BIRD-BANDING

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TWELVE YEARS OF BANDING AT SUMMERVILLE, S. C.

By WILLIAM P. WHARTON

MY banding project at Summerville, S. C., having been terminated in April, 1937, after twelve consecutive seasons composed of the months of January, February, March and part of April, it may be appropriate to summarize a few of the more important results. The basic background for this paper is presented in tabular form herewith.

TABLE I

TOTALS BY YEARS AT SUMMERVILLE, S. C.

	Banded	*Returned*	*Totals*
1926	430	–	430
1927	407	25	432
1928	704	54	758
1929	658	115	773
1930	944	137	1,081
1931	1,164	197	1,361
1932	732	162	894
1933	1,655	166	1,821
1934	1,257	254	1,511
1935	1,226	234	1,460
1936	1,553	302	1,855
1937	1,156[1]	249	1,405
Totals	11,886	1,895	13,781

TABLE II

	Banded	*Returned*	*Totals*
True Winter Visitors	9,449	1,504	10,953
Possible Winter Visitors[2]	1,642	262	1,904
Permanent and Summer Residents	794	129	923
Total	11,885	1,895	13,780

TABLE III

NUMBER OF SPECIES BANDED

True Winter Visitors	26
Possible Winter Visitors	12
Permanent and Summer Residents	28
Totals	66

TABLE IV

ALL RETURNS AT SUMMERVILLE, SOUTH CAROLINA 1931–1937[3]

	1931	*1932*	*1933*	*1934*	*1935*	*1936*	*1937*	*Totals*
Sparrow Hawk	–	–	–	–	–	1	–	1
Bob White	1	5	1	–	–	–	–	7
Mourning Dove	–	–	–	–	1	–	–	1

[1] One was a Bobolink, a true migrant.

[2] See paragraph preceding Table VI for explanation of use of this term.

Blue Jay	–	1	1	5	2	5	1	15
Carolina Chickadee	–	–	–	–	2	–	–	2
Tufted Titmouse	–	2	2	4	3	4	4	19
Mockingbird	–	–	1	–	1	1	–	3
Catbird	1	–	–	1	1	1	–	4
Brown Thrasher	8	8	9	6	6	9	5	51
Hermit Thrush	3	–	–	1	1	2	1	8
Ruby-crowned Kinglet	1	–	–	1	–	–	–	2
American Pipit	–	–	–	–	–	1	–	1
Myrtle Warbler	1	1	1	–	–	–	–	3
Meadow Lark	3	–	–	–	16	14	17	50
Cardinal	5	5	7	6	7	9	7	46
Purple Finch	–	–	–	–	–	–	1	1
Red-eyed Towhee	14	6	7	15	3	16	10	71
White-eyed Towhee	6	1	5	2	2	6	4	26
Savanna Sparrow	1	1	1	6	5	2	12	28
Vesper Sparrow	3	6	3	5	3	1	–	21
Slate-colored Junco	1	1	2	–	3	1	–	8
Chipping Sparrow	58	57	65	122	94	90	103	588
Field Sparrow	19	12	9	11	18	20	21	110
White-throated Sparrow	70	50	46	61	63	116	60	466
Swamp Sparrow	–	–	–	–	1	–	–	1
Song Sparrow	2	4	4	8	2	2	3	25
26 Species	197	160	164	254	234	301	249	1,559[1]

In line with the topics discussed in previous articles (Bulletin N.E.B.B.A., January, 1928, and January, 1929; BIRD-BANDING, July, 1931, and October, 1935), consideration is here given to (1) Returns-W. of all species which can be considered wholly winter visitors; (2) Survival as indicated by returns of three species of winter visitors; (3) Recoveries reported during or following the twelve year period.

RETURNS–W. OF WINTER VISITORS

During the twelve years under consideration a total of 11,886 birds were banded, of which 9,449, belonging to 26 species, may properly be considered wholly winter visitors. Total numbers banded of each, and total returns, are shown in Table V. This material is based on the Fish & Wildlife Service's definition of the term "Return," which involves counting a given bird each year it is taken, and should not be confused with the data of survival referred to later in this paper.

