

THE BLACKPOLL WARBLER IN CALIFORNIA

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INTRODUCTION

The American Ornithologists' Union (1957) indicates the Blackpoll Warbler (*Dendroica striata*) migrates from its extensive breeding grounds in Alaska and Canada to its winter range in South America via the West Indies, and returns by the same route. The only record cited for the southwestern United States and northern Mexico is an accidental occurrence in New Mexico (Fort Webster). In recent years the Blackpoll Warbler has been found regularly in small numbers in California. A total of 238 had been reported by the end of 1969, and all but one of these were reported during the last eight years. The vast majority (93%) occurred during the fall (late August to mid November) with only 17 being reported in the late spring and summer (mid May to early August). The peak occurred between 24 September and 8 October, with 50% of the autumn records falling within these two weeks (fig. 1). An analysis of the records is therefore in order.

SPRING RECORDS AND DISCUSSION

The majority of the few spring records are from the Southeast Farallon Island, San Francisco County (9), and Point Reyes, Marin County (6), but there is one record for Point Loma, San Diego County (21 June 1966), and another for Imperial Dam, Imperial County (15 May 1955). All the spring birds have been identified as to sex (most by plumage), and all were males except three from the Farallons (22 June 1965, 3 June 1969, and 1 August 1969), one from Point Reyes (21 June 1969), and the one from Point Loma. This high percentage (70%) of males cannot easily be explained, but it may be the result of dealing with a sample of insufficient size. Tenaza (1967) reports on the condition of the testes of the males collected on the Farallons, which indicated the birds were in breeding condition.

This species is a late spring migrant in the east. Lowery (1960) states it occurs in Louisiana between 13 April and 13 May; Bull (1964) reports it passing through the New York area between early May and mid

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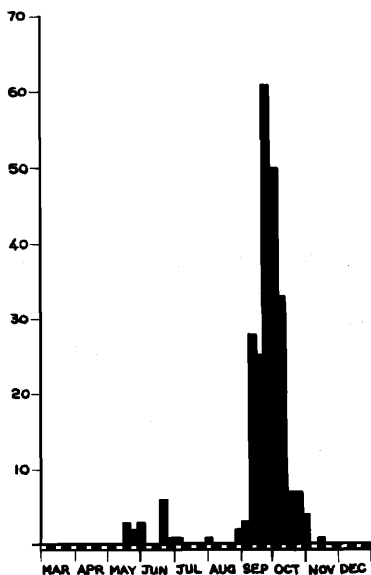


FIGURE 1. Seasonal pattern of Blackpoll Warbler records in California.

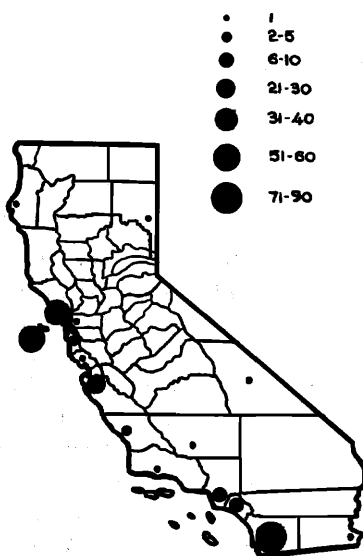


FIGURE 2. Distribution by counties of fall Blackpoll Warblers in California.

June, with the maximum numbers present in mid May; Gabrielson and Lincoln (1959) indicate it arrives in Alaska during the last week of May, and report eggs found on 10 June. In all probability birds should be on their breeding grounds by June if they are to nest successfully. The lateness (70% in June and later) of the California spring records indicates these birds cannot reach the breeding grounds in time to nest successfully, if indeed, they ever do reach the nesting grounds.

In spring Blackpoll Warblers appear to be much more numerous along the central coast of California than farther south (88% of the records are from the Farallons and Point Reyes). This would suggest the birds are not following the coast northward from the wintering grounds in South America. They are conceivably lost individuals wandering westward after having turned westward from their normal migration route at a latitude too far south to put them into their regular breeding range.

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FALL RECORDS

The fall records are primarily from along the coast, with single interior records from Litchfield, Lassen County (23 September 1961), Mahogany Flat in the Panamint Mountains, Inyo County (15 September 1961), Morongo Valley, San Bernardino County (31 October 1965), and near Bard, Imperial County (27 October 1968). Along the coast most of the records (82%) are from the well-worked areas of San Diego, Monterey and Marin Counties, and the Farallon Islands, but there are enough additional records to indicate that individuals occur along the entire coastline (fig. 2). When the San Diego area is compared with the other well-worked areas, it is evident that the Blackpoll Warbler is more numerous along the southern coast of California than farther north.

