



WINTER COUNTS OF MALLARD IN BRITAIN, 1951-1954

By George Atkinson-Willes

THIS is a brief summary of a review of changes in the number of Mallard in Britain in the three winters, 1951-52, 1952-53 and 1953-54, as indicated by returns made under the Wildfowl Count Scheme. The review appeared at length in *National Wildfowl Counts*, 1952-1954, a report issued to all the participants in the counts. (Copies of the Report are obtainable from the Trust headquarters, price 4s.) The object of the investigation was to attempt to discover the normal pattern of fluctuation in the Mallard populations in winter and to see how far changes in numbers appeared to be related to weather conditions, both in Western Europe as a whole and within different parts of Britain.

The number of waters for which satisfactory counts were available in all three seasons was 326, of which 228 were inland and 98 coastal. The total counts on these waters on each count date are plotted in Figure 1. Attention should be concentrated on the points marked, rather than on the lines joining each season's series, because these lines give no reliable indication of possible fluctuations between count dates.

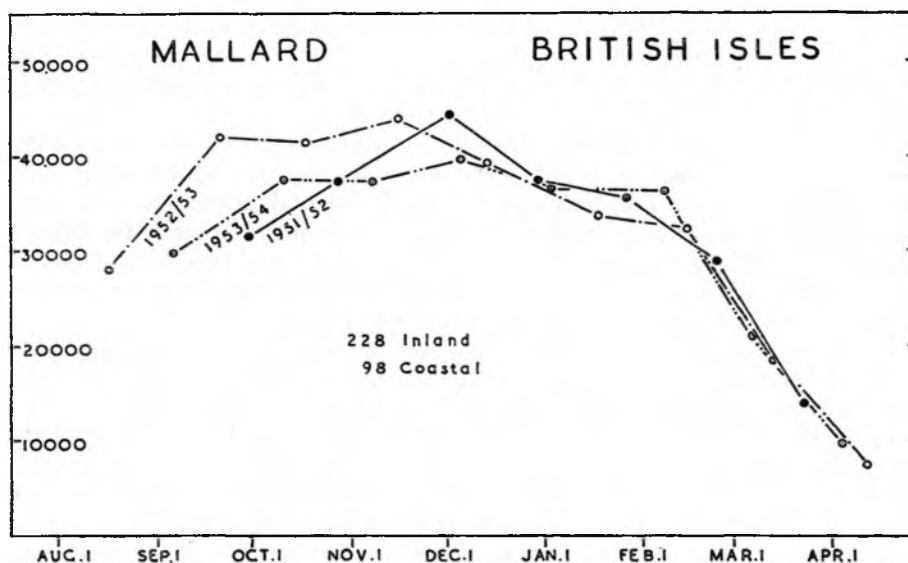


FIGURE 1

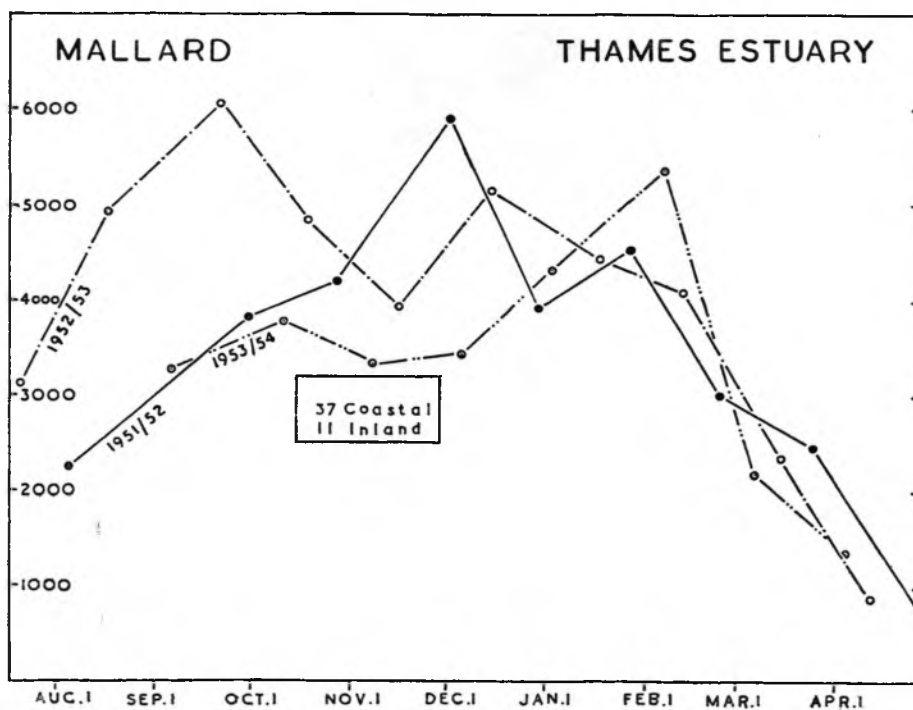


FIGURE 2

There is a general resemblance between the numbers found at comparable dates in each season, with maxima of 44,500 on 2 December 1951, 44,100 on 16 November 1952 and 39,800 on 6 December 1953. The increase in numbers from August to mid-November must be due to immigration, because nearly all home-bred young birds are full-grown and independent by mid-August. The decline from the early winter peak must be due to the combination of emigration and mortality and perhaps (from late January onwards) the dispersal of British-breeding birds to their breeding territories.

When the numbers of Mallard counted in various parts of Britain are compared with the national totals, differences are more apparent than resemblances. The available counts are discussed in eleven regional groupings. In some faunal areas the counts are too few or insufficiently representative of the various habitats to provide satisfactory records. Omitting these (and the omissions comprise the whole of Ireland, Wales, North-West Scotland and the Solway area), it is still possible to distinguish important regional differences.