TABLE V
WINTER VISITORS AT SUMMERVILLE, S. C.
1926–1937

	Banded	*Returned*	*Per Cent*
Yellow-bellied Sapsucker	3	–	–
Red-breasted Nuthatch	2	–	–
Brown Creeper	2	–	–
Winter Wren	1	–	–
Robin	172	–	–

[1] Returns taken prior to 1931, referred to in previous articles, are not here listed.

Hermit Thrush	81	10	12.34
Golden-crowned Kinglet	1	–	–
Ruby-crowned Kinglet	22	3	13.63
American Pipit	38	1	2.63
Cedar Waxwing	132	–	–
Orange-crowned Warbler	4	–	–
Myrtle Warbler	39	3	7.69
Palm Warbler	1	–	–
Rusty Blackbird	3	–	–
Cowbird	89	–	–
Purple Finch	101	1	0.99
Red-eyed Towhee	489	90	18.40
Savanna Sparrow	453	33	7.28
Grasshopper Sparrow	5	–	–
Vesper Sparrow	205	21	10.24
Slate-colored Junco	347	8	2.30
Chipping Sparrow	3,753	738	19.66
White-throated Sparrow	3,112	570	18.31
Fox Sparrow	56	–	–
Swamp Sparrow	42	1	2.38
Song Sparrow	296	25	8.44
26 Species	9,449	1,504	

The data presented in the above table emphasize once again the returning trend of most of these species to their winter quarters. There are, however, exceptions. Robins (*Turdus m. migratorius*) and Cedar Waxwings (*Bombycilla cedrorum*), for instance. Though banded in fair numbers during some seasons—the twelve year totals being 172 Robins and 132 Cedar Waxwings—not a single Return-W. was produced. Purple Finches (*Carpodacus p. purpureus*), of which 101 were banded, have produced but one. This may be accounted for by the wandering habits of these species in search of their favorite food supplies. The case of the Slate-colored Junco (*Junco h. hyemalis*) is different. Out of 347 banded, but eight returned, or 2.30%. Here is a species which is said to yield a large percentage of returns on its favorite wintering grounds in the north, but which shows a markedly lower percentage than the Chipping Sparrow (*Spizella p. passerina*), the species with which it generally associates in Summerville. Savanna Sparrows (*Passerculus sandwichensis savanna*), Vesper Sparrows (*Pooecetes g. gramineus*), and Song Sparrows (*Melospiza m. melodia*), also show rather low percentages of return, of which fact I can offer no explanation.

Because of the impossibility of arbitrarily classifying some of the species, Table VI was compiled under the title "Possible Winter Visitors." This group includes species which are both visitors and permanent residents in the region. The table indicates the number banded and the returns taken. Here again it is not comparable with the survival data which will be presented later in this paper. It is comparable with Table V.

TABLE VI
POSSIBLE WINTER VISITORS

	Banded	*Returned*	*Per Cent*
Sparrow Hawk	10	1	10.00
Mourning Dove	60	2	3.33
Blue Jay	173	19	10.98
Mockingbird	29	4	13.78
Catbird	56	4	7.14
Brown Thrasher	238	61	25.63
Pine Warbler	47	–	–
Meadow Lark	433	50	11.54
Red-winged Blackbird	26	–	–
Baltimore Oriole	1	–	–
Goldfinch	26	–	–
Field Sparrow	543	121	22.28
12 Species	1,642	262	

Scrutiny of the percentages of returns for individual species in this table discloses considerable differences as compared with species listed in Table V. For reasons not clear the Brown Thrasher (*Toxostoma rufum*) and Field Sparrow (*Spizella p. pusilla*) show higher percentages of returns than do any of the wholly migratory species. That this cannot be attributed entirely to their sedentary habits is shown by the fact that two banded Brown Thrashers have been recovered at points distant over 100 miles northerly from Summerville. While there has been no proof that any of the Field Sparrows wintering in Summerville move north in spring, there is every reason to suppose that some (probably a considerable number) do so. The percentage of returns decreases with the Mockingbird (*Mimus p. polyglottos*), usually regarded as sedentary, but this species in my experience is trap shy. Twenty-nine Mockingbirds were banded during the twelve years; four were taken as Returns-W. and one individual wandered north over 100 miles to Plymouth, N. C. Since not one Meadow Lark (*Sturnella magna*) of the 433 banded has ever been reported afterwards outside of Summerville, it may be assumed that this species is mostly sedentary; yet the percentage of returns is smaller than for the Brown Thrasher and Field Sparrow, and even less than for the Mockingbird.

