

THE CHANGING SEASONS

by Kenneth W. Able*



The fall migration, 1971. Marked weather, correlation, changing ranges, notable incidence and the question: "Could the increase in disoriented insectivorous migrants result from DDT accumulations in brain tissues"?

Long-tailed Jaeger, Gilchrist, Texas, November 28, 1971. First authenticated state record. Photo/John L. Tveten

In many ways, this migration season was a very unusual one. A careful reading of the reports that follow reveals precedents being set nearly everywhere. It is not the kind of season I would have picked for my first attempt at a Changing Seasons summary, but there is no lack of interesting observations to ponder. Most of us tend to think of migration seasons as exciting times when the average, relatively sedentary person can remain in his home region and enjoy the passage of a panorama of migrants. But migration for a bird is serious and risky business, though this side of the coin is rarely seen by the average birder unless he checks a TV tower or witnesses some other migration mortality. A high proportion of each year's production of juvenile passerines must be lost in the course of the two migrations they must make before they breed for the first time. Migratory behavior is a product of evolution, i.e., the advantages accrued by the individual as a result of migrating exceed the risks involved. Migration in birds is generally thought to have evolved several times, and the selection pressures which led to migration undoubtedly differed from species to species. In the reports that follow there is evidence of the

development of migratory patterns in the House Finch (Southern Atlantic Coast) and Cattle Egret (Florida). On the other hand, since migration carries many dangers with it, we would expect the behavior to disappear quickly unless it is strongly favored by natural selection. This appears to be precisely what has happened in the case of the hundreds of Baltimore Orioles that now overwinter in the Southeast, subsisting on oranges provided at feeding stations.

Most natural populations are quite variable and it seems reasonable that some individuals are more highly motivated to migrate than others. These latter birds become particularly obvious in seasons like this one, described by nearly all reporters as exceptionally late. Only four areas in the far West were characterized by cooler-than-normal weather and virtually all reports contained a lengthy list of record late departure dates. The coming winter should see many unusual records of birds which failed to complete their migrations. If milder, more open winters were to become the trend we would expect to see an increase in the numbers of these lingering individuals. As it is, the majority probably do not survive.

The most unique feature of the Regional Reports to follow is that, at least potentially, they can provide wide geographic coverage of

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the migration events accompanying a particular weather situation. There were two particularly notable periods during fall, 1971 that combined an interesting weather pattern with good field coverage over a wide area (Sept. 17-19 and Oct. 31-Nov. 1).

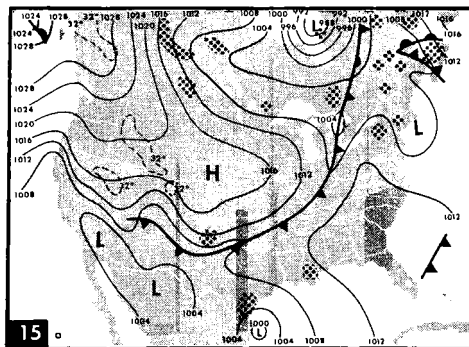
SEPTEMBER 17 - 19 AND VAGRANTS

One of the most intriguing new patterns during migrations in recent years has been the increasing occurrence of eastern migrants, particularly warblers, on the West Coast, especially in California. This season provided an impressive array of such vagrants, as they have come to be called. Not nearly enough concentrated work has been done on this phenomenon, but Austin (*Condor*, 73: 455-462) has recently summarized the available information on the occurrence and timing of movements of these species. He divided them into four groups based on their breeding ranges. Those groups which have breeding populations west of the Rockies migrate on the West Coast at about the same time that eastern populations migrate. On the other hand, species which only breed in the East occur on the West Coast over three weeks later, on the average, than the peaks of migration in the East. The true vagrants probably fall in this category and most of the records in autumn are of immatures. Part of the explanation for the great increase in recent records of these species may lie in the increasing number of observers afield in appropriate locations (e.g., the Farallon Islands), as Austin suggests. But, as he points out, a change in distributional pattern must be involved in the case of some species, especially the Blackpoll Warbler, unrecorded in California prior to 1955 and now found in large numbers on many days.

