

Year Book for 1964

Trends in the population of British wintering ducks 1961-64

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Summary

The data available through the National Wildfowl Counts are used to keep a running check on the numbers of wildfowl occurring in Britain during the winter months from September to March. Each month a brief report is sent to all observers engaged in the investigation, and it is these which provide the basis of the present summary. The species reviewed are Mallard, Teal, Wigeon, Pochard and Tufted Duck and the results are derived from a sample selected from the more important concentration areas. Although referring to the trends apparent in the ten years prior to 1959-60, the discussion centres mainly around the train of events since 1960, and on the effect of the hard weather of early 1963. It is also shown that the autumn counts of dabbling ducks give a good indication of the relative abundance of the species over the winter as a whole, enabling a forecast to be made some four months in advance of the seasonal result.

None of the species considered has shown any serious decline as a result of the hard weather of 1963. Mallard continue to increase slowly but steadily. Teal have maintained a more or less constant level since 1949, except for a period of great abundance between 1959 and 1962, which is attributed to events in Holland. The Wigeon population has also remained unchanged, although the numbers are liable to wide fluctuation from year to year. Both Pochard and Tufted Duck have shown substantial increases since 1949, and have also extended the length of their stay in this country. Since 1957 the Tufted Duck population appears to have become more or less stable; the Pochard made its last advance in 1960.

The results of the Wildfowl Count investigation for the period 1948-61, and full descriptions of the current methods of analysis, have already been published by Eltringham and Atkinson-Willes (1961) and by Atkinson-Willes (1963). The present paper is concerned therefore with recent results, and more especially with events since 1961. This period is one of especial interest because it includes the exceptionally cold weather of January and February 1963, which is known to have caused heavy mortality amongst several species of 'wetland' birds, though not apparently amongst the ducks. Of the five species considered here (Mallard, Teal, Wigeon, Pochard and Tufted Duck), none has shown signs of disastrous decrease; indeed the present populations are mostly above the average level for the past fifteen years.

As in previous reports the numbers of ducks counted in each season are presented as percentages of the numbers counted in 1959-60 (i.e. an index of 85 against a certain year indicates that only 85 ducks of that species were present for every 100 in 1959-60). Two sets of indices are given for each species:

The *monthly* indices are obtained by comparing in turn the counts for each month of each season with the data for the corresponding months of the 'master'

season, 1959-60. In compiling the samples for these monthly comparisons use has been made of the records from all places which were covered in both the 'master' and the paired month; the individual samples vary therefore in both size and composition, according to the data available. The resulting indices are nonetheless comparable, each being related to the others through the medium of the master season. They provide the means of detecting annual variations in the population at certain stages of the season, notably during autumn and early winter.

The *seasonal* index is compounded from monthly results, and describes in a single figure the relative abundance of a species over the winter as a whole. In compiling the indices only the records from the more important areas in Great Britain have been considered. These total about 170 in all, of which 150 are used by large numbers of Mallard, 70 by Teal and Wigeon, 40 by Tufted Ducks and 35 by Pochard. In practice not more than three-quarters of such places are covered on any one occasion, but despite this the number of birds counted represents a substantial fraction of the estimated British population (about 10% in the case of the dabbling ducks, and as much as a quarter of the diving ducks).

Mallard Anas platyrhynchos

Table I. Monthly indices showing the relative abundance of Mallard in the same months of different years. The figures show the number of birds present in various seasons for every hundred recorded in 1959-60. The figures in brackets are the highest indices obtained in the periods for which an average index only is given. The indices in this table and in Tables II-V should be compared only within the columns, NOT along the rows.

		Sep	Oct	Nov	Dec	Jan	Feb	Mar
Average Index	1949-54	66(101)	58(64)	78(83)	91(97)	78(100)	85(98)	85(102)
Average Index	1954-59	69(75)	59(74)	88(91)	90(101)	76(82)	94(102)	94(117)
Master Year	1959-60	100	100	100	100	100	100	100
Index	1960-61	85	75	103	82	79	87	77
	1961-62	114	84	96	131	105	96	102
	1962-63	84	68	106	107	74	76	95
	1963-64	92	81	112	101	104	89	91
	1964-65	90	78	122	85	95	83	114

