

BROOD SIZE OF THE GREAT HORNED OWL IN SASKATCHEWAN

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In 17 years between 1946 and 1969, I banded 1374 flightless young Great Horned Owls, *Bubo virginianus*, in Saskatchewan (Table 1). The 576 nests were situated throughout most of the settled portions of the province, up to 323 road miles from Saskatoon. I am indebted to a great many persons who responded to requests in *Blue Jay*, in the 'Prairie Wildlife' column in the weekly *Western Producer* and to my weekly program in 1960 on the Yorkton television station. Beginning in 1960, a choice of one of the Peterson *Field Guide* series was offered to anyone reporting three or more owl nests and beginning in 1964 a year's subscription to the *Blue Jay* was given to those finding one nest in which I banded young. By checking large nests by telescope in April, Doug Whitfield and Jonathan Gerrard found 35 active Great Horned Owl nests in 1967 and 45 in 1968.

Owls were banded on evenings and weekends. The major expedition each year was during the three-day Canadian holiday weekend just after the middle of May, which most years happened to be the optimum time for owl banding. Most nests were visited only once. Twelve owls were banded in April, 1296 in May, 65 in June and one in July. The earliest banding dates were April 26 (1953) and April 28 (1969); four of the 12 owls banded in April were so small that the bands had to be taped on. The latest date was for a fledgling, about three weeks out of the nest, caught and banded on July 23 (1954).

Variations in time available to the bander, weather and earliness of season introduced some bias from visiting nests at different stages of development. The number and location of people reporting nests was inconsistent from year to year and there was increased enthusiasm for reporting nests in times and places of above-average success. Nevertheless my data will perhaps allow some tentative conclusions.

The nesting success of the Great Horned Owl varies considerably from year to year. In Saskatchewan, an above-average year is one in which there is an average of 2.3 or more young per nest, 5% or more of the nests contain four young, 12% or less of the nests contain only one young, and almost all pairs are apparently nesting. Although we have no absolute figures for density of prey species (rabbits, pocket gophers, mice, water birds), some or most of these were visibly plentiful during such years, with uneaten portions of prey present in most owl nests visited before noon. For example, mice and rabbits were both plentiful in 1960, rabbits were numerous in 1968 and mice were abundant in 1969.

In a below-average year in Saskatchewan, there is an average of 2.1 or less young per nest, few or no nests contain four young, over 15% of nests contain only one young and a noticeable number of owl pairs seem not to be nesting. In 1965, particularly, a high

TABLE 1.

Year	Number Nests With:				Total Nests	Total Young	Average Number Young	Fledglings Out of Nest	Total Young Banded
	4 Yg.	3 Yg.	2 Yg.	1 Yg.					
1946	—	—	—	—	—	—	—	1	1
1948	—	—	—	—	—	—	—	1	1
1952	—	—	—	—	—	—	—	1	1
1953	0	1	1	0	2	5	2.5	1	6
1954	—	—	—	—	—	—	—	1	1
1956	0	0	2	0	2	4	2.0	0	4
1957	0	0	0	1	1	1	1.0	0	1
1958	0	3	6	1	10	22	2.2	0	22
1959	1	13	9	6	29	67	2.3	3	70
1960	4	20	32	8	64	148	2.3	2	150
1961	0	3	10	4	17	33	1.9	2	35
1964	0	9	16	9	34	68	2.0	1	69
1965	0	0	5	3	8	13	1.6	0	13
1966	2	19	21	9	51	116	2.2	0	116
1967	3	39	58	10	110	255	2.3	3	258
1968	10	70	68	15	163	401	2.5	1	402
1969	7	44	30	4	85	224	2.6	0	224
Totals	27	221	258	70	576	1357	2.4	17	1374

TABLE 2. EARLY AND LATE BROOD SIZE (7 YEARS ONLY)

Year	Early Brood Size		Dividing Date	Late Brood Size	
	Young/Nests	Ratio		Young/Nests	Ratio
1959	45/19	2.4	May 18	22/10	2.2
1960	108/44	2.5	May 22	40/20	2.0
1964	50/24	2.1	May 18	18/10	1.8
1966	99/42	2.4	May 22	17/9	1.9
1967	168/70	2.4	May 22	87/40	2.2
1968	185/70	2.6	May 12	216/93	2.3
1969	105/39	2.7	May 16	119/46	2.6
Totals	760/308	2.5		519/228	2.3
Av. by years		2.4			2.1

proportion of owls on territory in several areas had no nest that could be located by myself or other observers. In such years, prey species are less in evidence, both in the field and in owl nests. If figures could be calculated on the basis of the total Great Horned

Owl population, rather than on active nests as recorded in my banding statistics, differences between above-average and below-average years would be even more striking.

Evidence from Finland suggests that several species of overwintering owls tend to nest earlier and have good reproductive success in years of good food supply (Linkola and Myllymaki, 1969). Unfortunately, our banding visits were so irregularly timed that our data do not yield definite information on this point, though they are not inconsistent with it. In 1960, about half the young owls left the nest by May 23 and none were banded in their nests in June. In 1968, some young were well feathered by May 2 and again none were banded in June. These "early" years were also "above-average" years whereas the few nests found in the "below-average" years of 1961 and 1965 had less advanced young on comparable dates.

Each year, nests visited earlier in the season contained more young than those visited later. Calculations were made separately for nests before and after an arbitrary date chosen for that year, after at least one full weekend of banding (Table 2). These dates are inconstant due to variability in the time of the May holiday, time available, weather and season. The slight downward trend in the numbers of young per nest suggests a relatively low mortality rate in the nest. It could be explained by some smaller nestlings dying of starvation some years, by some being taken as pets and by some leaving the nest so that they could not be located at the banding visit. In addition, it is my subjective impression that nests with older young on a given date tended to have more young, which might again suggest that early nests are more successful.

As one might expect, the habitat of the nesting territory seemed important. The 27 pairs raising four young to banding age were without exception in apparently excellent owl habitat. Most were in well wooded areas with nearby sloughs, or in wooded creek valleys. The only four-owl nest in open country was in a deserted barn beside a large lake with many ducks and waders constantly moving along the shore. Two of the four-owl nests were less than half a mile from another successful Great Horned Owl nest. Conversely, those nests in sparsely wooded or sparsely watered areas not only were more widely separated, but raised fewer young.

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LITERATURE CITED

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