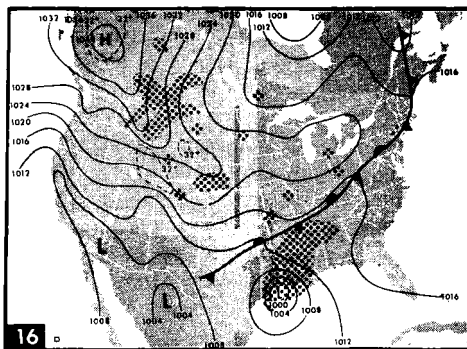
While they are perhaps more noticeable there, vagrants are not confined to the West Coast. In the Northeast numbers of species regularly appear in autumn that are well north of the limits of their breeding ranges. They have moved in a northerly rather than a southerly direction. The patterns of occurrence of all these vagrants have the potential to tell us something basic about migratory mechanisms. The problem is to ask the right questions of a good set of data. In practice, adequate coverage of the migration events is nearly always lacking. This fall large numbers of vagrants were recorded on the California coast on Sept. 17-19, 25-26, Oct. 2-3, and Oct. 17. All of these dates fall on weekends and the records are obviously partly a product of increased coverage on these days. The birds in question could have arrived on different days

and could have been present for some time before they were detected. Under these circumstances it is impossible to correlate the arrival of vagrants with particular weather situations.

The period Sept. 17-19 was an especially noteworthy one for vagrants in a wide variety of areas and it appears that more than a sampling bias was at work. Prior to Sept. 15 a cold front trailing from a low over Hudson's Bay began moving across the United States. It was being pushed by a fairly strong high pressure center over the Great Plains. The air flow around high pressure centers is clockwise, that around low pressure is counterclockwise, and winds generally flow parallel to the surface isobars shown on the weather maps. As this front moved south-east during succeeding days it gradually lost strength and became stationary. Ahead of the front, in the eastern states, southerly winds prevailed. Behind the front, air flow from east to west prevailed over much of the northern United States and extended westward into the Pacific.

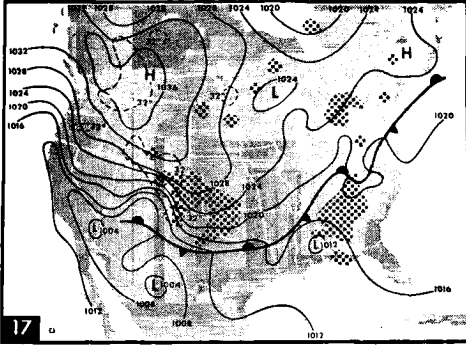


Canadian trough develops south over Midwest—Edith on TX coast: New Orleans 2.52", Brownsville .87"—only RW upper Midwest: Springfield IL .30"—112° CA; 20° CO.

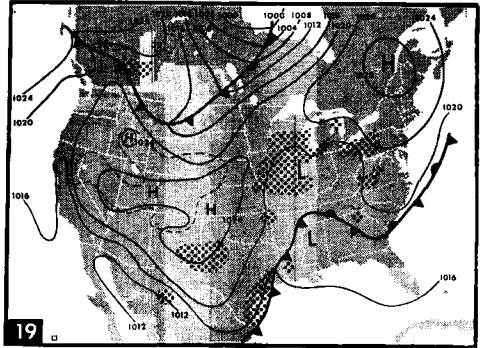


Broad upper trough over central continent dominates—Edith off LA coast—polar air entering NW—frontal rain East—R++ Gulf: L, Charles 2.94", Jackson 4.59"—109° CA; 23° WY.

