

WARBLER MIGRATION STUDY: MAY 1981

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Last year the authors reported on a study of the abundances of spring-migrant warblers in eastern Massachusetts.¹ Our report was based upon field data taken in May 1980. Field data for this study were again taken in May 1981. In this update, we report briefly on the second year of the study and draw comparisons between the results for the two years.

Some ornithologists feel that the next two or three decades will produce dramatic alterations in the relative abundances of many migrant species. The reason for this prediction is the accelerating pace at which wintering habitat in tropical forests is being destroyed by agricultural and timbering activities. Tropical forests are now disappearing at the rate of 4 percent per year, and some experts predict that within 40 years the world's closed tropical forests will be nothing but scattered remnants. Most of our warblers, thrushes, vireos, and flycatchers now winter in tropical forests. Some species may adapt to the disappearance of their usual habitat, but others will inevitably decline. Baseline data on both migrant and breeding populations should be gathered now in order to monitor these population changes. Our continuing warbler migration study can help to provide the needed data.

The 1981 data was collected by means of the same censusing technique used in 1980 (see section entitled "Methodology" in last year's report). Each of eight selected sites² was censused regularly throughout the month of May by its assigned observer. The cumulative abundance for each species was based upon the total numbers of bird-days recorded for migrants of that species (if one individual was seen on two consecutive days, that individual contributed two bird-days to the count). However, only four of

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See "The 1980 Spring Warbler Migration Study: An Experiment in Cooperative Data Collection," J.W. Andrews and L.E. Taylor, BOEM, Vol. 9, No. 2, April 1981.

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The 1981 sites were Marblehead (MNWS), Braintree/Weymouth (Pond Meadow Park), Cambridge (Mt. Auburn Cemetery- two sets of data), Belmont (Acorn Park), Winchester ("Army Camp"), Lexington (Whipple Hill), Waltham (Metropolitan State Hospital, and Wayland (Heard's Pond).

TABLE 1

SUMMARY OF RELATIVE ABUNDANCE DATA FOR MIGRANT WARBLERS
 RECORDED IN MAY 1980 AND MAY 1981

SPECIES	RELATIVE ABUNDANCE			RANK ORDER		
	1980	1981	Combined	1980	1981	Combined
Yellow-rumped	21.21	29.80	24.57	1	1	1
Redstart	11.81	9.44	10.88	2	2	2
Black-and-white	7.87	8.01	7.92	3	3	3
C. Yellowthroat	4.17	7.19	5.35	9	4	7
N. Parula	7.57	5.10	6.60	4	5	4
Magnolia	6.69	5.50	6.05	5	6	5
Yellow	3.11	4.59	3.69	10	7	10
Canada	3.05	4.18	3.49	11	8	11
Blackpoll	6.36	4.13	5.49	6	9	6
Ovenbird	2.56	3.42	2.90	12	10	12
Tennessee	6.00	3.27	4.93	7	11	8
Black-thr. Green	5.64	3.16	4.67	8	12	9
Wilson's	2.20	2.24	2.22	14	13	13
Nashville	1.28	1.48	1.36	18	14	17
Blackburian	2.16	1.43	1.87	15	15	14
Palm	0.26	1.28	0.66	22	16	21
Chestnut-sided	1.70	1.28	1.54	16	17	16
N. Waterthrush	1.05	1.22	1.12	19	18	19
Black-thr. Blue	1.51	1.12	1.36	17	19	18
Cape May	0.58	0.87	0.69	20	20	20
Bay-breasted	2.49	0.82	1.84	13	21	15
Blue-winged	0.20	0.51	0.32	23	22	22
Prairie	0.30	0.20	0.26	21	23	23
Mourning	0.03	0.05	0.04	25	24	25
Worm-eating	0.00	0.05	0.02	28	25	28
Cerulean	0.00	0.05	0.02	26	26	26
Prothonotary	0.00	0.05	0.02	27	27	27
Pine	0.07	0.00	0.04	24	28	24

of the seven 1980 sites were covered again in 1981.³

Most observers felt that the 1982 spring migration was below average in terms of numbers of migrants.⁴ For the three sites in which the observer and the route were the same in both years (Winchester, Lexington, and Wayland), the birds-per-visit average declined 79%, 48%, and 57% (respectively). Birds-per-hour (BPH) values did not decline as sharply since observers tended to cover their routes more quickly when there were fewer birds present.