Nine of the 12 fall specimens have been sexed, and both sexes appear to be equally common (five males and four females). Of the 58 birds aged (10 as specimens and 48 by checking the skull ossification of live birds) 55 (95%) were immatures. The three exceptions were two banded on the Farallons (31 August 1968 and 23 October 1969), and one banded on Point Reyes (27 September 1968). Thirteen individuals from the coast have been weighed, and the mean weight is found to be 11.8 grams (range 9.5 to 14.7 grams, with a standard deviation of 1.44). Forty-two individuals from the Farallons have been weighed, and the mean weight is found to be 11.4 grams (range 9.3 to 14.0 grams, with a standard deviation of 0.95).

The number of records has steadily increased each fall since the 1961 bird was discovered, but there is still some variance in the numbers present each year (fig. 3). The steady increase is due to a number of factors. More people are aware of the field marks of the fall plumaged Blackpoll Warbler and are specifically looking for these birds at likely concentration points along the coast. The Southeast Farallon Island has been manned as an observatory and banding station since 1967 and permanently manned as such since 1968; the vast majority of the birds landing there are seen, if not caught, and lost land birds are no doubt attracted to it from appreciable distances. There are also recently established permanent banding stations on Point Reyes (Point Reyes Bird Observatory) and Point Loma (home banding stations of Alan Craig and Virginia Coughran); numbers of Blackpoll Warblers have been seen and/or captured in both of these areas.

Bearing in mind the steady post-1961 increase in the number of observers looking for Blackpoll Warblers, it is apparent in figure 3 that exceptional numbers were recorded in the fall of 1964 and 1969 (author

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saw 19 and 14 individuals, respectively) while in the fall of 1963 this species was quite scarce (author saw only 3 individuals). Numbers occurring each fall may reflect breeding successes of the preceding summer; in years when many young are raised we may have larger than normal numbers occurring on the California coast. Weather conditions between California and the northern part of the Blackpoll Warbler's usual migratory path may also influence the number of individuals which reach the state.

There are a number of active observers concentrated along the coast, especially during the fall, and this no doubt has a definite bearing on the number of records for that area. But this alone does not account for the high percentage (98%) from that area if Blackpoll Warblers were evenly distributed throughout California. The coast always has a concentrating effect on night migrants, including the Blackpoll Warbler, since those individuals located over the ocean at dawn attempt to return to the coast, thus putting all the birds present in a rather wide belt along the coastal waters into a narrow coastal land strip. However, aside from this concentrating effect, there is enough field work being done at inland localities to demonstrate that the species is truly extremely rare away from the immediate vicinity of the coast.

DISCUSSION

Blackpoll Warblers avoid most of the United States in fall (fig. 4). Birds from the western portion of the breeding range apparently head eastward, arriving on the Atlantic in the northeastern United States. Nisbet, Drury, and Baird (1963) presented very convincing evidence to support the theory that these birds stop to build up their fat resources in New England, then fly non-stop over the water to South America. Murray (1965) argued against this theory, and proposed that the birds followed the coastal area southward to the southeastern United States, then turned toward South America. It may well be that some individuals do fly non-stop from New England to South America, while others follow the coast southward for some distance before heading out over the ocean to South America. Either way, the birds have to make a trans-oceanic flight at some point along the route.

It would appear that adults are quite prevalent in samples from New England, but the percentage of adults present diminishes farther south along the coast. A sample from Bermuda had a high percentage of adults (an indication these birds are not lost), but a sample from Michigan has an unprecedented high percentage of immatures. Nisbet

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FIGURE 3. Annual pattern of Blackpoll Warbler occurrence in California with the spring and fall records shown separately.



FIGURE 4. Range of the Blackpoll Warbler with the breeding range shown in black, the winter range shown shaded, and the normal fall migration route indicated by heavy arrows and cross hatching.

et al. (1963) reported 61% of 1,832 Blackpoll Warblers at Round Hill in eastern Massachusetts were adults in 1962; 42% of 123 at Drumlin Farm in eastern Massachusetts were adults in 1961, and 64% of 54 were adults in 1962; 18% of 55 in coastal New England were adults between 1959 and 1961; 19% of 78 at Island Beach, New Jersey, were adults in 1962; and 58% of 136 at Bermuda were adults in 1962. Murray (1966) reported 9.6% of 658 at Island Beach were adults in 1963, and 5.7% of 87 in Michigan were adults.

