

The Changing Seasons

Spring, 1979. A different kind of analysis, with some provocative and penetrating thoughts

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INTRODUCTION

WRITING IN *Life on the Mississippi* in 1883, Mark Twain offered the following observation: "There is something fascinating about science. One gets such wholesale returns of conjecture out of such a trifling investment of fact." After reviewing nearly 350 pages of typed copy from the twenty-five regional editors represented here in addition to referring to over 100 pages of maps and other printed meteorological information, we must admit to being almost overwhelmed by the task of separating significant phenomena from less important occurrences, much less offering a substantive interpretation of migration events for Spring, 1979. When judged from the perspective of the magnitude of the seasonal movements of birds, influenced and largely determined by an array of weather variables so complex as to tax the capacities of our largest computers, the investment of fact is rather trifling. Much of what we know about patterns of bird migration is conjectural, based on repeatedly observed associations of bird movements and certain weather phenomena. Moreover, the correlational approach is often all we have from which to form opinions; the processes we measure are of such a scale that experimental manipulation to determine causative relationships more precisely isn't possible.

For example, consider the complexity of the interactions of the various phenomena which, taken together, we call "weather." Currently, our National Weather Service uses some of the most sophisticated and technologically advanced observational and computational methods available. Even at that, the process of predicting the weather remains, in many ways, as much of an art as a science. The accuracy and

repeatability of predictions are not often assured. When the phenomenon of bird migration is imposed upon such a template of meteorological complexity, it's understandable that only the grossest associations and interactions are discernable at all.

If the accumulation and synthesis of climatological data is taxing, sampling of biological information is yet an order of magnitude more vexatious. For example, in October of 1952, a coordinated continent-wide effort was mounted to observe nocturnal fall migration, involving 1391 observers and coordinated by the late George H. Lowery, Jr. The analysis and interpretation of that mass of data, which resulted from a *coordinated* effort, required more than a decade (Lowery and Newman, *Auk* 83(4):547-586). Today, although computers could ease the analytic chores suffered by Lowery, the data upon which discussions of spring and fall migrations in "Changing Seasons" are based remain largely the result of *uncoordinated* efforts and random observations.

WERE NEW AT THIS BUSINESS (*i.e.*, "Changing Seasons") and largely uninitiated into the current wisdom relating the subtleties of interactions of bird movements to weather. Many excellent discussions of just that topic have appeared in past issues of *American Birds* (*cf.* Gauthreaux, *AB* 26(4):731-736, *AB* 27(4):743-748, and *AB* 28(4):771-778). Hence, the pages which follow do not attempt a comprehensive review of the patterns of weather and bird migration. Rather, we've chosen to comment more briefly on those patterns which were most interesting to us and which we believe might be worthy of closer attention in the future. Further, if the reader senses a certain provinciality in our greater attention to patterns in the

East and to groups with which we have the greatest familiarity (*i.e.*, passerines and colonially nesting species), we plead "guilty." Those are the considerations with which we are most comfortable. Also, there are ample rarities and "firsts" among the regional reports which follow. Since those are printed conveniently in boldface type, we will not reiterate them. Interested and imaginative readers will find ample opportunities for additional conjecture beyond that which we offer here.

THE WEATHER

SIMPLY STATED, movements of migrants in the spring tend to be concentrated west of high pressure centers and east of low pressure centers, with their associated cold fronts. Substantial spring migration can also occur in the light, variable winds and fair weather near the centers of highs as well as in the southerly winds west of highs. Peak migration is most likely to occur with following winds; high and/or rising temperatures tend to stimulate spring migration. Precipitation generally tends to have a dampening effect on migratory activity, resulting in many "grounded" migrants. These and other observations are treated comprehensively in a recent review by John Richardson (*Oikos* 30(2) 224-272, 1978). It is a "must read" for anyone seriously interested in the dynamic interactions of weather and bird migration.

Throughout late winter and early spring, 1979, temperatures across most of the continent showed dramatic ups and downs, although the overall trend for the country as a whole was to cooler than average with moderate to heavy precipitation for most areas. The observation often was made, particularly in the East, how much March behaved like April and April behaved like March.

The last week of February ushered in six weeks of remarkably warm weather, culminating with record high temperatures reported throughout the East during the last week of March (*e.g.*, 80°F at Roanoke, Va.; 85° at Washington, D.C.; 83° at Baltimore, Md.; 85° at Atlantic City, N.J.). The first two weeks of April brought cooler than normal temperatures to the northern half of the United States, with warmer temperatures in other regions. A general warming trend followed the last half of

April, except in the midwest Heavy rainfall occurred over much of the country throughout April. More than 16 inches of rainfall fell on Miami during the 24-hour period preceding 7:00 a.m. EST on April 25. May continued with more heavy rainfall and cooler temperatures. Record low temperatures were reported in parts of the East during the period May 21-27 (e.g., 47° at Fort Smith, Ark., and Jackson, Miss.; 53° at Montgomery, Ala.; 46° at Atlanta, Ga.; and 56° at Pensacola, Fla.).