Table 1 presents the relative abundance of each species for both years separately and both years combined. Also provided is "rank order," which is generated by numbering each species in order of decreasing abundance (1 = most abundant, 2 = second most abundant, etc.). Comparison of the rank order for the two years reveals a high degree of stability. Of the 25 species which occurred in both years, 5 species maintained the same rank order and 7 species changed rank by only a single place. Only 3 species changed rank by more than 4 places. The most significant change occurred with the Bay-breasted Warbler (Dendroica castanea), which dropped in rank from 13 to 21.

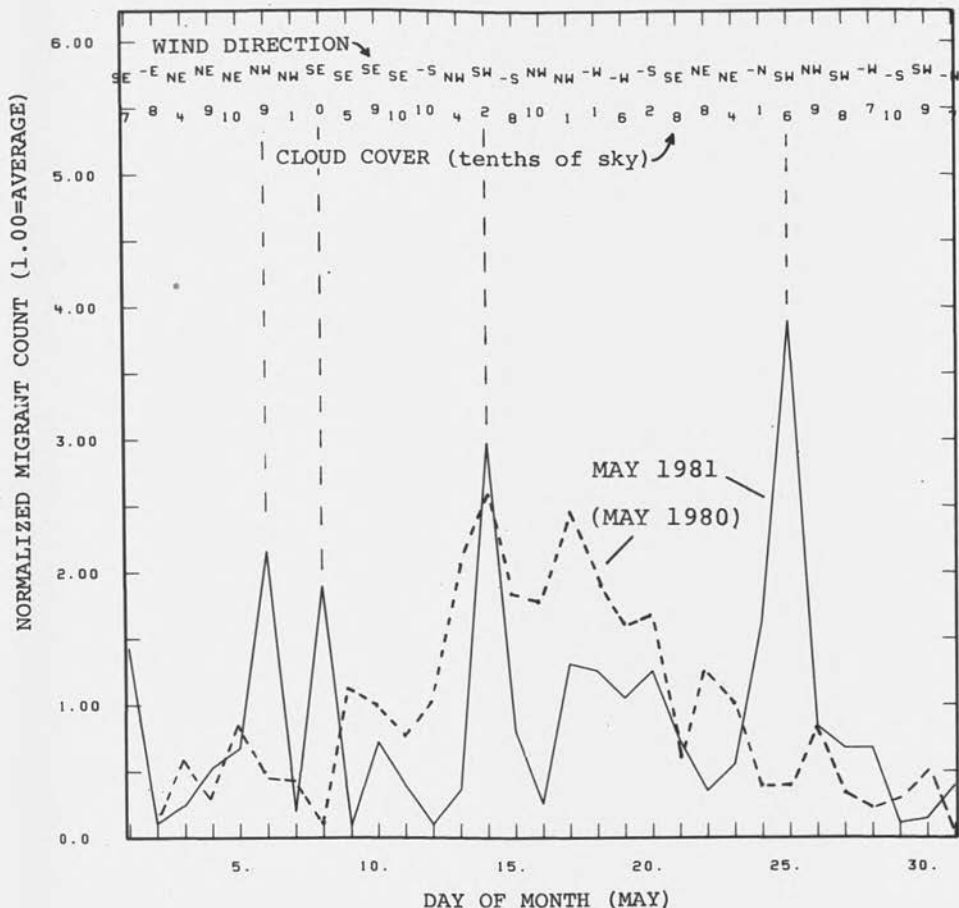
Two common breeding species of our area, Yellow Warbler (Dendroica petechia) and Common Yellowthroat (Geothlypis trichas), increased in relative abundance. This may have resulted from a migration in which the species which breed further north largely bypassed the census area by migrating further to the west. It is also possible that some breeding birds were mistakenly counted as migrants and that, in a lean year for migrants, these erroneous tallies were a more significant porportion of the total count.

3

The sites covered in both years were Cambridge, Winchester, Lexington, and Wayland. The 1980 sites not covered in 1981 were Plum Island (Hellcat Swamp), Weston (Linwood Cemetery), and Concord (GMNWR).

4

Reports in American Birds (Vol. 35, No. 5, Sept. 1981) indicate that low warbler numbers were noted all along the Atlantic coast. Comments on the migration from observers in the Maryland-Virginia area were "unanimously negative" and the complier from the Carolina/Georgia region noted that "numbers were very low, and most observers had a disappointing spring warblering."



Day-by-day plots of the normalized migrant counts⁵ for both census years are presented in the above figure. This figure also shows for each day the direction of the resultant wind and the average cloud cover (midnight to midnight) as reported by the National Weather Service in their monthly summary for Logan Airport, Boston, May 1981.

It is instructive to compare the shapes of these plots for the two census years. In 1980 the migration built up to a sustained movement during mid-May (from the 14th to the 19th). But in 1981, there were several days in mid-May with practically no migration. The migration which did occur resulted in sharp isolated peaks most notably on the 14th and 25th.⁶ These days were associated with south-westerly winds which were preceded by northerly winds on the day before - a classic pattern for heavy migration.

