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Migration Period of Some Passerines Revealed by Daily Ringing Figures at Ottenby

Ottenby Bird Station Report No. 9

Richard Hylbom

Zoological Institute, Stockholm

The passage of diurnal migrants may be observed in the field and the birds counted more or less exactly, depending on their frequency and the topography of the site used. In recent years much information regarding passing frequency in Sweden has been obtained by the Swedish Ornithological Society at both its Bird Stations, Ottenby and Falsterbo.

Many small passerine birds, however, migrate at night and their daily number cannot be counted directly. Some indirect method must, therefore, be used to reveal their normal passage from its beginning to its end at a certain locality. As a fraction of the nocturnal migrants passing a certain area normally alight to rest until the next night, there is a possibility of getting information regarding the passage by counting the number of individuals resting daily within a defined area. This is hard work, as a lot of the small birds are difficult to identify when seen at a distance and their total number may be absolutely impossible to state when they are frightened and flying around from bush to bush in a large garden.

The comparatively small garden at Ottenby Bird Station is more or less filled each night during the autumn by small passerine birds resting. The number of birds which alight in the garden depends on two factors the first being the number of birds actually in the air and the second theweather during the night. If visibility is bad quite a number of birds may stop their journey and a high proportion of the passing birds alight to rest when they meet the open sea, but when the weather is fine most of them will continue, providing only a few resting specimens next morning (Bergström and Svärdson 1939).

The birds resting in the lighthouse garden at Ottenby Bird Station are mostly trapped and ringed during the following day. In this way the number of resting birds may be roughly expressed by the daily ringing figures in the files of the Station. The equipment for trapping has been more or less

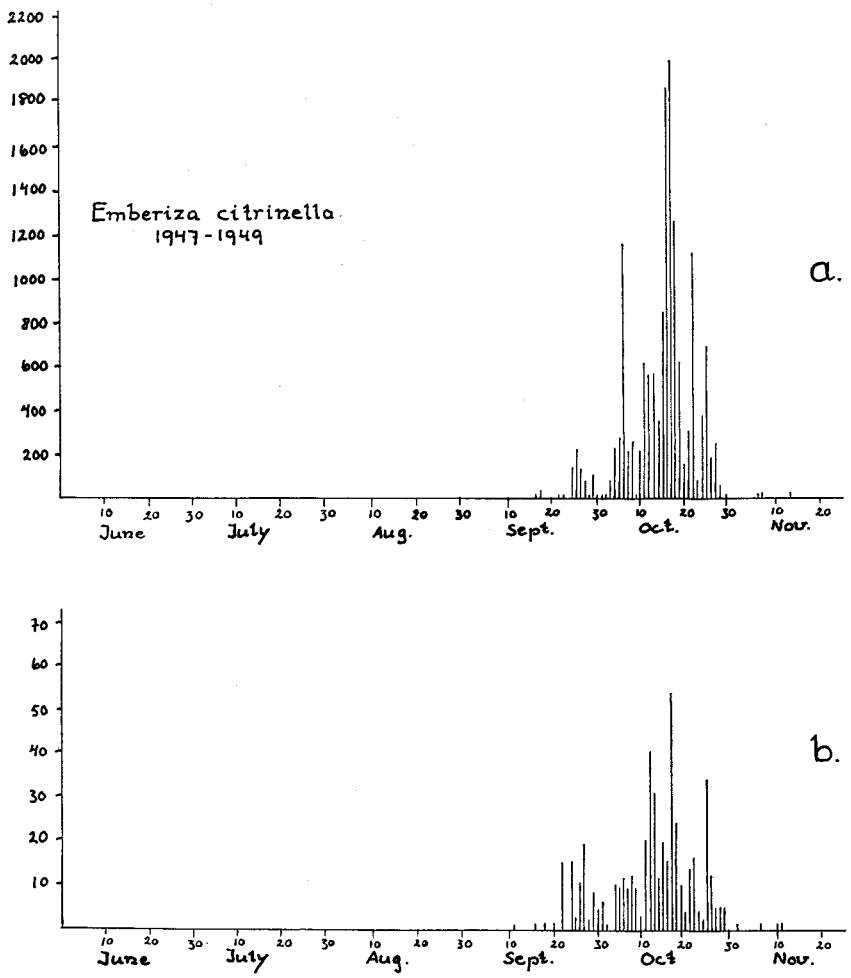

Fig. 1 and 2. Passing frequency of *Emberiza citrinella* and *Motacilla alba* in the seasons 1947–1949 as illustrated by the sum of birds observed departing (a) and the sum of specimens ringed daily (b).

the same during the last three seasons, when the great majority of birds, as yet ringed, have been trapped.