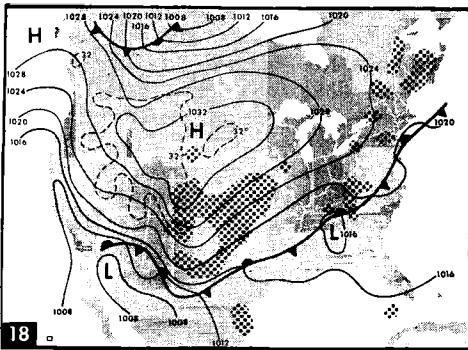
Maps courtesy of Weatherwise, Princeton, N.J.



17
Trough NE-SW from PQ to WY—remnant Edith in AL; Chattanooga 2.99", Atlanta 2.71"—heavy snow cen. Rockies: Denver 15.3" & Amarillo 1.02" rain—104° CA; 23° MT.



19
Same pattern with deep trough PQ to NE—frontal rains Lakes to TX: Philipsburg PA 1.46", St. Louis .95", Houston .89"—very dry all West—97° CA; 18° WY. SEPTEMBER 17



18
Upper low center WY with strong cyclonic circulation—large R/S area Plains/Midwest: Tulsa 1.20", Kirksville MO .76"—Raleigh NC .78", Atlanta .73"—96° CA;

We cannot know exactly when the vagrants arrived in most areas. The majority of birds were reported on the 18th and 19th. The main migration events, including vagrants, are summarized below.

SEPTEMBER 16

Northeastern Maritime — moderately heavy migration in Maine and New Brunswick September 16-18; 5 Philadelphia Vireos were on Plum Island, Mass.; a Summer Tanager was found on Martha's Vinyard.

Central Southern — Hurricane Edith produced a large heron kill in southern Louisiana and may have been responsible for the observation of a Black Rail in coastal Alabama.

South Texas — Hurricane Edith may also have been responsible for a concentration of Red-eyed and Yellow-throated Vireos at San Benito; an unusually large migration occurred throughout the region.

Middle Pacific Coast — invasion of Blackpoll Warblers; Black-throated Blue and Blackburnian Warblers.

Southern Pacific Coast — Tennessee Warbler, Virginia's Warbler and American Redstart.

SEPTEMBER 18

Northeastern Maritime — 4 Hooded Warblers at Sable Island, Kentucky Warbler and Clay-colored Sparrow in New Hampshire, 9 Blue Grosbeaks in Massachusetts.

Southern Atlantic Coast — 1500 Bobolinks over Halifax, N.C.

Central Southern — wave of warblers at Cameron, La.

Middlewestern Prairie — large Broad-winged Hawk flight in many areas.

Southern Great Plains — first major migration of the season.

Southwest — Black-throated Blue Warbler and Blackpoll Warbler in Arizona.

Northern Pacific Coast — a Wilson's Warbler was seen 25 miles off Tofino, Wash.

Middle Pacific Coast — influx of *Empidonax*; Great Crested Flycatcher, 25 Warbling Vireos, Tennessee, Black-throated Blue, Bay-breasted Warblers, Ovenbird, Rose-breasted Grosbeak, Indigo Bunting.

Southern Pacific Coast — Pine Warbler, Redstart seen offshore, 1-3 Northern Waterthrushes.

SEPTEMBER 19

Northeastern Maritime — Orchard Oriole on Sable Island, Blue-gray Gnatcatcher in New Brunswick.

Many of the displaced birds mentioned here probably arrived a day or more before they were discovered and their exact origins are, of course, unknown. However, it is interesting to note that