Differences among the data submitted from the various sites were again analyzed. As in 1980, there were notable site-to-site variations in relative abundances of individual species. These variations did not consistently match the 1980 variations. It seems that our data base is not yet adequate for drawing sound conclusions concerning site differences.

Our greatest success in the warbler migration study has been the demonstration that, given an adequate number of reporting sites, the overall abundances of migrants can be determined and the temporal variation of the observed migration can be well characterized. Also, participants in the study have been able to compare their favorite birding sites with other sites in a meaningful manner. Migration watching is a fascinating endeavor - one which we look forward to continuing.

5

The normalized migrant count for a given day expresses the magnitude of that day's daily migration count over the entire month (of the appropriate year). Thus, a normalized migration count of 1.00 indicates that the migrant count for the day was equal to the average daily count that year. See the section entitled "Time/Series Analysis" in last year's report for a complete description of the normalization procedure.

6

Reports in American Birds (Vol. 35, No. 5, Sept. 1981) indicate that the peak on May 25th was the culmination of a major migratory movement which began in the Southern Atlantic states on May 23 or 24. On May 24-25 extraordinary numbers of migrants were noted at all sites near the coast from New Jersey north to the Gaspé Peninsula.

JOHN W. ANDREWS, a Lexington resident for three years, is president of Citizens for Lexington Conservation and an associate member of the Lexington Conservation Commission. A research engineer at M.I.T., John is the chairman of the Field Studies Committee formed under the auspices of Bird Observer.

LEE E. TAYLOR spends most weekdays developing computer-based communications systems at M.I.T. in Lexington. Some evenings, he sits as a member of the Arlington Conservation Commission. Otherwise he spends a lot of time in the field, as would be expected of any second-generation birder. He has been active in local bird study projects, and for the last year has been learning about the temporal distribution of Eastern Massachusetts passerines by compiling monthly records for Bird Observer.

BIRD OBSERVER WANTS BREEDING RECORDS

This year Bird Observer is sponsoring a series of field studies which seek to use the birding talents of its readers to further our knowledge of Massachusetts birds. A survey of Screech Owl populations was completed in early April and a spring migration watch is now underway at over a dozen sites. Project results will be reported in future issues.

A new project was recently announced by the Bird Observer Field Studies Committee (FSC): a Breeding Records Project that will compile data on the breeding habitat requirements of selected species in our area. Some readers may be familiar with the Cornell Laboratory of Ornithology Nest Record Card program. Participants in the Cornell program are asked to complete a data card whenever they discover the nest of any species. This card asks for the type of habitat in which nesting occurred (forest, marsh, etc.), the location of the nest (tree branch, cavity, on the ground, etc.) and other basic information. The Cornell Nest Record Card will be the basic data form for the Bird Observer project; however the Cornell cards will be supplemented by a brief form which asks additional questions about the nesting habitat (such as the amount of human disturbance occurring at the site).

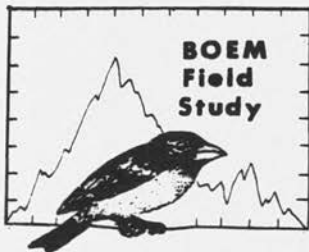
A number of target species have been selected. They are:

Red-tailed Hawk	Golden-winged Warbler	Field Sparrow
Red-shouldered Hawk	Blue-winged Warbler	
Broad-winged Hawk	Chestnut-sided Warbler	
American Kestrel	Prairie Warbler	

For these target species, records of breeding are desired even when nests are not found (other evidence of breeding, such as finding recently fledged young, is acceptable). The Project also welcomes nest record cards for non-target species; these will be passed on to Cornell for their records.

Compiler: Jim Berry, 136 County Road, Ipswich, MA 01938, Telephone: 356-5505. Data forms can be obtained from Jim (please send a self-addressed, stamped envelope).

The success of this project will be greatly aided by YOUR participation. If you discover a nesting site for any of the target species, please write for a data form or pass the information to a member of the Field Studies Committee. * Anyone who would like to make a special effort to study one or more of the target species (or who would like to suggest an addition to the target species) is invited to contact the FSC chairman: John Andrews, 22 Kendall Road, Lexington, MA 02173; Telephone: 862-6478).



*FSC members are John Andrews, Jim Berry, Craig Jackson, Oliver Komar, Nick Komar, Leif Robinson, Michael Sharpe, Robert Stymeist, Lee Taylor, Richard Walton and Soheil Zende.