Murray (1966) indicates there is little variance in the weights of Blackpoll Warblers from the northeastern portion of the United States at a given time in fall, but that there is a trend toward an increase in weight in the latter half of the migration period. He indicates the mean weight of a sample (85) of immatures from Michigan to be 12.7 grams (range

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11.2 to 17.9), a sample (552) of immatures from New Jersey to be 11.4 grams (range 8.8 to 21.9), and a sample (707) of immatures from Massachusetts to be 12.1 grams (range 9.3 to 21.5). None of these birds should have recently completed long non-stop over-water flights.

In California Blackpoll Warblers are setting a regular pattern in their occurrences, and they are appearing in large enough numbers to suggest that this regular occurrence may be normal. If they are following a definite migration route they would have to remain on it from the breeding range to the winter range, and there should be a scattering of records along its entire length to document this. It is then worth investigating some of the proposed ways by which Blackpoll Warblers may reach California.

RANDOM SCATTERING

If a small percentage of the population of Blackpoll Warblers scatter randomly from the breeding grounds rather than follow the normal migration route, we could expect individuals to occur almost anywhere. The numbers present in any given area should decrease functionally to the distance from the breeding range due to a fanning out effect. The coast will, however, always have a concentrating effect, resulting in an increased number of records from that area. The Blackpoll Warbler must be one of the most numerous of the Parulidae. If the birds are reaching California by random scattering we could reasonably expect a few individuals to occur anywhere outside their normal range and migration route, especially when we consider the numbers found as far from the normal range as San Diego. So far, the Blackpoll Warbler has remained unrecorded in Washington, Oregon, and the southwestern states, except California, during the fall.

WEST COAST MIGRATION ROUTE

If some of the Blackpoll Warblers from the northwestern portion of the breeding range were to follow a migration route south along the west coast, we would expect a high percentage of the records to come from the coastal areas. The species would have to occur in the coastal regions to the north of California in numbers equal to, or exceeding, those found on the California coast, but, to date, there are no fall records for Oregon or Washington. The birds would also be expected to proceed southward along the coast, but DeSante (pers. comm.) was unable to find a single individual during his four months' stay in the Cape Region of Baja



Fall plumaged Blackpoll Warbler *Dendroica striata*, 19 September 1965 (left), and (right) an adult female, 21 June 1966. Both birds mist netted, Point Loma, San Diego.

Photos by Alan M. Craig

California, Mexico, in the fall of 1968, even though he was looking for vagrants.

The species should be more numerous in the Point Reyes – Farallon Island area than in the San Diego area, since it is farther north, but the reverse appears to be true (52% of the records from these three localities are from San Diego). Also, one would expect to encounter adults along any normal migration route, but most of the birds aged are immatures, and there is a strong possibility the three individuals reported as adults were also immatures (ageing live birds is subject to error, especially in the late fall).

DIRECT LINE FLIGHT

Another possibility is that some of the Alaskan birds are making a direct over-water flight from the breeding grounds southeastward to the coast of California, and then proceeding onward to South America. This would explain the lack of records from the area north of California. We would expect many of the California birds to be low on fat resources after the long flight. However, the samples (13 and 42) of Blackpoll Warblers from the coast of California have mean weights falling between that of the Massachusetts sample and the New Jersey sample, which would indicate they had not made any long non-stop flights.

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In addition, Blackpoll Warblers would be expected to continue on the direct line course, thus crossing Mexico. Eisenmann (1955) refers to the only fall record for Mexico (Tehuantepec City, Oaxaca, on 19 October 1896).

DRIFT

Paxton (1967) pointed out that many such vagrants as the Blackpoll Warbler appear on the coast when there are high pressure areas, with their accompanying east winds, centered over the northern Great Basin. The northern Great Basin is outside the normal range of the Blackpoll Warbler, and there are few if any records for that region in fall. Any Blackpoll Warbler being drifted toward California under these weather conditions is already outside its normal range and off course. Drift no doubt helps some individuals reach the west coast, but it is doubtful whether this is the sole factor involved in placing these birds there.

"MIRROR IMAGE" REVERSED MIGRATION

A number of authorities have indicated a small portion of the population of some species heads in a direction 180° to the appropriate direction for the time of year. Lack (1963), Drury and Keith (1962), and Drury and Nisbet (1964) have all reported detecting reverse movements with the aid of radar. Dolnik and Shumakov (1967) reported two species (Scarlet Grosbeak *Carpodacus erythrinus* and Barred Warbler *Sylvia nisoria*) they tested in Kramer cages had a strong tendency to reorient in the reverse direction, as well as the correct direction. Nisbet (1962) suggested reversed migration was the means by which some of the southeast European species reach Fair Isle (situated off the north coast of Scotland) in the fall. Baird, Bagg, Nisbet, and Robbins (1959) and Nisbet (1962) associate reversed migration with high temperatures in the fall, but Evans (1968) detected this type of movement from three birds being oriented in Kramer cages in normal British fall weather. A typical example of a species reaching California by reversed migration would be the appearance of Tropical Kingbirds (*Tyrannus melancholicus*) in fall.

