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BREEDING OF THE LEAST BITTERN IN POTTAWATOMIE COUNTY, KANSAS

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Little information has been published on the breeding biology of the Least Bittern (*Ixobrychus exilis*) in the United States. Less is known about its breeding biology in Kansas. Nesting records have been obtained from Barton, Douglas, Johnson, Kingman, Linn, and Lyon counties in Kansas (Charles A. Ely, pers. comm.). Based on 11 nests, Johnston (1964, *The Breeding Birds of Kansas*, Univ. Kansas Publ. Mus. Nat. Hist. 12:575-655.) states that the clutch size in Kansas is "about 4 eggs". When the nest records of Ely were analyzed, 31 nests provided a mean (\pm S.E.) clutch size of 3.1 ± 0.26 . It was possible, however, that some of



Fig. 1. Six-day-old young in "freezing behavior" posture at nest No. 2 on 27 June 1981.

these nests represented incomplete clutches. If nests containing 0, 1, or 2 eggs were removed from the analysis, a clutch size of 4.0 ± 0.15 was found for the remaining 20 nests. This clutch size was similar to the clutch size of 4.4 ± 0.43 for 59 nests in Iowa by Weller (1961. *Breeding biology of the Least Bittern*. *Wilson Bull.* 73:11-35).

In 1981 I discovered five Least Bittern nests in a small marsh at Tuttle Creek State Park, River Pond area, Pottawatomie County, Kansas. Observations were made on the nests every two to three days, and weights of nestlings were recorded. Least Bitterns were first heard in the marsh on 8 May 1981 but were not seen until 19 May.

The first nest was located on 28 May and the last was located on 24 June. The chronology of the nests was such that none of the nests could have been a second breeding attempt. The clutch sizes of the nests were 5, 4, 4, 4, and 3 with a mean clutch size of 4.0 ± 0.32 . The nest containing three eggs was evidently abandoned soon after the third egg was laid, and was depredated with small eggshell fragments remaining in the nest 20 days after the first egg was laid. One nest with four eggs was depredated shortly after the fourth egg was laid, again with eggshell fragments remaining. The other three nests hatched young. A brood of four was depredated shortly after the last young hatched. The nest was destroyed, indicating a raccoon as the probable predator. Another nest of four was found destroyed six days after the hatching of the last young, a raccoon again the probable predator. The nest of five eggs fledged four young, the toes and feathers of the fifth were found 11 days after it hatched.

I was unable to find any weight data on young in the literature. Three eggs from

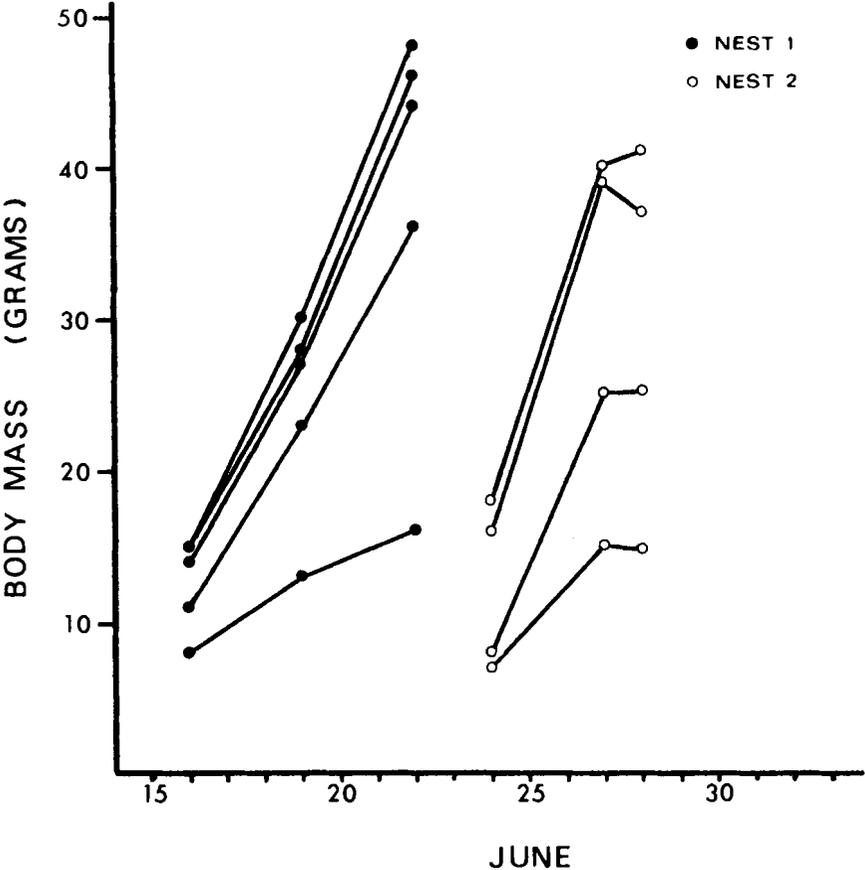


Fig. 2. Growth of individual nestlings in two Least Bittern nests.

