COMMENTS ON BLACKPOLL WARBLER MIGRATION

By Dr. Charles H. Blake

These comments are made in hope of stimulating a broad survey of the migration of the Blackpoll Warbler. What I have to say here is based on bandings at Lincoln, Mass., from fall 1947 to spring 1955 and at Hillsborough, N.C., from spring 1957 to spring 1968.

Lincoln bandings: 101 fall birds were banded, only fall 1949 was a blank. None were banded in spring although they do occur in the area at that season. Griscom (1944, Birds of Concord, p. 291) suggests that the species is much commoner in fall than in spring and that it was more abundant before 1910 than after 1930. As to my captures: 99% were between Sept. 11 and Oct. 20, with 53% between Sept. 21 and 30. The median date may be put at Sept. 27.

Hillsborough bandings: the springs of 1957 and 1958 were blank but since then Blackpolls have been taken each spring to a total of 67 birds. On the other hand I have banded but two in fall, one in each of two years. The dates are Oct. 10 and 29. There are only three other fall records for the general area in a period of over 30 years.

Of the spring captures 98% were in May against 2% in April. The period May 11-20 has afforded 61% of the take. The earliest male capture date is April 28, the earliest female May 8. Approximate median dates are May 13 for males and May 17 for females.

It is more significant in showing the lag of the females that 87% of the males have been banded between May 1 and 20 while 90% of the females occurred between May 11 and 31.

The most striking point about the spring data is the sex distribution. Among 67 birds, there have been 48 males and only 19 females.

Croxton (1953, Elementary Statistics, with Applications in Medicine and the Biological Sciences, p. 252) presents a method for determining the probability that a proportion of males equal to or greater than the observed proportion will occur. In the present case we assume that the species, as a whole, contains equal numbers of males and females. The probability of drawing from the assumed population a sample of 67 birds containing at least 48 males is only 0.00023 or about one chance in 4300 drawings. We, therefore, conclude that the sample is not representative of the total population. The next question that might be asked is: what is the least percentage of males in a population which would yield our present sample as a representative sample? There would have to be very slightly less than 62% of males in such a population. The calculated chance is 1 in 19.4 drawings in such an event.

We now return to our original 50:50 population and wish to know the chance of obtaining a sample containing 48 males but no more. We determine the probability of getting a sample with 49 males out of 67 birds. This is 0.00010. Subtracting this probability from 0.00023 leaves the desired probability (0.00013). We find about one chance in 7700 of drawing the sample actually obtained. Certainly our sample is not a random sample from a 50:50 population.

The probability of the occurrence of a particular ratio of males to females depends greatly upon the size of the sample. In the instant case any particular distribution of approximately two males to one female is extremely rare. If we draw a sample of only three birds then three samples in eight may be expencted to contain two males. Suppose we draw samples of six birds, then only about one sample in four will contain four males and two females (actually 15 in 64). As Croxton points out, when the sample size is small it is obligatory to use the Bernouilli distribution but for large samples, such as mine, the Gaussian distribution is very nearly as accurate and much more convenient. (See EBBA News, Vol. 31, No. 2, pp. 53-57 with regard to these terms. -Ed.)

The situation described strongly suggests that along some parts, at least, of the spring migratory route the paths of the two sexes are not entirely identical. It also seems clear that the spring and fall routes are quite different.

It may be appropriate to make a suggestion which is not, in essence, new. A select committee of two or three members could gather and analyze the data on this species submitted by banders generally. In this particular case, spring observations are just as important as those made in the fall. A committee is proposed to take away the possible feeling that this is a proposal to produce a report which would stand to the credit of any one person. The committee should appear only as editors and all contributors should be listed.

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PESOLA BALANCES

Most EBBA members are familiar with Pesola spring balances, which have hitherto been available only from overseas. We have received news that they are now being stocked by the Bleitz Wildlife Foundation, 5334 Hollywood Blvd., Hollywood, Calif. 90027. The prices given below include duty and postage, and we understand that some polyethylene bags for holding the birds are included too.

Stock Number	Capacity	Price
489	10 grams	$ 9.00
490	30	7.00
491	100	7.00
491b	300	11.00
498	100	11.00