In East Scotland the main peak of the winter occurs regularly in late November (3500–4500), with a subsidiary peak in February (c. 3200 in each year). The August totals are below 1500. Thus both peaks are probably due to foreign immigrants. In the Clyde area, however, there were most Mallard (c. 1600) in late September or early October in 1952 and 1953, in which years the numbers dwindled gradually to below 500 in April, except for a rise to 1400 in February 1954. The winter of 1951–52 produced very low numbers (5–700) from August to November but a rise through December to 1500 at the end of the month, followed by a decline to usual numbers in the spring.

Whereas in other areas the autumn totals in 1951 were substantially lower than in 1952 and 1953, in the North-East of England the 1951 numbers resembled those of 1953, increasing from 1000 in early August to nearly 3000 at the beginning of October. The highest totals in this area occurred in different months in each year (4300 in October 1951, 4900 in November 1952 and 3800 in December 1953), but all were followed by comparatively sharp declines through the winter to very small totals in April (*c.* 250), though there is some evidence of a passage in February, on a smaller scale than that noted in East Scotland.

In the Ribble-Dee area the seasonal changes were consistent and resembled those indicated by the national totals, with maxima in November or early December (4600-5400) and a rather rapid and steady decline thereafter. The April totals are low (3-600). Apparently a large majority of the autumn population consists of immigrants.

The seasonal changes in the Humber region also conform to the national picture, with large-scale immigration from August to early December and steady egress from December to April. The April totals, of about 1000, may be compared with mid-winter maxima of 5800-6600. Since the counts in this region are not adequately representative of the estuarine population, though good inland, the proportion of immigrants in the whole population may well be considerably higher.

The counts in the Wash area also are representative of the inland waters but inadequate on the coast. Here, August totals of 1500-2000 increased to maxima of 5500-6500 at the beginning of December, dropped by about one-fifth by mid-January, then rose again in March to about the early December level before falling off very rapidly in March and April. This double peak may indicate a to-and-fro movement, although no corresponding rise in January totals is found in adjacent areas. Alternatively it is possible that in January a considerable portion of the birds in this region resort to the Wash and thus escape being counted.