The method tested here for showing the normal passage of nocturnal migrants, has, therefore, been to select the number of birds ringed each day and add these figures to those obtained from other years. If all the birds ringed yearly, say on the 1st of August, are added to produce a single sum, chance fluctuations arising from weather must be increasingly eleminated. If all the days are dealt with in this manner the result ought to be

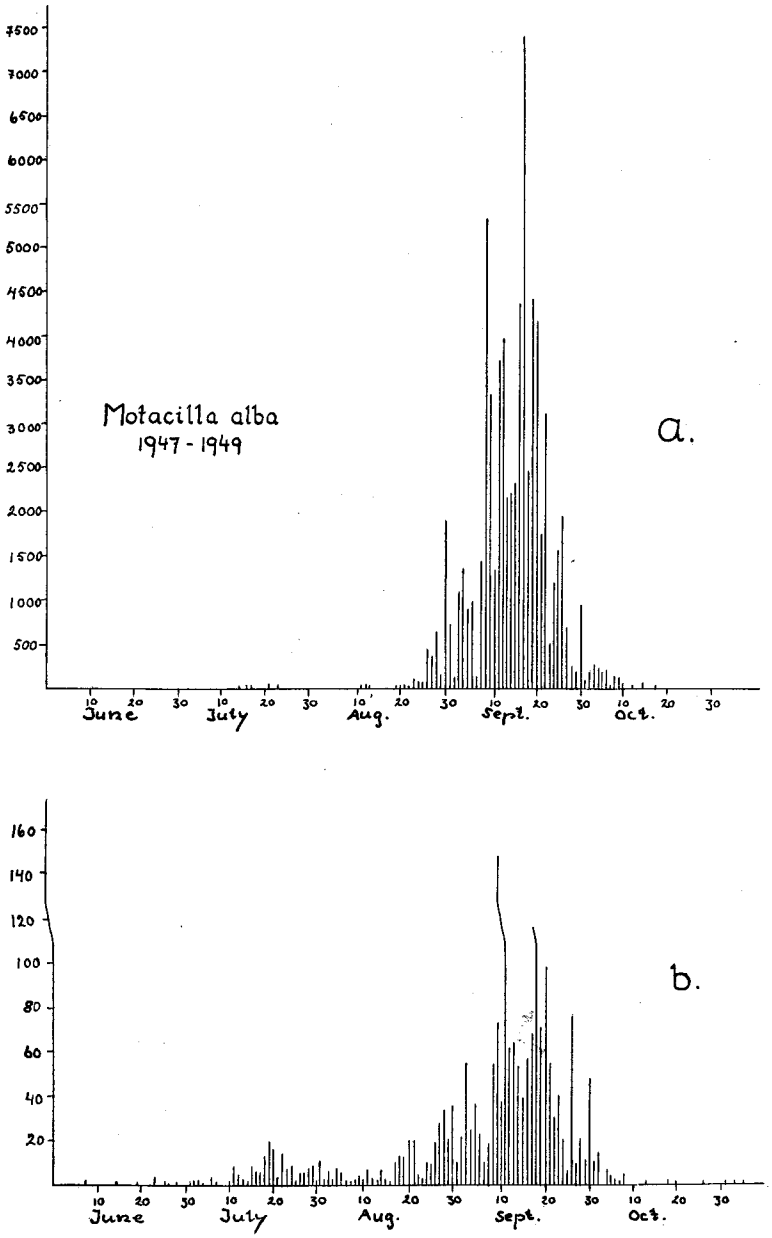

Fig. 2.

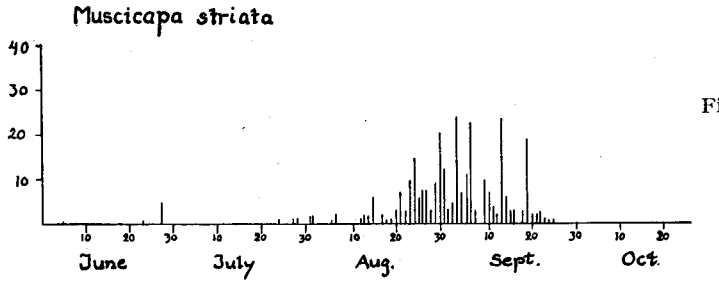

Fig. 3.