In spite of the unseasonably warm weather in March, most regions reported that the spring migration was a late one. One can only speculate about the effect that might have been realized had the warming trend begun the end of March and persisted through April. However, any accelerating effect that March's warm weather and generally favorable frontal activity might have had, seems to have been washed out by the return of cold weather in early April.

There were many impressions of reduced numbers of passerines, especially warblers, and although reports of large kills in the Gulf are intriguing (see below), the absence of coordinated and consistent sampling efforts on the part of most observers makes evaluation difficult. The rains that prevailed throughout much of the spring tend to "ground" many migrants; at the same time, they often keep birders indoors. We continue to be faced with the dilemma of the vagaries of sampling and the associated difficulties inherent in evaluating the impressions of birders in the field.

SOME HAPPENINGS

MANY SOUTHERN WARBLERS were reported both north and west of their expected ranges. Although other species were involved, notable among these wandering warblers were the Worm-eating, Kentucky, Hooded, and Yellow-throated warblers, which were reported most frequently from regions beyond their normal ranges. Similar patterns, involving these very same species, were described in the "Changing Season" reports for 1969 [AFN 23(4):564-567], 1971 [AB 25(4):704] and 1974 [AB 28(4):771-778]. The northward movements of these species in the spring of 1969 were followed by increased reports of extralimital nesting attempts during the summer of 1969 (Gauthreaux and Shugart, AFN 23(5):632-636). It will be interesting to see what nesting activities the summer of 1979 brought.

The same can be said of the White-eyed Vireo as was noted for the southern warblers, including its northward movements in 1969, 1971, and 1974 (we didn't review seasonal reports before 1965). This season, if we drew an arc from the Southern Pacific Coast, through the Western Great Lakes and Northeastern Maritime Regions, we could encompass the range of vagrancy of the White-eyed Vireo.

If the aforementioned species aren't demonstrating long-term shifts in their ranges, they certainly show a repeated proclivity for vagrancy. Do we have information on their population densities near the centers of their geographical distributions that might give a clue to pressures resulting in movements west and north? Or are these merely repeated isolated cases of over-shooting? A closer look seems warranted.

Two Blue List species for 1979 are represented by extralimital occurrences at widespread localities in the East this spring. White Pelicans turned up in the Niagara-Champlain, Hudson-Delaware, and Middle Atlantic Coast Regions, and Fulvous Whistling Ducks were observed from the Ontario, Middlewestern Prairie, and Middle Atlantic Coast Regions. Other wanderers included the Mississippi Kite, reported from Ontario, Northeastern Maritime, Western Great Lakes, and Hudson-Delaware Regions, and Swallow-tailed Kite from Northeastern Maritime and Hudson-Delaware Regions.

AMONG THE HERONS, occurrences of Green Herons west and north of their usual ranges in the Prairie Provinces and Northern Great Plains, and of the Louisiana Heron from the Western Great Lakes, Middlewestern Prairie, and Hudson-Delaware Regions are worthy of mention. The Québec Region turned in an impressive list of herons, including Little Blue Heron, Cattle Egret, Great Egret, and Snowy Egret.

Several rather dramatic weather-related migratory phenomena were noted this spring. Some of the best migratory activity observed in peninsular Florida occurred during April 24-28, coincident with a prolonged period of rainfall that dumped a deluge of 16 inches of rain on Miami on April 24 and 25. The precipitation undoubtedly led to the grounding of many migrants for that period. Along the Gulf Coast, Dauphin Island experienced a classical fall-out of migrants on April 27. At the time, a cold front hovered over the coast, with 40-50

knot (46-58 mph) westerly winds aloft at the 500-millibar level. Further evidence of the hazards of trans-Gulf migration is found in a massive bird-kill noted on April 29-30, with tens of thousands of dead birds washed up along the coast of Texas (see the South Texas regional report). Once again, a coastal cold front hovered over the Gulf, with rainfall and 40-50 knot winds aloft at the 500-millibar level. Both the Dauphin Island fall-out and the bird kill were to be expected, given the weather patterns at the time (cf. Gauthreaux, *Auk* 88(2):343-365).

The true magnitude of bird kills over the Gulf of Mexico under unfavorable weather conditions is not knowable, but if this incident gives us a good clue, such losses perhaps should be given more attention. They may be equally worthy of consideration alongside severe winters and tropical deforestation as shapers of avian distributions and abundances; they may dwarf the more widely publicized tolls taken by TV and radio towers, cellometers, and tall buildings, by comparison.

A host of western species turned up in the Western Great Lakes Region during May 19-24. Among these vagrants were Townsend's Warbler, Western Tanager, Black-headed Grosbeak, Lazuli Bunting, and Green-tailed Towhee. A cold front moved through that area May 17-18 with 40-55 knot (46-63 mph) southwesterly winds, and 40-85 knot (46-98 mph) westerly winds recorded at the 500-millibar level on May 20. It may have been those strong southwesterly and westerly winds that delivered many western species into the area in such a short period of time.