SURVIVAL

The survival of White-throated Sparrows (*Zonotrichia albicollis*), Chipping Sparrows (*Spizella p. passerina*), and Red-eyed Towhees (*Pipilo e erythrophthalmus*) *as indicated by returns*, is shown in Tables VII, VIII and IX, and accompanying graphs. Of chief interest is the longer potential life span indicated for all these species as a result of accumulation of a greater mass of data. Thus three White-throated Sparrows have returned the sixth year after banding, one Chipping Sparrow eight years after, and one Towhee six years after.

TABLE VII
RED-EYED TOWHEE SURVIVAL RATIOS AT SUMMERVILLE, S. C.
Based on Birds Taken as Returns-W.

	Number Banded	*Per Cent Surviving in Years From Banding*					
		1	*2*	*3*	*4*	*5*	*6*
1926	18	5.55	5.55	–	–	–	–
1927	13	23.08	15.38	7.69	–	–	–
1928	36	25.00	5.55	5.55	–	–	–
1929	34	23.52	8.82	–	–	–	–
1930	65	20.00	12.30	7.69	4.61	4.61	1.54
1931	48	6.25	2.08	–	–	–	–
1932	34	20.58	14.70	5.88	5.88	–	
1933	61	18.03	6.55	4.92	1.64		
1934	51	7.84	7.84	–			
1935	31	22.58	16.13				
1936	46	17.39					
Average:		17.25	9.49	3.52	1.51	0.66	0.25

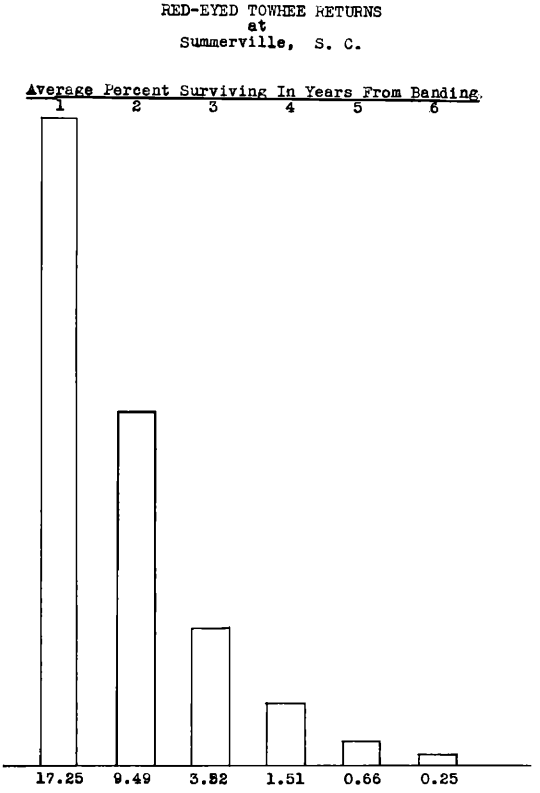


TABLE VIII
EASTERN CHIPPING SPARROW SURVIVAL RATIOS AT SUMMERVILLE, S. C.
Based on Birds Taken as Returns-W.

	Number Banded	*Per Cent Surviving in Years From Banding*							
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1926	191	8.90	4.18	1.57	0.52	–	–	–	–
1927	167	7.18	4.19	1.79	1.19	–	–	–	–
1928	313	18.53	9.90	4.15	1.24	0.64	0.32	0.32	0.32
1929	232	21.12	8.18	4.74	2.58	0.43	0.43	–	–
1930	255	15.29	6.66	3.14	1.17	1.17	–	–	
1931	332	12.95	8.43	3.61	1.81	0.90	0.30		
1932	237	16.45	8.86	4.22	2.11	1.26			
1933	714	15.26	7.28	3.92	0.98				
1934	318	15.40	8.17	5.34					
1935	188	22.87	10.64						
1936	410	13.41							
Average:		15.21	7.65	3.61	1.45	0.63	0.17	0.06	0.08

