

maximum sagittal diameter of 11.5 mm. The early gold miners of the western placers are reported to have used condor quills as containers for their gold dust. Because of lightness and unbreakable texture, they might have served very well. A quill of the dimension just recorded was filled with fine uniform grained sand which was then poured into a ten cubic centimeter graduate which it filled just to the top. Such a container, then, would seem to have a very appreciable capacity for so concentrated a form of wealth as gold dust..

University of California at Los Angeles, April 16, 1937.

WEIGHTS OF SPOTTED TOWHEES

By JEAN M. LINSDALE and E. L. SUMNER, Sr.

The weights of birds are useful for several purposes, among them the interpretation of geographic variation in body size and as indicator of seasonal change in physiological behavior. It is necessary, however, in using them to make proper allowance for the several kinds of influence which affect weights under various circumstances. In order to learn something about these influences for certain fringillid species we kept records, in 1932-33, of weights of Golden-crowned Sparrows (*Zonotrichia coronata*), Fox Sparrows (*Passerella iliaca* subsp.) and Spotted Towhees (*Pipilo maculatus falcifer*) trapped on the campus of the University of California at Berkeley.

Reports on the first two species have been printed (Univ. Calif. Publ. Zool., vol. 40, 1934, pp. 309-320; Condor, vol. 36, 1934, pp. 107-112). Although fewer records are available for Spotted Towhees, we consider them worthy of summarizing because this species is permanently resident while the other two are migratory; we were able to distinguish sexes in the towhee, but not in the other two; and the inconvenience involved in trapping and weighing this bird makes it unlikely that anyone else will provide this information.

Table 1. Weights of a male Spotted Towhee (no. A 283839) in the spring of 1933.

Date	9 a.m.	1 p.m.	5:30 p.m.	Date	9 a.m.	1 p.m.	5:30 p.m.
Jan. 10	.....	41.00	.....	Mar. 14	.....	40.00	42.05
Jan. 14	.....	.....	41.95	Mar. 30	40.95	.....	.....
Feb. 15	.....	40.30	.....	Apr. 22	.....	.....	40.35
Feb. 18	.....	39.70	37.10	Apr. 26	38.80	.....	39.70
Feb. 26	41.20	.....	.....	Apr. 27	41.05	.....	.....
Feb. 28	.....	.....	41.60	Apr. 28	38.90	.....	.....
Mar. 4	40.10	.....	.....	May 3	40.65	.....	40.90
Mar. 6	.....	.....	41.55	May 10	38.65	.....	.....

Table 2. Weights of a male Spotted Towhee (no. A 283838) in the spring of 1933.

Date	9 a.m.	1 p.m.	5:30 p.m.	Date	9 a.m.	1 p.m.	5:30 p.m.
Jan. 10	39.70	.....	38.60	Feb. 22	36.95	.....	39.50
Jan. 14	38.70	.....	.....	Feb. 24	39.85	.....	.....
Jan. 17	.....	40.25	.....	Feb. 26	37.85	.....	.....
Feb. 3	.....	40.20	.....	Mar. 1	.....	.....	36.85
Feb. 6	.....	41.75	.....	Mar. 6	36.10	.....	.....
Feb. 7	38.75	.....	41.00	Mar. 14	.....	39.40	.....
Feb. 8	.....	.....	38.25	Mar. 20	.....	37.05	.....
Feb. 9	.....	37.90	.....	Mar. 21	36.50	37.35	.....
Feb. 10	34.70	37.65	42.05	Mar. 22	37.75	40.60	.....
Feb. 14	.....	38.85	.....	Mar. 23	38.10	38.35	39.85
Feb. 15	36.65	38.85	.....	Mar. 24	.....	39.40	38.05

Table 3. Extremes and ranges of weights (in grams) of male Spotted Towhees trapped ten or more times.

Band No.	No. Records	Date	Minimum Wt.	Date	Maximum Wt.	Range
A 283061.....	10	Jan. 13	34.85	Jan. 9	42.90	8.05
A 283838.....	33	Feb. 10	34.70	Feb. 10	42.05	7.35
A 283839.....	20	Feb. 22	37.10	Mar. 14	42.05	4.95
A 283849.....	10	Mar. 20	34.30	Feb. 28	38.55	4.25

Table 4. Summary of weights (in grams) of male Spotted Towhees trapped during the winter of 1932-33 at Berkeley.

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Number weight records.....	1	4	8	5	18	44	24	9	3
Average weight in morning.....	40.10	42.05	40.00	38.53	38.48	38.22	39.58	39.65	
Number birds.....	2	3	1	5	5	4	1	1	
Average weight at noon.....	38.10	37.65	39.90	40.37	39.18	39.32	38.16	35.58	....
Number birds.....	1	1	3	3	5	8	3	1	....
Average weight in afternoon.....	39.90	45.80	36.45	39.57	39.11	38.18	38.39	40.90	
Number birds.....	1	1	1	4	7	4	3	1	
Average all weights.....	38.10	39.44	41.66	39.51	39.06	39.03	38.19	38.07	40.28
Minimum weight.....	38.10	37.55	36.15	36.45	32.95	34.70	34.30	35.20	38.65
Maximum weight.....	38.10	42.65	45.80	42.10	44.30	43.80	42.05	41.05	40.90

In general, the 116 records of weight of male Spotted Towhees summarized in tables 1 to 4 show the same sort of variability already described for Golden-crowned and Fox sparrows. The male towhees, though, do not show the peak reached by the other, migratory species just before their migration in the spring.

Museum of Vertebrate Zoology, Berkeley, California, August 5, 1936.

STUDIES OF WATERFOWL IN THE CARIBOO REGION, BRITISH COLUMBIA

WITH TWO ILLUSTRATIONS

By J. A. MUNRO

The Cariboo region, comprising portions of the watersheds of the Fraser and north Thompson rivers, is probably the most important nesting ground for waterfowl in British Columbia. It is well supplied with water areas of every description, including large lakes with heavily wooded and rocky shores, small, deep lakes surrounded by willows and dogwood and covered by yellow pond lily, *Typha* and *Scirpus* marshes, open alkaline ponds, barren "soda" lakes, marsh-edged sloughs, and beaver meadows. Many of the smaller lakes, hidden away in the aspen and jack-pine forests, and known only to the few settlers, are difficult of access; others may be reached by motor road.

In the summer of 1936 I explored many of these waters by means of a light canoe. Canoe transport made possible an intensive examination of areas which in previous years had been viewed from the shore only and provided opportunities for close observation of waterfowl behavior. The program included an inquiry as to a possible correlation between the presence of loons, Holboell Grebes and coots and the mortality among young ducks. A report of this investigation, together with other observations on the behavior and life history of certain species, is submitted in the following pages.

In 1936, waterfowl populations in certain particularly favorable localities were probably at a saturation point; in other, "marginal" areas the numbers of breeding