Rabol (1969) discussed four Old World warblers, (*Phylloscopus inornatus*, *P. proregulus*, *P. trochiloides*, and *P. borealis*), which breed in northeastern Europe and northern Asia and migrate first eastward then southward in fall (their migration route is analogous to that of the Blackpoll Warbler). He discussed the appearance of these species in Great Britain during the fall and concluded that their appearances were

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due to reversed migration in a westward direction by a part of the population of each species. If this same phenomenon occurred in the Blackpoll Warbler population we would expect a concentration of records from British Columbia.

Normally, Blackpoll Warblers migrate eastward (primarily ESE) and then southward (primarily SSE). If some individuals were to migrate on a mirror image of this route, that is, first *westward* and then southward, they would conceivably reach the Pacific Coast in California. (The plane of reflection of this image would be on a north-south axis). Continuing this mirror image reversed migration route, the birds would fly southward, with many following the coast for some distance before heading out over the Pacific. This type of movement could well account for the presence of Blackpoll Warblers on the coast of California during the fall, and could account for the fact that there are no records from the areas to the north or south of the state. This also accounts for the concentration of records from the coastal areas and could be used to explain the variance in numbers between localities along the coast. Immatures would be expected to be predominant since none would be expected to survive to repeat the feat the following year.

SUMMARY

All the information available on the 238 Blackpoll Warblers recorded in California through 1969 is summarized. The majority of the birds are immatures occurring in the fall at coastal localities. The normal fall migration route, and the condition of the birds found along this route, are briefly discussed. Five proposed ways by which Blackpoll Warblers may reach California are indicated, and the theory that some follow a route that is a mirror image of the normal fall migration route is proposed.

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LITERATURE CITED

- American Ornithologists' Union. 1957. Check-list of North American birds. Fifth ed. Amer. Ornithol. Union, Baltimore.
- Baird, J., A. M. Bagg, I. C. T. Nisbet, and C. S. Robbins. 1959. Operation recovery - report on mist-netting along the Atlantic coast in 1958. *Bird-Banding* 30:143-171.
- Bull, J. 1964. Birds of the New York area. Harper & Row, New York, Evanston, and London.
- Dolnik, V. R. and T. I. Blyumental. 1964. Bioenergetics of bird migration. *Uspekhi Sovremennoi Biologii* 58:280-301 (in Russian).
- Drury, W. H., Jr. and J. A. Keith. 1962. Radar studies of songbird migration in coastal New England. *Ibis* 104:449-489.
- Drury, W. H., Jr. and I. C. T. Nisbet. 1964. Radar studies of orientation of songbird migrants in southeastern New England. *Bird-Banding* 35:69-119.
- Eisenmann, E. 1955. Status of the Blackpoll, Bay-breasted, and Connecticut Warblers in Middle America. *Auk* 72:206-207.
- Evans, P. R. 1968. Reorientation of passerine night migrants after displacement by the wind. *British Birds* 61:281-303.
- Gabrielson, I. N. and F. C. Lincoln. 1959. Birds of Alaska. The Stackpole Company, Harrisburg, Pennsylvania and the Wildlife Management Institute, Washington, D.C.
- Lack, D. 1963. Migration across the North Sea studied by radar: Part IV. Autumn *Ibis* 105:1-54.
- Lowery, G. H., Jr. 1960. Louisiana birds. Louisiana State University Press.
- Murray, B. G., Jr. 1965. On the autumn migration of the Blackpoll Warbler. *Wilson Bull.* 77:122-133.
- Murray, B. G., Jr., 1966. Blackpoll Warbler migration in Michigan. *The Jack-pine Warbler* 44:23-29.
- Nisbet, I. C. T. 1962. South-east rarities at Fair Isle. *British Birds* 55:74-86.
- Nisbet, I. C. T., W. H. Drury, Jr., and J. Baird. 1963. Weight-loss during migration. *Bird-Banding* 34:107-159.
- Paxton, R. O. 1967. Oases for migrants on outer Point Reyes, 1963-66. *Point Reyes Bird Observatory Newsletter* 8:24-25.
- Rabol, J. 1969. Reversed migration as the cause of westward vagrancy by four *Phylloscopus* warblers. *British Birds* 62:89-92.
- Tenaza, R. R. 1967. Recent records of land birds from South Farallon Island, California. *Condor* 69:579-585.

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