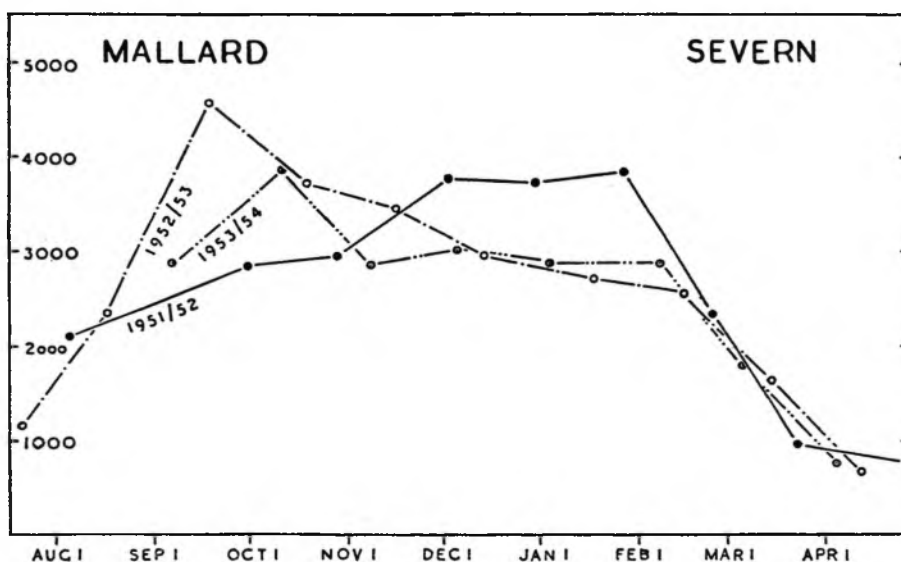


FIGURE 3

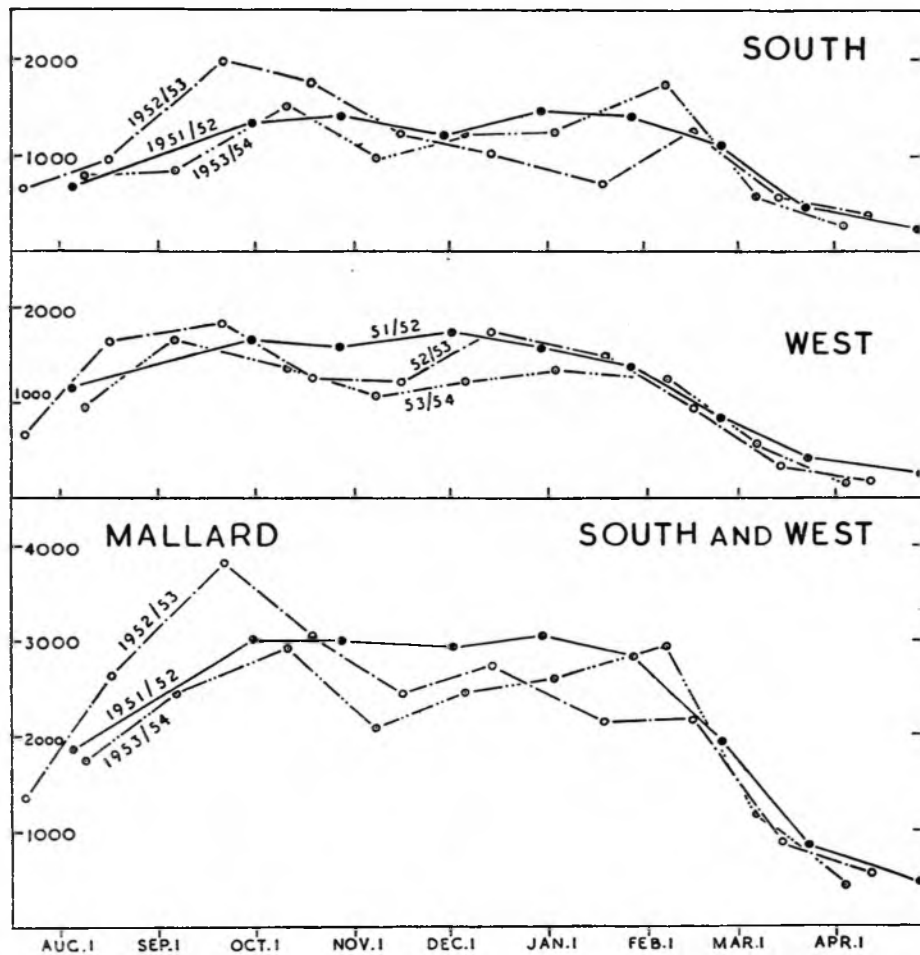


FIGURE 4

In the Thames Estuary region coastal counts are much more plentiful than inland ones. Counting ducks on the coast is difficult and this may help to explain why the totals obtained in the region in the three seasons show little consistency (Figure 2). Data from several more years are needed before any regularities can be established here, or the causes of variation understood.

The Thames Valley area comprises the whole of the basin of the river above Greenwich. The waters counted include all the large London reservoirs and many of the gravel pits and ornamental waters of the middle Thames area. On these inland waters the winter level (3500–5000) was reached by mid-September and sustained more or less constantly until February. The April (1500–2000) and late July-early August (*c.* 2300) numbers constituted a larger fraction of the winter total than in more northerly regions.

The Severn sample consists largely of inland waters, with a few localities on the Somerset coast. From Figure 3 it appears that in 1951–52 there were a lot of locally-bred birds or very early immigrants with smaller additions until December, but that in the other years there were big increases in September.

