

# Weights of Bank Swallows (*Riparia riparia*) from Southeastern Wisconsin

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Two compendia of live bird weights have appeared in recent years (Clench and Leberman 1978, Dunning 1984) for a considerable number of North American species. Weight data varied from one to several thousand individuals depending on the species. The information was derived in conjunction with bird banding activities or from records in museum collections. Weight data on Bank Swallows (*Riparia riparia*) were reported in these papers for from 22 to 249 records. During the breeding seasons from 1959 through 1972, 6781 Bank Swallow banding encounters took place in southeastern Wisconsin (MacBriar and Stephenson 1976). Over 2500 weights were measured on this species.

## Methods

Bank Swallows were captured during June and July at several commercial sand and gravel pits in southeastern Wisconsin in a study of site cohesiveness of this species (for details see MacBriar and Stephenson 1976). In addition to the primary objectives of that study, other data were accumulated including wing and tail measurements, plumage variations, and weight. An Ohaus balance was used in weighing the birds to the closest tenth of a gram. Sex was determined by breeding condition of the bird (females by incubation patch, males by cloacal protuberance). Age was determined by plumage characteristics (adult or young) or by year of last annual encounter (eg., AHY, SY, etc.). Fish and Wildlife Service bands were affixed to each swallow for individual recognition.

I have followed the Clench and Leberman (1978) format in this paper:

(N)	Sample size
Mean	Weight to 0.1 gram
[1 Standard Deviation]	in Samples of 5 or more
Minimum weight in Sample	Weight range within
Maximum weight in Sample	Sample

I have also followed their practice of including weights of recaptured individuals whether repeat, return, or foreign return. If an HY bird was recaptured in a subsequent year when sex could be determined, then that sex was assigned to that individual retroactively.

## Results

Of the 6781 Bank Swallows encountered during the study period (1959-1972), 2537 weights were taken. In all but one category (HY), mean weights showed that females outweighed males but only slightly (0.20-1.11 grams).

## Discussion

Petersen (1955) also showed a mean weight difference of only 1.1 grams between the sexes favoring females. Stoner's (1936) data on 249 adult swallows from the Oneida Lake region of New York State showed a mean of 14.56 grams while southeastern Wisconsin swallows had an overall mean of 13.82 grams. His data showed a differential of 1.57 grams between females (N=22) and males (N=13) with means of 15.60 and 14.03 grams respectively. Clench and Leberman's (1978) late spring swallow weights taken in western Pennsylvania showed a mean of 13.0 grams for 16 birds. Stoner (1936) also weighed 36 adult Bank Swallows at Lake Okoboji, Iowa, in June 1924 that had a mean weight of 14.89 grams.

Weights in birds can vary for a number of reasons. Time of day the weights are taken, season of the year, whether the bird is migrating or on summer or winter range, a female carrying eggs during egg laying, and the length of time a given individual is held from time of capture to time of actual weighing are some of the variables (Clark 1979, Stoner 1936).

A sampling of weights for Bank Swallows during the 1971 breeding season taken at three locations on seven dates suggests that time of day when birds were weighed had little effect on the overall mean (Table 2). When individual birds were recaptured and weighed at later times on the same day, the weight difference was slight but generally upward (Table 3). However, weights dropped substantially on individual birds weighed on subsequent days (-7.92%, AHY-F, -3.86%, AHY-M) (Table 4).

One group of adult swallows weighed during incubation and early feeding periods (June 8 & 10) and reweighed during late feeding and fledging periods (June 17 & 25), 9 and 15 days later respectively, showed weight loss. Another group weighed initially during late feeding and fledging periods (June 25 & July 1) were reweighed during

late feeding and late fledging periods (July 7 & 9), 12 and 8 days after first weighings, also showed weight loss. Eleven birds were recaptured twice after first weighing; the mean weight difference was -0.93 grams between the first and second weighings and -.40 grams between the second and third, showing a general trend of lost weight throughout the breeding cycle. This could be due to increase metabolic demands on the adults during the breeding cycle as the young mature toward the fledging stage. No pre- or post-breeding weight data were taken on Bank Swallows.

The mean weight of Bank Swallows measured in southeastern Wisconsin is about one gram lighter than those from New York and Iowa but heavier than those weighed in Pennsylvania. However, Pennsylvania Bank Swallows were mostly weighed during the prebreeding and early nesting period; those from New York and Iowa were breeding birds. The data on southeastern Wisconsin Bank

Swallows are included here in order to add to information on bird weights.

## Acknowledgements

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Others contributed as well (see MacBriar and Stevenson 1976).

**Table 1. Bank Swallow weights June/July from southeastern Wisconsin (see format).**

	N = 2537						Overall mean = 13.82 grams						
	HY-F	HY-M	HY-U	AHY-F	AHY-M	AHY-U	SY-F	SY-M	ASY-F	ASY-M	TY-F	ATY-F	ATY-M
(N)	(2)	(3)	(363)	(1046)	(942)	(13)	(4)	(4)	(49)	(59)	(2)	(24)	(26)
Mean	13.20	13.60	12.96	14.36	13.48	13.65	13.98	13.78	14.80	13.69	15.40	14.81	14.36
[Stand. Dev.]			[1.03]	[1.27]	[0.93]	[0.72]			[1.30]	[0.88]		[1.28]	[0.95]
Min. Wgt.	12.2	12.2	10.0	10.6	10.8	12.8	12.8	13.4	12.4	12.1	14.4	12.5	12.6
Max. Wgt.	14.2	15.8	16.2	18.7	16.4	15.4	15.0	14.4	18.2	16.8	16.4	17.7	16.0

**Table 2. AHY-F and AHY-M Bank Swallows weighed at different times of the day at 3 locations on 7 different days in 1971\*.**

Sample	N	Mean	S.D.	Range	Sample	N	Mean	S.D.	Range
a). AHY-F					b). AHY-M				
0900-0959	41	14.43	1.619	12.0-18.5	0900-0959	36	13.39	1.056	11.6-15.7
1000-1059	55	14.36	1.210	12.0-17.0	1000-1059	52	13.59	.931	11.8-15.9
1100-1159	41	14.38	1.204	11.8-17.6	1100-1159	54	13.47	.980	11.5-15.3
1200-1259	53	14.47	1.332	11.5-17.8	1200-1259	36	13.55	1.004	11.8-16.0
1300-1359	40	15.14	1.266	13.0-18.6	1300-1359	37	13.72	.809	12.5-15.7
	230	14.54				215	13.54		

\* WK-6A (T7N, R19E, S25) 06-08-71; WK-23 (T7N, R19E, S4) 06-10-71, 06-25-71, 07-07-71; WK-17 (T6N, R20E, S20) 06-22-71, 07-01-71, 07-09-71. WK = Waukesha County, WI.

**Table 3. The differences in weights for Bank Swallows weighed two or more times on a single date at 3 locations on 7 days in 1971\*.**

Sample	N	Mean	S.D.	Range
AHY-F	38	+0.039	.400	-.9 to +.8
AHY-M	42	+0.129	.306	-.6 to +.6

\* See Table 2.

**Table 4. The difference in weights for Bank Swallows weighed on two or more different dates at 3 locations on 7 days in 1971\*.**

Sample	N	Mean	S.D.	Range
AHY-F	54	-1.152	.979	-2.8 to +0.8
AHY-M	41	-0.522	.676	-2.0 to +1.0

\* See Table 2.

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