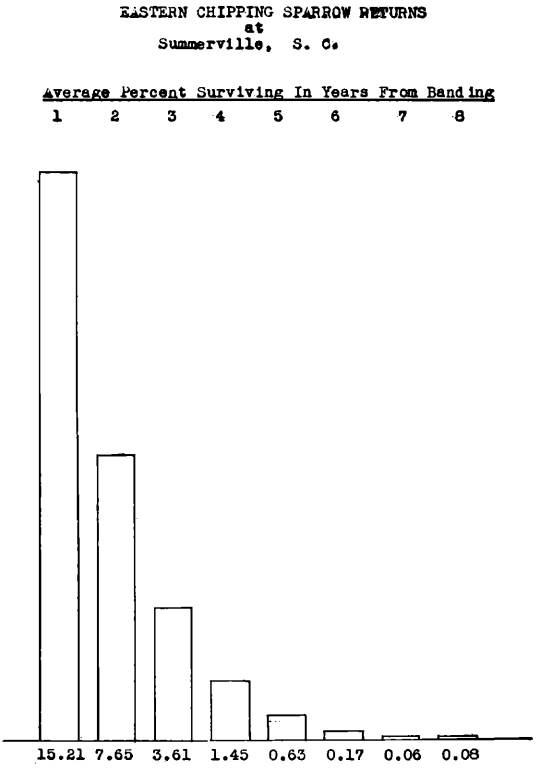
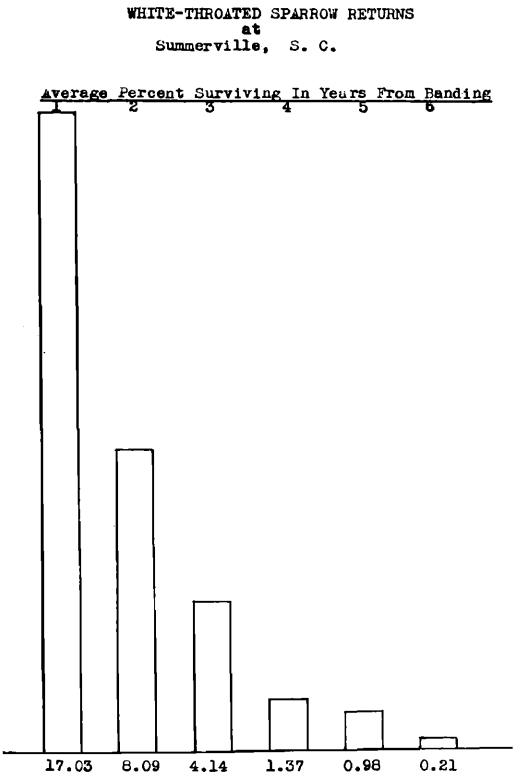


TABLE IX
WHITE-THROATED SPARROW SURVIVAL RATIOS AT SUMMERVILLE, S. C.
Based on Birds Taken as Returns-W

	Number Banded	*Per Cent Surviving in Years from Banding* 1	2	3	4	5	6
1926	94	12.76	8.51	2.13	2.13	1.06	–
1927	104	24.03	8.65	5.76	0.96	–	–
1928	145	24.82	9.65	6.89	0.68	0.68	–
1929	169	17.75	10.65	4.73	1.77	0.59	0.59
1930	274	20.80	8.39	4.01	2.91	2.55	0.36
1931	321	14.33	7.47	3.42	1.24	0.93	0.31
1932	94	22.34	6.38	2.12	1.06	1.06	
1933	477	11.74	6.49	3.56	0.20		
1934	259	18.14	11.19	4.66			
1935	566	13.78	3.53				
1936	364	6.86					
Average:		17.03	8.09	4.14	1.37	0.98	0.21



From the above tables and graphs it will be noted that the average survival percentages of the three species for the earlier years following banding have changed only slightly from those presented in the article in BIRD-BANDING for October, 1935. There remains a sharp drop in first year returns as compared with the number originally banded, amounting to an average of 83.50%. The shrinkage the second year, compared with returns of the first year, is also similar—in this case an average of 47.85%. Later reductions vary only slightly with the different species.