In the South and West of England the number of waters counted was rather small and their distribution far from ideal. If the counts from both areas are combined the pattern they present resembles that of Severn, with no substantial increase after September. If the South Coast counts, east of Lyme Bay, are separated from those further west it appears that the latter are relatively stable (Figure 4) and not subject to late winter influxes.

The relation between weather conditions and numbers was examined from two points of view. First, to see if spring and summer weather affected the autumn totals and, second, to see if hard weather during the winter, both on the Continent and in Britain led to perceptible changes in numbers.

In Britain the spring of 1951 was unusually wet: the summer was mainly fine. The spring and summer of 1952 were sunnier and drier than normal throughout. In 1953 March was mild and dry, April and May changeable, June and July dull and cool. The July-August numbers of Mallard are most likely to reflect the effects of weather on breeding success. In most parts of Britain these numbers were low in 1951, high in 1952 and intermediate in 1953. It may be that in Britain relatively dry conditions lead to greater breeding success: but direct observations in the summer would be a more satisfactory way of studying the problem and are badly needed to supplement the count data.

The histograms of air temperatures (Figures 5, 6 and 7) at selected stations in N.W. Europe provide a guide to the severity of frost in the three winters. The horizontal lines represent 32°F., each unit below this line representing a fall of 5°F. Comparison of the numbers of Mallard recorded in the monthly counts (Figure 1) with these histograms indicates no obvious correlations and