the abandoned clutch each weighed approximately 8 grams. Weights of nestlings from two nests are presented in figure 2. Least Bitterns begin incubation after the first or second egg, and the young hatch asynchronously. The nestlings varied greatly in size and the youngest nestling in both nests had a slower growth rate than its siblings. Evidently the parents were not able to obtain enough food to supply all of the nestlings, thus brood reduction occurred.

One nest of this species was found in the same marsh in the mid-seventies (Frank Shipley, pers. comm.). In 1982 I observed a Least Bittern on several occasions during the month of May, but found no nests. The marsh flooded during the last week of May and no further nest checks were made, thus it is unknown whether the species nested in the marsh in 1982. The nesting density of the species may have been higher than normal during 1981 as a result of the drying of area marshes from a prolonged drought.

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Winter Purple Finches in Baldwin City, Kansas. — In the spring of 1971 I banded my first Purple Finches (*Carpodacus purpureus*), one striped unknown and two after-second-year males (Table 1). Seventy Purple Finches were banded during the first six winters. Then in the winter of 1976-1977 then came in greater numbers and 390 were banded. The numbers increased until the peak year, 1982-1983, when I banded 1075. During the 14 seasons (30 November to 8 May) I have banded a total of 3529 Purple Finches. There were only two seasons in which no finches were captured or seen, 1971-1972 and 1979-1980.

Of the total banded in Baldwin, 18 returns have been reported to me — 11 from Kansas, three from Minnesota, two from Saskatoon, Saskatchewan and one each from Missouri and Arkansas. In January 1977 I trapped my first foreign bird, one banded by L. T. Simmons in Winnipeg, Manitoba, in April 1976. What a thrill! Since then I have had five more, two from Minnesota and one each from Oklahoma, Iowa and Kansas.

Eighty-seven of my banded Purple Finches have returned in subsequent seasons: 33 returned after one season, 45 after two seasons, 5 after three seasons, 2 after four seasons, 1 after seven seasons, and 1 after eight seasons. This last bird was banded on 25 March 1975 and returned every winter except 1977-1978, when the Pine Siskin (*Carduelis pinus*) invasion was at a peak. The latest recapture of this bird was on 26 January 1983.

Table 1. Purple Finches Banded at Baldwin City, Kansas

Season	30 Nov.-31 Mar.	1 Apr.-8 May	Total
1970-1971	0	3	3
1971-1972	0	0	0
1972-1973	1	0	1
1973-1974	5	0	5
1974-1975	7	46	53
1975-1976	5	3	8
1976-1977	359	31	390
1977-1978	126	2	128
1978-1979	239	6	245
1979-1980	0	0	0
1980-1981	448	46	494
1981-1982	317	84	401
1982-1983	872	203	1075
1983-1984	551	175	726
Total	2930	599	3529

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Pine Siskins nesting in Riley County, Kansas. — In early May 1984 I found two Pine Siskin (*Carduelis pinus*) nests on the Kansas State University campus, Riley County, Kansas. Both nests were in red cedar (*Juniperus virginiana*), approximately 3.5 m from the ground. Pine Siskins usually breed in coniferous forests from timber line in Canada south to northern Minnesota and New England as well as in the Appalachian Mountains south to North Carolina. Pine Siskins are only occasional nesters in Kansas (Johnston, 1964. The Breeding Birds of Kansas. Univ. Kansas Publ. Mus. Nat. Hist. 12:575-655). This report is the first record for Riley County.

The first nest was noticed on 9 May; an adult was on the nest but there were no eggs. Observations of the nest contents were made every other day using a mirror attached to the end of a pole. There were 3 eggs in the nest by 12 May and by 14 May there were 4 eggs in the nest. Two of the eggs hatched between the 24th and 25th, giving an incubation period of approximately 13 days. The other two eggs also hatched, but the exact date is not know. On 27 May two of the young were gone. On 29 May I noted that the feather tracts were well developed on the remaining two young, but the feathers were still sheathed. The next day the young were gone.

The second nest was found on 12 May; it was also occupied but without eggs. Two eggs were noticed on 14 May and two more on 16 May. The eggs and the adult were gone on 26 May.

The failure of both nests was probably due to predation. That at least one siskin nest was successful in 1984 in Riley County is based on Otto Tiemeier's observation (pers. comm.) of adult siskins feeding fledged young at his feeder a few blocks away from the two campus nests I observed.

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