this occurrence of southern species in the Northeast was preceded by a period of pre-frontal southerly winds and the arrival of a push of eastern vagrants on the West Coast was accompanied by easterly air flow over much of the continent. In his analysis of the past two fall migrations, Aaron Bagg suggested, based partly on my observations in the southeastern United States, that vagrants reach the California coast by flying downwind. In 1970 he pointed to easterly flows over south Texas as possible agents leading to these movements. As Guy McCaskie points out in this season's Southern Pacific Coast report, the species composition of many of these vagrant flights makes this seem unlikely. However, easterly winds are not confined to the southwest. In fact, they are probably more frequent over the northern states where many of the vagrant species occur. My own studies of migration continue to indicate that passerines fly downwind at night, regardless of wind direction or velocity. As with Richardson (*AB*, 25: 684-690), the migrations I have monitored are larger (by about five times) when winds are "right," i.e., from the north in the eastern United States in fall. But very large movements are frequently seen moving in completely inexplicable directions for entire nights. Many birds must thus be displaced and I believe that this mechanism must be the explanation for at least some of the vagrants on the West Coast and in New England. I am not convinced, however, that the whole California vagrant picture can be explained in this way. If the recent flood of eastern species is really a new phenomenon and not simply the product of increased coverage, one or more of the following must have changed: (1) broad-scale weather patterns; (2) the breeding distribution of several species; (3) the migration patterns of several species; (4) the ability of individuals to orient and/or navigate properly. If, as Guy McCaskie suggests, most of the eastern birds found on the Pacific coast are lost and have faulty orientation mechanisms, something alarming is happening in populations of insectivorous birds. The matter merits investigation because who, for example, knows what effect persistent pesticides (which accumulate in birds' brains) might have on their ability to orient properly?

OCTOBER 31 — NOVEMBER 3 — MAJOR WATERFOWL MOVEMENT

The weather leading up to the events of the beginning of November was much like that which preceded the movements in mid-September. An intense storm was centered north of Lake Superior on the morning of Oct. 31. A powerful

cold front extended through the Great Lakes and thence southwestward through Ohio, Kentucky, Tennessee, Arkansas and Texas. On November 2, a second low developed over western Canada and its front dropped into the Great Plains. During the next two days the two frontal systems merged and eventually became stationary along the East Coast. Behind this complex frontal system came the first cold arctic air of the winter. The conditions were ideal to trigger a movement of waterfowl, in which migratory departures seem very weather-dependent.

In the Great Basin Region the storm brought freezing temperatures and 27 inches of snow to parts of Utah. It led to the departure of ducks from the refuges of Oregon, Nevada, Wyoming and Utah and their replacement by northern ducks and swans. Thousands of Shovelers were seen moving along the Snake River, and the failure of winds to blow snow off the ridges resulted in the death of hundreds of Horned Larks. In eastern Oregon the first Red-throated Loon ever recorded and 25 Horned Grebes in a flock accompanied this migration.

Further east the results were dramatic. The passage of the front during the night of October 31-November 1 resulted in the grounding of large numbers of waterfowl. George Hall reports that some 30,000 Whistling Swans were estimated on the Allegheny River and other flocks of 1,000 or more were seen in several other places. Accompanying this massive swan flight were large numbers of Canada Geese, some 600 Ruddy Ducks and 40 Oldsquaws on one lake, and all three species of scoters, including 22 Commons, inland. In the Central Southern Region the front passed on November 3 and produced one of the few waves noted by ground observers in that area. Of particular interest was Tom Imhof's observation of a "reversed" migration of Robins the following morning. Over 1500 spent the morning on Dauphin Island, Ala. and were observed leaving the island and heading north into the wind. Apparently the birds had "overshot" their goal and were making a compensatory flight. It is not often that field observers can see navigation in action.

There were several other interesting migration events to ponder. Between August 26 and September 1, tight flocks of 20-50 Townsend's and Wilson's Warblers moved through Glacier Bay Monument, Alaska. On October 8, 200 warblers of 7 species were observed offshore from Florida and the following day 112 Tennessee Warblers and 65 Magnolia Warblers were seen at Lakeland. A flock of 20-25 Blackburnian Warblers on Grand Isle, La., September 11, were certainly out of the ordinary. Why did Bob Newman find

a good wave of warblers in Cameron, La., on Sept. 18 while the woods at Grand Isle were devoid of migrants the next day? What events led to the spectacular arrival of Western Kingbirds (and a Band-tailed Pigeon) in the Southeast on Oct. 23-24? The answer is not obvious from a perusal of the weather maps.