In my article in the October, 1935, BIRD-BANDING, I said: "The very large loss in numbers during the first year after banding is striking in all three species—well over 80%." This statement still holds good, and the reasons for that loss remain unexplained. In 1935 I suggested that it was probably not due wholly to mortality, and I pointed out that "individuals of the youngest generation of birds doubtless average fully seven months of age when banded, are vigorous, and have experienced the vicissitudes of their first migration." I then went on to suggest further that the first nesting of these birds might lead to the formation of new attachments, with resulting migration by a portion of these birds to new wintering grounds. I said further: "Thus it seems not improbable that a wintering flock at Summerville may be chiefly composed of (1) young birds of the year, in many cases progeny of one or more old birds accustomed to winter here; (2) birds which have experienced one or more nesting seasons, and of which some are individuals which spent their first winter here, and others are their mates which spent their first winter in other localities." Perhaps I should have added after "mates" the phrase "or other closely associated individuals." Despite the fact that this theory was criticised by a reviewer, it still seems to me a reasonable explanation of the drastic first year shrinkage, and wholly in accord with the well recognized dispersal tendencies of young birds as they become sexually mature.

If a population shrinkage of 83.50% in the year following banding on wintering grounds does not reflect a dispersal to new wintering territory of a part of the population, the alternative is to believe that the high mortality period of young birds extends far beyond immaturity to include also their first northerly migration, first nesting, and second southerly migration. To my mind this is not a reasonable hypothesis. The problem may include also the question of whether the tendency to return to first year wintering grounds is equally strong for both sexes.

In this connection it should be noted that some substantially resident species such as Brown Thrashers and Tufted Titmice (*Baeolophus bicolor*) show a smaller percentage of loss the first year after banding than the three winter visitor species referred to

—77% and 76% respectively. On the other hand the resident White-eyed Towhees (*Pipilo erythrophthalmus alleni*) and Cardinals (*Richmondena c. cardinalis*) do not differ greatly from the White-throated Sparrows in this respect—there being an 83% shrinkage in both cases. Here again, dispersal may be an important factor in causing such marked declines in banded birds.

In closing this discussion of "survival," it should be emphasized that the percentages show survival only of those birds which returned to Summerville. As indicated in the discussion, there is to my mind reason to suppose that many of the first year banded birds survive which do not return to Summerville. Data are scarce on this point, but the reader is referred to the table of "Recoveries" at the end of this article for a few records of recoveries on their new wintering grounds of the three species under consideration.

RECOVERIES

Considering the number of birds banded, the recoveries reported are disappointingly few. When it is noted that out of 3,753 Chipping Sparrows and 3,112 White-throated Sparrows banded, only four and five birds of each species respectively have been reported as recoveries, it must be confessed that high expectations of accumulation of data bearing on migration routes have not been met. One Red-eyed Towhee out of 489 banded is not impressive either. Savanna Sparrows with 453 individuals banded, Song Sparrows with 296, and Vesper Sparrows with 205 have not produced a single, recovery. The fact that three Cedar Waxwings out of 132 banded were recovered, and those in the South, is a clear indication of how often conspicuously flocking birds are still shot in that section.

Migration records of interest from the viewpoint of direction or distance, include that of a Robin found dead at Fond du Lac, Wisconsin—a somewhat unexpected direction; a Red-eyed Towhee caught by a cat at Palmer, Massachusetts; a Chipping Sparrow found dead at St. Johnsbury, Vermont, after having returned twice to Summerville, and another trapped at North Eastham, Massachusetts; a White-throated Sparrow killed near St. Johns, Newfoundland, and another "caught" at Millertown, Newfoundland. With the exception of the Robin, which went northwesterly to Fond du Lac, Wisconsin, the trend of migration seems to have been from southwest to northeast, roughly paralleling the Atlantic Coast, as might be expected. Out of a total of 22 legitimate recoveries only eight were taken outside the South.

Appended is a list of the recovery records of birds banded at Summerville, South Carolina; also a list of the birds recovered at Summerville, all of which were banded to the North.