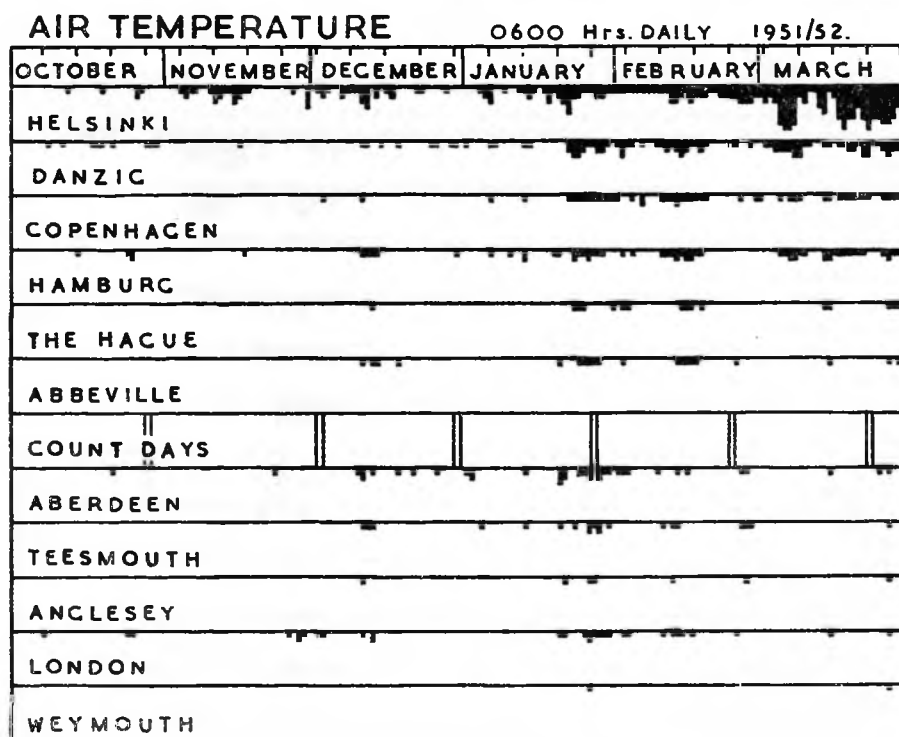


FIGURE 5

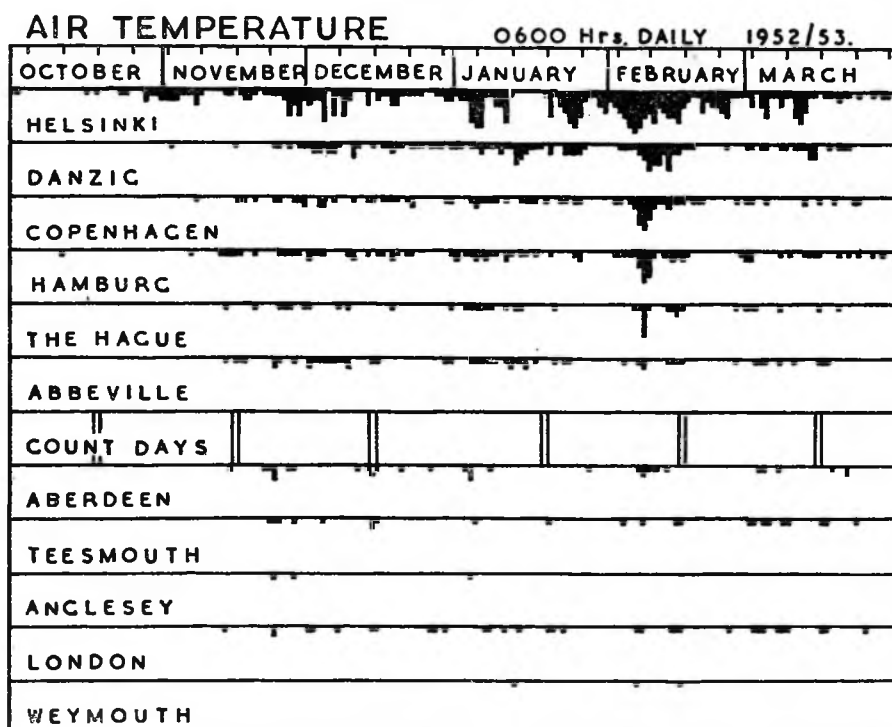


FIGURE 6

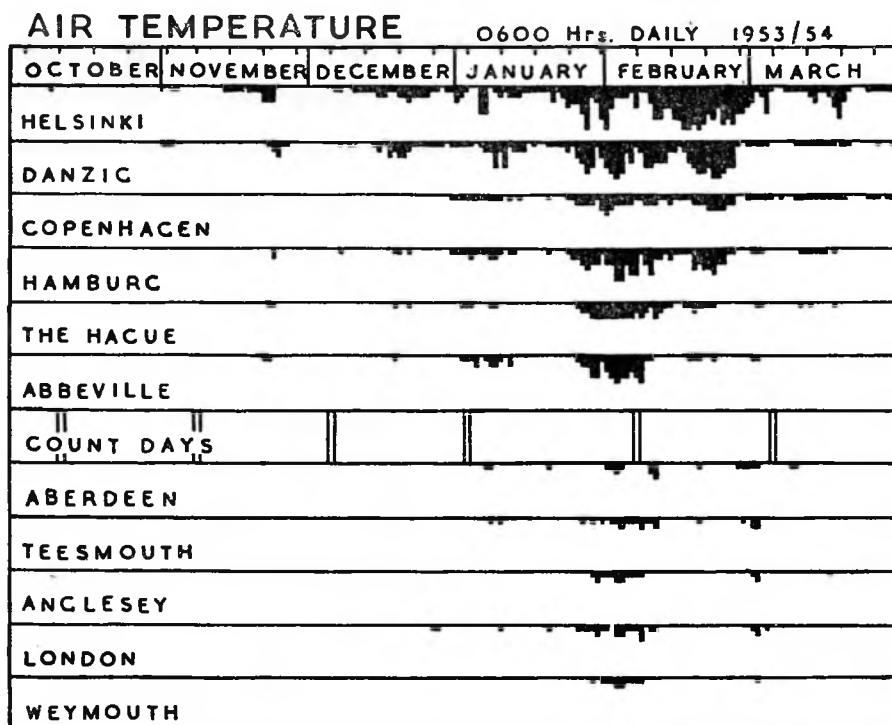


FIGURE 7

it appears that the presence, or lack, of frost in N.W. Europe between October and the end of December has no great influence on the numbers of Mallard in Britain. The effects of hard weather in producing long-distance movements within Britain, if these exist, are masked by an observed tendency for ducks to concentrate on larger waters as smaller ones freeze, this tendency increasing their liability to be included in counted samples. The regularity of the decrease through February and March is such that there is evidently little response to cold spells at this time.

In 1953 there was a slight increase in the proportion of Mallard using coastal waters from August to December in the Thames Estuary region, and a big increase in January and February 1954 (when a majority of the sample was on the coast), but on 7 March the proportion had returned to the autumn level. The coastal waters in the Wash area showed a similar increase on the coast in January and February 1954, together with some desertion of small inland waters in favour of large reservoirs and lakes.

This somewhat sketchy attempt at an analysis of the numbers of a single species will be able to be extended greatly as more count data become available. It may show, however, what a wealth of information the counts will be able to provide, especially when they are related to the results of duck ringing.