POPULATION TRENDS AND IRRUPTIONS

Anyone familiar with animal populations realizes that it is dangerous to generalize from short-term trends. But certain patterns are obvious in the reports that follow, and it is worth mentioning them if only so that they might serve to document later hindsight. The most interesting reports were of Peregrine Falcons which were mentioned in nearly every Region. The mass of reports cannot be due solely to observer interest in this species. There were 61 records in the Northeastern Maritime Region, 51 in Ontario, 22 in California, up to 24 in the Northern Pacific Coast, an "invasion" in the Midwest, 20 records from the Southern Atlantic Coast, and 12 from both the Central Southern and Appalachian Regions. If one were inclined to put a great deal of faith in one season's data there would be cause, as Clive Goodwin notes, "to run cheering into the streets." But, as he points out, that is not justified even though the great number of reports is certainly good news. It is difficult to offer a biological interpretation of this event in light of recent projections about the fate of DDT in the ecosystem. Harrison, *et al.* (*Science*, 170: 503-508) have shown that "even if no more DDT is ever added to the biosphere, its concentration in certain species at or near the top of the trophic structure could continue to rise for some years." Perhaps coincidentally, Ospreys were also much reported and thought to be more abundant than in recent years in several areas. At Hawk Mountain 613 were seen this fall and the species was said to be flourishing in areas of the West. During migration, 90 were seen in two hours over Wrightsville Beach on Oct. 4, and 20 over Ocracoke Island, Oct. 24, on the North Carolina Outer Banks. In the Northern Pacific Coast Region there were more reports than in the last ten years.

It is interesting that the influx of Peregrine Falcons should correspond with the beginning of the first major invasion of Gyrfalcons in memory. All but one of the reports that specified color indicated that the birds were dark, suggesting the northwestern Arctic as their origin. There were five records from the Northeastern Maritime Region, including the spectacular sight

of a Peregrine stooping on a Gyrfalcon at Seal Island, N.S. Other records included the second for Illinois, two in Ontario, two in the Western Great Lakes, four from the Northern Pacific Coast and one from Alaska.

Several trends were indicated among pelagic species. Manx Shearwaters, following their abundance during summer, occurred in unprecedented numbers off the Northeastern Maritime coast, 10 were seen off New Jersey, and one was off Florida. On the Pacific coast a major invasion of New Zealand Shearwaters occurred with over 400 off San Francisco and over 150 off the Washington coast. Fulmars also seem to be increasing in the North Atlantic. Blue-footed Boobies again invaded southern California in unprecedented numbers with 48 on the Salton Sea in September. Some of them apparently then moved further inland, giving rise to the first Nevada record, and appearing back on the coast as far north as San Francisco.

Black Skimmers appeared in both California regions, with at least 3 in southern California and 2 in the Middle Pacific Region where there was only one previous record. Another individual wandered to Cleveland Co., Okla. for the first state record.

Along with the Gyrfalcons and Peregrines, numbers of Rough-legged Hawks and Snowy Owls moved south. Some 300 Rough-legged Hawks were observed at the Duluth hawk lookout and before the end of the period a Snowy Owl had reached Kentucky. On the West Coast, 18 records of Ferruginous Hawks indicated a major invasion into the Middle Pacific Region. There were also indications that a good flight of nearly all the winter finches would develop, at least in the Northeast. Red Crossbills also irrupted in the Rockies. A species which rarely moves noticeably southward in winter is the Gray Jay. Davis Finch's report contains an interesting description of an "explosion" of these birds in the Maritime Provinces. Early October saw a movement from New Brunswick into Maine and on October 8, 23 were seen in three hours flying along the Maine coast at Grindstone Neck.