BIRDS BANDED AT SUMMERVILLE, S. C., AND RECOVERED ELSEWHERE

	Banded	*Recovered*	
Sparrow Hawk			
C337074[4]	Feb. 19, 1935	Ronda, N. C.	April 20, 1936 "caught"
C337034	Jan. 28, 1935	Elloree, S. C.	May 12, 1935 killed
Mourning Dove			
A410725	May 20, 1934	Witherbee, S. C.	Dec. 22, 1934 killed
Mockingbird			
A270337	Mar. 7, 1931	Plymouth, N. C.	Feb. 18, 1932 released
Brown Thrasher			
424880	April 3, 1927	Clinton, N. C.	Nov. 14, 1927 killed
B384274	Jan. 30, 1934	Severn Side, Md.	June 10, 1934 dead
Robin			
B272192	Mar. 23, 1934	Fond du Lac, Wis.	May 26, 1934 killed
Cedar Waxwing			
36-40040	April 3, 1936	Mt. Airy, N. C.	May 17, 1936 killed
36-5991	Mar. 18, 1936	Riceboro, Ga.	Jan. 26, 1937 shot
37-38907	Jan. 29, 1937	Oakley Depot, S. C.	Feb. 4, 1937 shot
Cowbird			
36-125366	Jan. 17, 1937	Hyman, S. C.	Mar. 6, 1937 shot
Red-eyed Towhee			
A270281	Jan. 14, 1931	Palmer, Mass.	May 8, 1931 killed
Chipping Sparrow			
B37085	April 1, 1928	St. Johnsbury, Vt.	May 27, 1930 dead
C50172	Mar. 23, 1930	Zebulon, N. C.	May 11, 1931 dead?
F25459	Mar. 18, 1931	Plantersville, S. C.	Feb. 7, 1932 dead
H31670	Feb. 6, 1933	North Eastham, Mass.	July 29, 1936 trapped
36-31199	Feb. 10, 1937	Allenwood, N. J.	June 18, 1939 killed
White-throated Sparrow			
C167644	Feb. 22, 1933	Four Oaks, N. C.	Dec. 22, 1933 shot
C183596	Mar. 13, 1933	Concord, N. C.	Nov. 6, 1933 released
F107151	Jan. 19, 1934	St. Johns, Newfoundland.	Aug. 10, 1934 killed
F107302	Mar. 22, 1934	Turberville, S. C.	Jan. 31, 1936 released?
35-133793	Feb. 20, 1936	Millertown, Newfoundland.	Aug. 6, 1936 "caught"

BIRDS RECOVERED AT OR NEAR SUMMERVILLE, S. C., BANDED ELSEWHERE

	Banded	*Where Banded and by Whom*	*When and How Recovered*
Robin			
B320245	Aug. 16, 1932	William Pepper Philadelphia, Pa.	Mar. 11, 1937 killed
Red-winged Blackbird			
B271336	Aug. 1, 1934	O. L. Austin North Eastham, Mass.	Dec. 25, 1934 shot
Chipping Sparrow			
35-6124	Sept. 13, 1936	W. E. Smith South Chatham, Mass.	Mar. 11, 1937 trapped
Vesper Sparrow			
B112814	Oct. 14, 1930	O. L. Austin North Eastham, Mass.	Mar. 13, 1933 trapped
White-throated Sparrow			
B123698	Oct. 7, 1932	R. M. Hinchman Milton, Mass.	Mar. 27, 1933 trapped

Groton, Massachusetts.

THIRD PROGRESS REPORT ON THE DISEASE STUDY PROJECT

By CARLTON M. HERMAN

IN 1937 a cooperative project was launched for the study of bird diseases (*Bird Banding*, VIII: 109-113). The plan was to have banders and other ornithologists send all dead birds to cooperating students of bird diseases for examination. The project has steadily grown, two progress reports have already appeared (*Bird Banding*, IX: 101-102 and *idem*, X: 35–38). At first only a few pathologists on the eastern seaboard were approached and bird banders have responded so enthusiastically that now the project has become national in scope. It, therefore, seems advisable at this time to publish a list of the pathologists cooperating and to point out some of the information that has been brought to light by this study. It is hoped that many more banders will be stimulated to send in dead birds to their regional cooperator and thus aid in adding to this knowledge.

The present list of investigators is:

NORTHERN NEW ENGLAND REGION

Dr. E. E. Tyzzer, Harvard Medical School, Department of Comparative Pathology, Boston, Mass.

[4] This bird was released, after banding, at St. George, S. C., a distance of about 30 miles. It was taken as a return on Feb. 2, 1936, and again released at St. George, the above recovery record being made over two months later.