs.

DISCUSSION

Nests initiated before late-March and after early-August were likely under-represented or absent from our sample of nests due to our April-to-August field seasons. Egg dates for early nesting species (e.g., Mallards) may be earlier than we report. Likewise, species nesting later in the summer (e.g., American Goldfinches, *Carduelis tristis*), likely have egg dates considerably later than we report.

The parasitism of prairie-chickens by pheasants and of meadowlarks by bobwhites has been previously documented. In the recent past, pheasant parasitism has been a serious

impairment to prairie-chicken recruitment on the area, with rates as high as 43% recorded in the mid-1980s (Westemeier et al. 1998). Control programs have been effective in reducing the pheasant population at this site; only one prairie-chicken nest found since 1988 has contained pheasant eggs (Westemeier et al. 1998, E. Kershner and J. Walk, unpubl. data, S. Simpson, T. Esker, R. Westemeier, pers. comm.). The pheasant eggs were removed by Illinois Department of Natural Resources biologists, and 15 prairie-chicken eggs eventually hatched from this nest. In the meadowlark nest, the female incubated the clutch and fledged five meadowlarks. The bobwhite eggs did not hatch. Northern Bobwhite are known to lay eggs in other bobwhite nests, meadowlark nests, and even within the nests of domestic bantam chickens (Roseberry and Klimstra 1970, Bent 1958, Stoddard 1931).

ACKNOWLEDGMENTS

We would like to thank the Illinois Department of Natural Resources, Illinois Nature Preserves Commission, The Nature Conservancy, AmerenCIPS and several private landowners for access to properties. Funding for our research was provided by the University of Illinois, the Illinois Council on Food and Agricultural Research (C-FAR), and the Illinois Wildlife Preservation Fund.

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Table 1. Mean and range in clutch sizes, early and late egg dates, and parasitism rates of bird nests from Jasper County, Illinois.

YEARS	SPECIES	N	CLUTCH SIZE Mean	CLUTCH SIZE Range	EGG DATES Early	EGG DATES Late	Previously Reported	PARASITISM**
1997-98	Mallard, *Anas platyrhynchos*	40	9.40	6 - 13	3/20	7/2	early April - 7/8	
1996,98	American Bittern, *Botarus lentiginosus*	2	4.50	4 - 5	5/20	7/1	5/18 - 6/16	
1994-98	Northern Harrier, *Circus cyaneus*	27	4.37	2 - 7	4/12	7/1	late April - 7/3	
1997-98	Greater Prairie-Chicken, *Tympanuchus cupido*	19	12.8	9 - 17	4/6	7/5	4/20 - 6/6	5% - Ring-necked Pheasant
1997-98	Northern Bobwhite, *Colinus virginianus*	5	17.0	14 - 20	4/15	6/20	May - June	
1997-98	Killdeer, *Charadrius vocifera*	3	3.33	3 - 4	3/27	4/27	3/31 - 8/5	
1997-98	Upland Sandpiper, *Bartramia longicauda*	5	4.00	4	5/16	6/17	mid-May - mid-June	
1997-98	American Woodcock, *Scolopax minor*	4	3.50	3 - 4	<3/20	6/13	3/30 - 6/12	
1997-98	Mourning Dove, *Zenaida macroura*	61	2.00	1 - 4	3/29	8/17	2/4 - early November	2% - Mourning Dove
1998	Short-eared Owl, *Asio flammeus*	3	4.00	3 - 5	3/15	4/22	4/1 - 5/10	
1997-98	Eastern Kingbird, *Tyrannus tyrannus*	4	3.25	3 - 4	6/10	7/9	5/2 - 7/27	
1997-98	Blue Jay, *Cyanocitta cristata*	6	4.73	4 - 5	4/19	5/20	4/12 - 7/12	
1997-98	American Robin, *Turdus migratorius*	55	3.76	2 - 5	4/5	7/31	4/18 - 7/20	
1997-98	Northern Mockingbird, *Mimus polyglottos*	24	3.68	3 - 6	4/7	7/30	4/8 - 7/4	
1997-98	Brown Thrasher, *Toxostoma rufum*	90	3.80	2 - 5	4/9	7/12	4/29 - 7/11	1% - Brown-headed Cowbird
1997-98	Loggerhead Shrike, *Lanius ludovicianus*	17	5.72	4 - 7	4/4	5/26	3/24 - 5/29	
1997	Bell's Vireo, *Vireo belli*	4	4.00	4	6/5	6/30	5/25 - 7/6	50% - Brown-headed Cowbird
1997-98	Common Yellowthroat, *Goethlypis trichas*	9	3.88	3 - 4	5/16	7/7	5/7 - 7/9	11% - Brown-headed Cowbird
1997-98	Northern Cardinal, *Cardinalis cardinalis*	17	2.72	2 - 4	4/12	7/7	4/15 - 8/12	27% - Brown-headed Cowbird
1996-98	Dickcissel, *Spiza americana*	431	3.76	2 - 5	5/14	8/16	5/17 - 8/5	<1% - Brown-headed Cowbird
1998	Eastern Towhee, *Pipilo erythrophthalmus*	2	2.00	2	4/22	6/25	5/11 - 8/1	50% - Brown-headed Cowbird
1996-98	Field Sparrow, *Spizella pusilla*	109	3.61	2 - 5	4/27	7/29	4/20 - 8/20	10% - Brown-headed Cowbird
1997-98	Vesper Sparrow, *Pooectes grammineus*	4	3.50	3 - 4	5/1	8/1	5/9 - 8/4	25% - Brown-headed Cowbird
1996-98	Grasshopper Sparrow, *Ammodramus savannarum*	49	3.87	2 - 6	5/15	7/26	5/18 - 7/10	2% - Brown-headed Cowbird
1997-98	Song Sparrow, *Melospiza melodia*	36	4.20	3 - 6	4/10	7/31	4/22 - 8/7	19% - Brown-headed Cowbird
1997-98	Red-winged Blackbird, *Agelaius phoeniceus*	121	3.35	1 - 5	4/27	7/20	5/12 - 7/23	<1% - Brown-headed Cowbird
1996-98	Eastern Meadowlark, *Sturnella magna*	231	4.34	2 - 6	4/8	7/19	4/6 - 7/23	<1% - Northern Bobwhite
1997-98	American Goldfinch, *Carduelis tristis*	8	5.18	4 - 6	7/27	8/17	6/4 - 8/27	

** No parasitism was observed unless otherwise noted.