Following is a collection of species which may be undergoing some population change. Their names appear frequently in the reports and the interested reader can follow them there. Double-crested Cormorants, a species on the new "Blue List," appeared in larger than usual numbers in the Great Lakes and Appalachian Region; White-faced Ibis at Bear River, Utah have developed the soft egg shell syndrome; there has been little or no observable change in the status of the Brown Pelican in the Northern Pacific

Coast Region; Red-shouldered Hawks are reported as rare in most areas (only one was seen around Nashville during the period), but they are still common in some areas of southern Louisiana; as last fall, Buff-breasted Sandpipers were mentioned in many areas; there were five records of Lesser Black-backed Gulls during the period; Little Gulls continue to increase in the Great Lakes, following this summer's successful breeding, with ten birds at Chicago; Blue Jays have become common in the Colorado plains towns and are spreading into the foothills where they are hybridizing with Stellar's Jays; House Finches continue to spread in all directions with records this season from Indiana, Pa., the westernmost penetration of the species so far.

Every region had its rarities; some of them were truly spectacular. The following is just a selected sample: Ash-throated Flycatcher in Maine; Anhinga in New Jersey; probable Bahama Woodstar in Florida; White-faced Petrel and Bar-tailed Godwit in North Carolina; Western Grebe in Louisiana; Brown-headed Nuthatch and Curve-billed Thrasher in Wisconsin; Purple Gallinule and Painted Redstart in Ontario; Wandering Tattler and Scarlet-headed Oriole in Arizona; Jabiru and Snail Kite in Texas; and Golden-cheeked Warbler in California. The

hard-to-get Ross' Gull was seen at Barrow, Alaska in October.

There is much more of interest in the individual reports. What is perhaps an unprecedented number of hurricanes came within the reporting area during the season. Observations accompanying these storms can be found in the Southern Atlantic Coast, Central Southern, and South Texas reports. The Florida report contains some good data on offshore migration of pelagic birds. Information of TV tower kills appears in several reports, especially Western New York and Southern Atlantic Coast. I suppose every season's reports contains some particularly unique and inexplicable events. This time, four separate observations of Rallidae seem to fall in this category: In Alameda, California, a Virginia Rail walked through a group of birders, crossed a street, went under a car, jumped onto the curb, crossed the sidewalk and then flew to the recessed balcony of a second floor apartment! On the night of Sept. 1, a Clapper Rail was killed by flying into a tall building in downtown Atlanta, Ga. And, for sheer numbers, the 1,000 Soras at Montezuma Refuge, N. Y. and 135,000 Coots at Tullahoma, Tenn. must take some kind of record.

We regret to announce the retirement from her role as Regional Editor for the Southwest Region of Patricia R. Snider. Mrs. Snider has been in uncertain health in recent months, and now feels that the task of preparing the quarterly reports would be best served by someone better able to cope with this not inconsiderable task. Pat Snider, whose talents as a field observer and whose charm are known and respected in an area far beyond the bounds of her Region, has served this publication diligently and with intelligence since June, 1964. We know that all her friends everywhere join in wishing her a full and speedy recovery.

Henceforth the Regional Editor for the Southwest Region will be Gale Monson, who was the editor for this region immediately preceding Mrs. Snider, and for years earlier. Dr. Monson has signified his willingness to return to this service, and we are delighted to welcome him back. Quarterly field reports for this Region should henceforth be addressed to Gale Monson, at the Arizona-Sonora Desert Museum, Box 5607, Tucson, Ariz. 85703.

Another editor of this journal of even longer service has, after years of promising that the next would be his last, finally decided to call it quits, after valiant and honored contributions to science and to *American Birds* and its predecessor. Haven Kolb, who has edited the *Winter Bird Population Studies* for 20 consecutive years, beginning in 1952, has finally and reluctantly relinquished this enormously painstaking job. He leaves with our sincerest appreciation for a contribution far too important for mere thanks, and our best wishes for the future.

Succeeding Haven Kolb will be Dr. Ronald A. Ryder, a highly qualified botanist and ecologist with the Department of Wildlife Management, at Colorado State University. Dr. Ryder will edit the *Winter Bird Population Studies* for the current winter; these studies should be sent to him as soon as completed, but in no case later than April 1, 1972. Colorado State University, is at Fort Collins, Colo. 80521. Readers who wish to participate in such a study for the first time will be sent instruction sheets upon application to this magazine, enclosing a 30¢ mailing fee.