

A Study of Warbler Migration at a  
North Alabama Banding Station

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The primary purpose of this warbler study is to determine at what dates the various species arrive in the area and at what dates they leave.

Since the fall of 1960 an intensive banding program has been conducted in the Brownsboro area of Madison County, Alabama. The banding station is located approximately 5 miles east of Huntsville at an elevation of 780 feet above sea level. It lies in a valley between Monte Sano Mountain (1700 feet) and Chestnut Knob (1600 feet).

Ten mist nets of twelve meter length are set up in an abandoned cotton field now grown up in young pines, sassafras, sumac, sweet gum, blackberries, and various weeds and vines.

Throughout the principal periods of migration, March 20 to June 1, and August 20 to November 10, the nets are continually in use, taken down only when they cannot be tended and in bad weather. Netting has been performed on 70% of the principal periods of migration as listed above. Most of this time the nets were in position 24 hours a day.

The birds are caught, identified, banded, wing measurements taken, and fat content noted. The band numbers and the observations are recorded and the birds are released.

Since August of 1960, 1473 individuals of 32 species of warblers have been banded at the Brownsboro station. Chart 1 lists the species AOU number, the number of individuals captured, the season, the year, and the number of returns. Of the returns, most occurred after at least one migratory flight.

It is interesting to note that the 1963 fall totals for the number of Tennessee, Magnolia, Bay-breasted, and Black-throated Green Warblers banded exceeds the sum total of these species for the preceding three years. This possibly is attributable to the unusually warm and dry weather this fall. Another apparent result of the weather was the number of birds remaining in the area after first capture. Repeats on Tennessee Warblers occurred after 2, 3, 4, 8, and 11 days: repeats on Magnolia Warblers after 3, 4, 5, 6, 7, 8, 9, 13, and 19 days. The listed repeats refer to separate birds.

For the 32 species of warblers banded at Brownsboro there are 69 previous early and late date records (i.e. early spring, late spring, early fall, late fall) for the Tennessee Valley area (Imhof, 1962). These previous records were established over many years, the earliest of which was by McCormack at Leighton, Alabama, in 1889. Our banding operations have established 25 new early and late records for the Tennessee Valley area and 4 for the State. These include the only record of a Connecticut Warbler in Alabama in the fall which was captured on September 24, 1963. Chart 2 lists these new records.

These compiled records demonstrate the usefulness of a banding station in supplying this information. Indications are that the nets achieve better results than a limited number of observers. The operators of the Brownsboro station observe the surrounding habitat with great regularity (practically on an hourly basis), but the species is seldom seen without first having been captured in the nets.

Chart 1

Seasonal Banding of Warblers at Brownsboro, Alabama

Warbler Species	Season Banded								Returns :to date
	:AOU	:1960	:1961	:1962	:1963				
	:No.	:Fall	:Spr.	:Fall	:Spr.	:Fall	:Spr.	:Fall	:
Black & White	:636	: 6	: 21	: 1	: 10	: 14	: 1	: 7	: 2
Worm-eating	:639	: 4	: 1	: 0	: 1	: 1	: 1	: 0	:
Blue-winged	:641	: 0	: 3	: 0	: 0	: 3	: 4	: 2	:
Golden-winged	:642	: 0	: 2	: 0	: 0	: 0	: 2	: 0	:
Nashville	:645	: 1	: 4	: 1	: 2	: 3	: 12	: 6	:
Orange-crowned	:646	: 1	: 1	: 0	: 0	: 4	: 0	: 8	:
Tennessee	:647	: 25	: 25	: 10	: 3	: 6	: 38	: 220	:
Cape May	:650	: 0	: 2	: 0	: 0	: 0	: 0	: 0	:
Black-Thr. Blue	:654	: 0	: 1	: 0	: 0	: 0	: 0	: 0	:
Myrtle	:655	: 0	: 15	: 7	: 28	: 24	: 13	: 5	: 2
Magnolia	:657	: 35	: 4	: 16	: 1	: 39	: 1	: 109	:
Cerulean	:658	: 0	: 0	: 0	: 1	: 0	: 0	: 0	:
Chestnut-sided	:659	: 6	: 3	: 1	: 0	: 5	: 6	: 8	:
Bay-breasted	:660	: 0	: 5	: 1	: 4	: 1	: 0	: 50	:
Blackpoll	:661	: 0	: 6	: 0	: 12	: 0	: 21	: 0	:
Blackburnian	:662	: 1	: 1	: 0	: 0	: 0	: 0	: 6	:
Black-thr. Green	:667	: 1	: 0	: 0	: 0	: 3	: 1	: 21	:
Pine	:671	: 0	: 0	: 0	: 1	: 2	: 0	: 0	:
Palm	:672	: 3	: 5	: 1	: 0	: 0	: 10	: 1	:
Prairie	:673	: 2	: 5	: 2	: 7	: 5	: 8	: 3	: 3
Oven-bird	:674	: 12	: 11	: 5	: 4	: 21	: 1	: 14	:
N. Waterthrush	:675	: 0	: 1	: 0	: 0	: 2	: 0	: 0	:
La. Waterthrush	:676	: 1	: 1	: 0	: 1	: 0	: 0	: 0	:
Kentucky	:677	: 10	: 21	: 1	: 14	: 0	: 2	: 5	:
Connecticut	:678	: 0	: 0	: 0	: 1	: 0	: 0	: 1	:
Mourning	:679	: 1	: 0	: 0	: 0	: 1	: 1	: 1	:
Yellow-throat	:681	: 8	: 1	: 0	: 3	: 7	: 9	: 4	:
Yellow-br. Chat	:683	: 3	: 35	: 1	: 42	: 12	: 44	: 5	: 6
Hooded	:684	: 15	: 9	: 2	: 10	: 3	: 11	: 11	: 8
Wilson's	:685	: 0	: 0	: 0	: 0	: 1	: 3	: 1	:
Canada	:686	: 8	: 9	: 7	: 4	: 28	: 1	: 12	:
American Redstart	:687	: 2	: 1	: 4	: 0	: 14	: 1	: 37	:

## Chart 2

Early Arrival and Late Departure Dates for Migrating Warblers in the Tennessee Valley Area of Alabama As Established by Banding Operations at Brownsboro.

ES = Early Spring  
LS = Late Spring  
EF = Early Fall  
LF = Late Fall

Nashville Warbler---ES, 4-14-62; EF, 9-20-62; LF, 10-15-61.  
Orange-Crowned Warbler---ES, 4-19-61; EF, 10-7-63; LF, 11-3-62.  
Cape May Warbler---LS, 5-10-61.  
Black-throated Blue Warbler---LS, 5-9-61; LF, 10-17-59.  
Myrtle Warbler---EF, 10-9-63.  
Magnolia Warbler---EF, 8-28-62.  
Chestnut-sided Warbler---LF, 10-17-63.  
Bay-breasted Warbler---EF, 9-20-63; LF, 10-26-63.  
Prairie Warbler---LF, 10-9-63.  
Ovenbird---ES, 4-12-63.  
Kentucky Warbler---LF, 9-25-60.  
Connecticut Warbler---LS, 5-20-62; Only Fall Record for State, 9-24-63.  
Mourning Warbler---ES, 5-18-63; EF, 9-6-62.  
Yellow-throat---LF, 10-18-60.  
Wilson's Warbler---LF, 10-9-63.  
Canada Warbler---ES, 4-23-62.  
American Redstart---LF, 10-13-61.

Those dates underlined are also State Records.

In conclusion it can be said of this continuing study, that the present results begin to indicate more accurately the yearly occurrence of migrating warblers and the times of their arrival and departure. Also, the study points out that there is much work to be done in expanding ornithological knowledge in the North Alabama area, and perhaps most of the rest of Alabama, as well.

## LITERATURE CITED

Imhof, Thomas A. 1962. Alabama Birds. University of Alabama Press, University, Alabama. xxx 591 pp.

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## Mortality of the Little Blue Heron

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The mortality of the Little Blue Heron, *Florida caerulea*, as portrayed in this report is based on the analysis of the records of recoveries of nestlings banded by the writer and others in Alabama, Mississippi, Oklahoma, South Carolina, North Carolina, Texas, Florida, New Jersey, Louisiana and Delaware.

The banding done in Alabama discussed in this paper was done by the writer and his wife with the assistance of a number of students; biologists of the Alabama Department of Conservation, especially J. E. Keeler and Robert W. Skinner; and Maurice F. Baker of the Alabama Cooperative Wildlife Research Unit. Banding in Mississippi was mainly done by Ben B. Coffey, Jr. In Oklahoma, V. A. Travis and B. W. Beall did the banding. Less constant groups of banders worked in the other states. Listings of the recoveries were made available by Allen J. Duvall, Bird Banding Laboratory, U.S.F. & W.S., Patuxent Research Center, Laurel, Md. The research was partly supported by a grant-in-aid from Auburn University.

The grouping of the 282 recoveries by states, where banding was done, and by age classes, is given in Table 1. The greatest age shown was 12-13 years and less than one percent of the birds attained this age. The greatest mortality was during the first year when 74 percent of the banded young died. This actually represents a much lower rate than that which occurs among all first year Little Blue Herons because by the time they reach the banding age of two to five weeks, a 10 to 25 per cent mortality of nestlings has already occurred. Therefore, nestlings banded are a select group. In Table 2 are listed the select group of recoveries known by the writer to have resulted from 1856 bandings of nestlings from three colonies in Alabama. Table 3 lists mortality data comparing the select Alabama data with those combined from all states.

No data have been found in the literature regarding longevity in the Little Blue Heron. Therefore the two birds banded by Coffey (366-57277, banded 5-23-37 and recovered 4-19-50; and 376-45635, banded 6-1-41 and recovered 2-\_\_-54) sufficiently establish a longevity of almost 13 years. This is a very conservative estimate because one bird was reported as "shot" and the other as "found injured", indicating that these were not physiological terminations of life. Therefore, the birds may naturally live much longer.

Palmer, 1962, refers only to survival in the Great Blue Heron, *Ardea herodias*, given in Owen, 1959, and that for the Grey Heron, *Ardea cinerea*, by Lack, 1949, and Olsson, 1958. Kahl, 1963, reporting on mortality of the Common Egret, *Casmerodius albus*, cites the oldest individuals as 16 years, and the oldest reported in the literature for some other herons as: Great Blue Heron 20-21 years, Common Heron 15-16, 11.2 and 18 years, and Black-crowned Night Heron, *Nycticorax nycticorax*, 12-13 years.

Longevity in the Alabama group (Table 2) is recorded only up to 6 years, which is to be expected with the small sample size and the relatively recent banding dates.