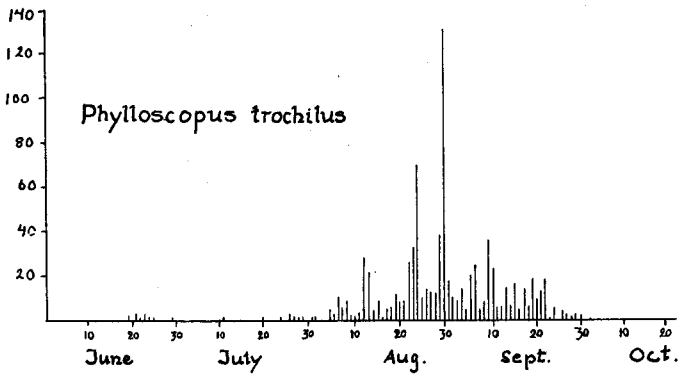

Fig. 4.

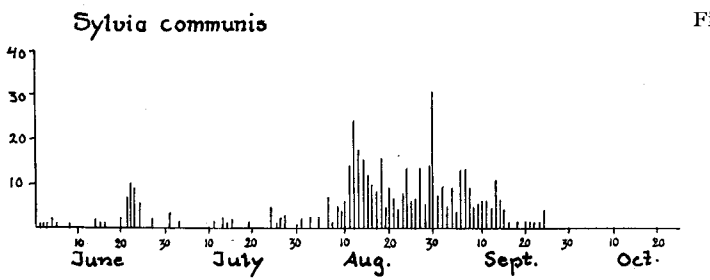

Fig. 5.

Fig. 3–11. Totals of the number of birds ringed per day at Ottenby for respectively *Muscicapa striata, Phylloscopus trochilus, Sylvia communis, Lanius collurio, Sylvia curruca, Muscicapa hypoleuca, Sylvia borin, Phoenicurus phoenicurus* and *Erithacus rubecula.*

a "normal curve" for the species' passage. The more birds that are trapped and the more different years involved, the more levelled the curve must be. Of course, variations between the different years according to the main waves of birds are concealed in this "summation curve," which tends to be broader at the base than any single year's curve. But in the case of nocturnal migrants, it seems to be impossible to reveal any single year's

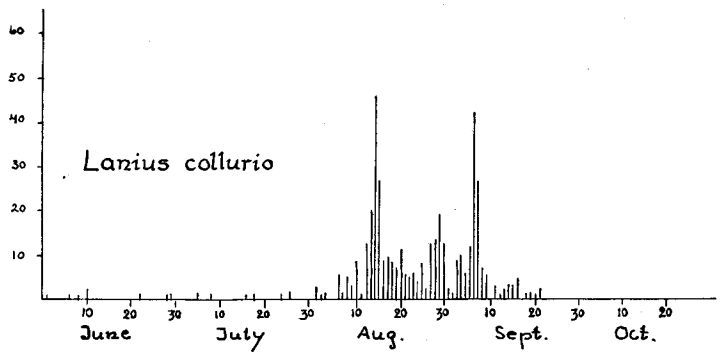

Fig. 6.

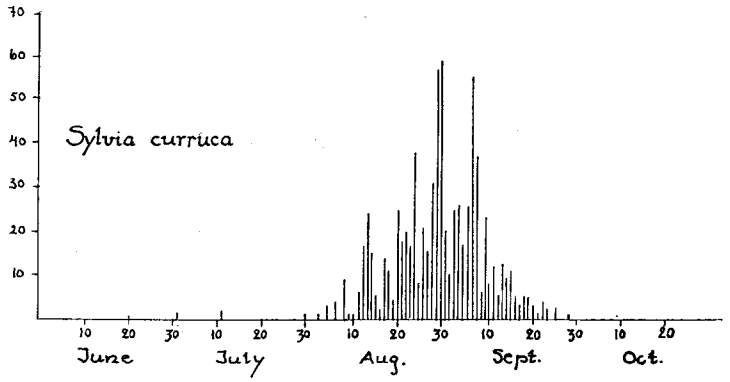

Fig. 7.

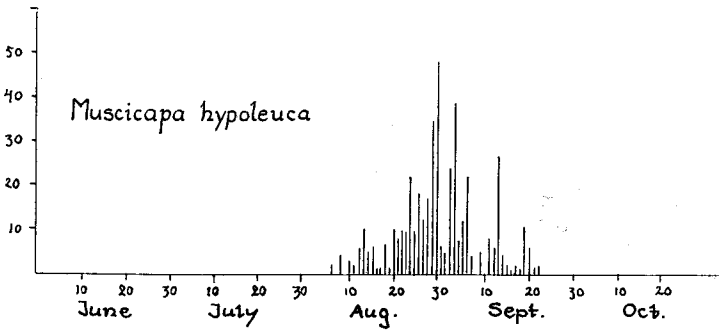

Fig. 8.

passage owing to the fact that weather fluctuations must then be very dominant.