PENSÉES

THE PREPARATION OF an article for "Changing Seasons" is an incredibly educational endeavor, especially for those not intimately involved in the study of bird migration. At the same time, it is a somewhat frustrating and certainly humbling experience. The magnitude and complexity of migratory phenomena and their relationships to large-scale weather patterns makes our human efforts to explain and understand them seem quite puny by comparison. A further sense of frustration results from the continued lack of coordinated, or at least systematic, efforts on the part of individuals or local birding groups in monitoring migratory activity.

We haven't any control over the complexity of weather variables and their

equally complex patterns of interactions with bird movements. Our understanding of these complex interactions is not aided substantially, however, when an almost equally complex, uncoordinated, largely random network of observations is offered in the hope of generating insights. Although DeBenedictis addressed these concerns more than a decade ago [AFN 22(1):4-8], little progress toward more adequate sampling has been made. One notable exception, an extreme case in the opposite direction, is Sauppe's migrant seabird census in San Mateo County, Calif. (see Middle Pacific Coast regional report).

The utility of rarities and first arrivals have always posed analytic dilemmas for writers. Paxton [AFN 20(1):4-6] long ago lamented the tendency "to dwell on the unusual; sometimes at the expense of the normal." Other reporters (DeBenedictis, *op. cit.*) have commented regarding the limited usefulness of first arrivals in assessing migratory patterns. Richardson (*op. cit.*, p. 229) is pointed in this regard: "First arrivals are easily over-

looked, constitute a small (and in many ways atypical) fraction of the total passage and usually represent the interruption of movement begun elsewhere rather than migration in progress."

More observations reporting the secondary effects of weather activities on bird populations would be stimulating. A good example is the commentary on the effects of a die-off of mesquite and mistletoe, caused by the severe winter of 1978-79, on the abundances of Verdins and Phainopeplas, which can be found in the Southwest Region report. More concentrated monitoring and reporting efforts, more attention to observing and reporting the secondary effects of weather on bird populations, and more coordinated observational efforts by local bird clubs still are needed.

PERHAPS, GIVEN THE NATURE of the observational methods employed, reporting the unusual is what can be done best and most thoroughly here. It's difficult, if not impossible, to determine at this time what kinds of information

will be most valuable in the future. As a result of a preoccupation with the unusual, the "firsts", and the vagrants, we have recorded on these pages in the past some of the most extensive documentation available of northern finch invasions, incursions of boreal species of owls, and the spread and growth of populations of the Cattle Egret and House Finch. Reports of such events take advantage of the enthusiasm and energies of birders in pursuing such phenomena and require no more observational discipline than to document the occurrence carefully and report it to a regional coordinator. Perhaps at this stage of the evolution of bird study in North America, it's unfair to expect more than this.

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CONTINENTAL SURVEY

The Spring Migration

March 1-May 31, 1979

NORTHEASTERN MARITIME REGION

/Peter D. Vickery

The spring migration seemed typical in almost every way. Most birds appeared on schedule in expected numbers. A few early arrivals were noted but these were scattered individuals that established no patterns. Predictable Blue Grosbeaks and Summer Tanagers appeared in April and May and "southern" warblers occurred in good, but not unexpected numbers. Particularly interesting were four male Kentucky Warblers on territory along coastal Connecticut. Goodness knows what to make of a Prothonotary Warbler constructing a nest in a garage in western Massachusetts.

The extraordinary concentration of 2050+ Red-necked Grebes off Cape Cod was certainly the most significant event of the spring. No doubt a large percentage of the Red-necked Grebes wintering along the eastern coastline were concentrated into this staging area.

Weather this spring was generally mild with heavy precipitation falling only in May. In the northern part of the Region this rain seems to have had an adverse effect on nesting waterfowl. Coverage this spring was sporadic with

no centralized reports from Connecticut and New Brunswick and only partial material from Massachusetts and Nova Scotia.

LOONS, GREBES — Unlike the West Coast, large loon flights are not regularly

documented in the Region. Red-throated Loons numbering 750 noted passing Gay Head, Martha's Vineyard (hereafter, M.V.), Mass., Apr. 5 in a 75-min period was an impressive count (VL, *vide* BN). Interestingly, just one day earlier an unprecedented 2050+ Red-necked Grebes were carefully counted between Truro and Wellfleet, Mass., Apr. 4 (DMcN). Preliminary research indicates this may have been the largest concentration ever recorded in North America. No doubt this included most of the wintering birds in the w. North

Atlantic. By Apr. 9, Red-necked Grebe numbers had dwindled to 800+ birds, still an impressive total. A single Eared Grebe was carefully identified at Old Lyme, Conn., Mar. 30 (DAS *et al.*).