It might also be added that the 'human factor' in this case is very small indeed, since the traps are manipulated every day during the season until it is judged that very few unmarked birds remain in the garden.

In order to test the method, a comparison has been made of the ringing

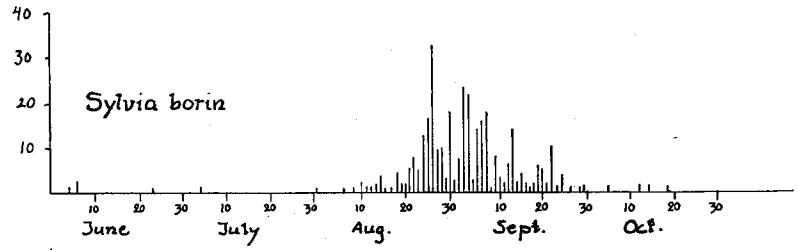

Fig. 9.

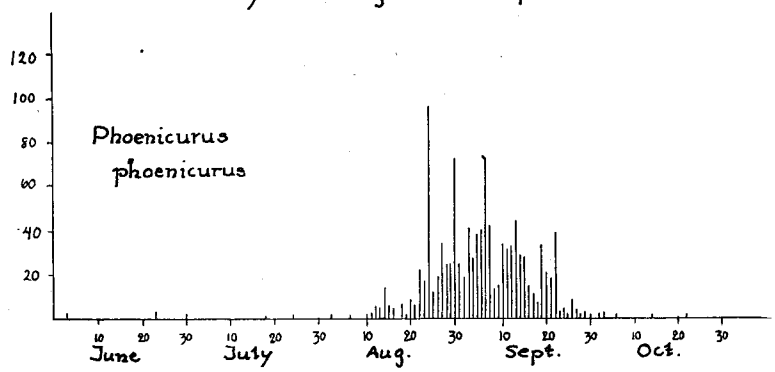

Fig. 10.

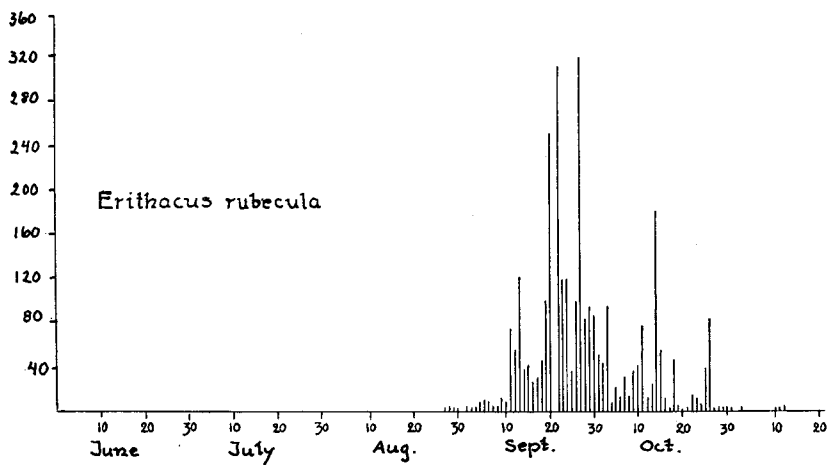

Fig. 11.

data and the observation data on some birds which are diurnal migrants and trapped in large numbers. For these birds, all passing birds observed have been added daily in a corresponding manner and so a correlation between the passage observed and the ringing performed is obtained. *Emberiza citrinella* and *Motacilla alba* have been selected, since the number ringed is highest for these species of diurnal passerine migrants. The re-

sult is shown in fig. 1 and fig. 2. The coincidence seems to be rather good, except for the fact that young, wagtails roam about before actual migration and during this period often go into our traps. Otherwise the "ringing method" is as good as the "observation method," when normal passage frequency is considered.

In fig. 3–11 some more diagrams are given of true nocturnal migrants for which no actual observations can be made. A few ringed birds which were known to be breeding in the locality, fledglings etc. have, of course, been eliminated from the totals, which include only birds presumably on migration at Ottenby.

The diagrams show during which period of the year the respective species pass Ottenby. It is noticeable that the passage is generally extended over a considerable time. It might be best to spare more conclusions as to the details for some years, as these diagrams, of course, must gain in probability for each consecutive year. The purpose of this paper has only been to present the method and provide stimulus for the preparation of similar curves for other stations. Obviously, if there were some more stations presenting corresponding curves from the Continent of Europe, some interesting information about general migration speed would be obtained.

Reference

Bergström, U. and Svärdson, G. 1939. Ringmärkningar och fågeliakttagelser vid Ölands södra udde under höststräcket 1938. Fauna och Flora 34: 97–110, 135–156.