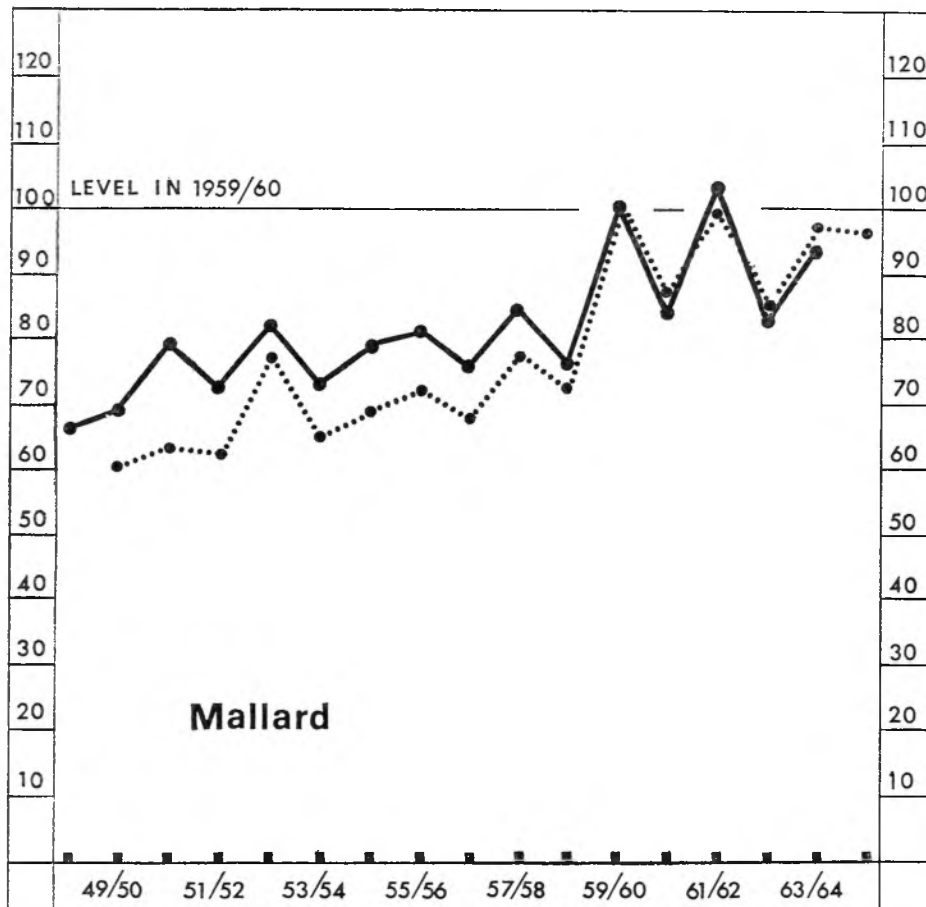


Figure 1. Seasonal indices for Mallard, 1948-1964 (solid line), and the monthly indices for September, October and November combined (broken lines). The similarity between the two readings makes possible a forecast of the seasonal index some four months in advance.

The salient points emerging from Table I are as follows: (a) Since 1959 the level of population during the first half of the season has been substantially higher than in either of the two preceding five year periods. In February and March, however, the indices have remained virtually unchanged since 1949. This suggests that the increase in the early part of the season has been due mainly to a larger influx of immigrants, and that the native stock, which forms a predominant proportion of the late winter population, has remained at a more or less constant level.

(b) The results for the autumn of 1963 (immediately following the cold winter) compare favourably with those for 1962; moreover the results for February and March 1964 (which provide a partial measure of the resident stock) show no significant signs of decrease. If anything there were rather more Mallard in Britain in the season *after* the cold winter of 1962-63 than in the season immediately before.

(c) In most seasons the largest numbers of Mallard are counted in November (in 1964, 56,000 on the selected sample areas); it is also evident from Table I that the

population at this time is less liable to annual fluctuations than in any other month. In earlier Novembers the lack of any marked variation from year to year is indicated by the closeness of the average indices to the corresponding maxima; more recently the upward trend has been remarkably smooth except for one rather low result in 1961. Also of interest is the striking similarity between the fluctuations in the seasonal indices and those in the early part of the season; this making possible a reasonable forecast of the final result while the season is still young (see Figure 1). The practical application of such forecasting has yet to be exploited, but with growing confidence it may be possible to issue "early warnings" as much as 2½ months before the end of the shooting season, should the need arise. For the time being, however, the situation is satisfactory: the 2½% annual increase detected by Eltringham and Atkinson-Willes (1961) appears to be continuing, despite the rather wider fluctuations of recent years; moreover there is no evidence of a contrary trend in any of the months under review, implying that all sections of the population are at least holding their own.

Teal *Anas crecca*

Table II. Monthly indices to show the relative abundance of Teal in the same months of different years; the figures in brackets are the highest indices obtained in the periods for which an average index only is given.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Average Index 1949-54	24(32)	36(49)	33(47)	29(40)	83(121)	117(184)	156(245)
Average Index 1954-59	28(40)	42(59)	53(69)	46(65)	102(160)	101(118)	123(168)
Master Year 1959-60	100	100	100	100	100	100	100
Index 1960-61	88	63	46	30	65	75	91
1961-62	75	85	85	108	110	96	90
1962-63	75	99	92	45	62	53	62
1963-64	93	46	50	37	56	63	67
1964-65	—	56	53	41	77	69	83

As in the other tables, the figures in Table II should be compared only within the vertical columns, the fluctuations within the horizontal rows being very largely a reflection of events which took place in the master season, 1959-60. Due to exceptional circumstances during that autumn the influx of migratory Teal into Britain was very much larger than usual; later on, however, the population returned to a more normal level, and by March was noticeably smaller than in previous years. The indices for 1959-60 being fixed throughout at 100, the corresponding values for the other autumns are reduced

to a relatively low level, whilst those for the latter part of the winter are somewhat inflated. This is especially noticeable in the periods prior to 1959, and in no way implies a build-up of birds during the course of the winter.

Comparisons within the columns of Table II reveal some striking changes in the behaviour of the immigrant Teal which comprise the great majority of the British winter population. During the past 15 years there has been a marked increase in the autumn population, the largest influxes being in 1959, 1961 and 1962. Since then the numbers have decreased, the present

levels being much the same as those attained prior to 1959. Reports from the Netherlands (Eygenraam 1964) suggest that these fluctuations can be attributed to various stages in the reclamation of the Oostflevoland polder at the south-east corner of the IJsselmeer. Drainage here began in 1954 with the closing of the dyke, and by 1958 the water level had been reduced to a depth of a few inches over an area of 125,000 acres. In October of that year more than 300,000 ducks, mostly Mallard and Teal, were counted in the vicinity of the dyke alone, and the total number is believed to have been upwards of a million. By the following autumn much of this shallow water had been removed, and the polder was able to accommodate less than a quarter of the previous population. As a result many of the birds arriving there were forced to move on, and substantial numbers came across to England, raising the size of the autumn counts to four or

five times the usual level. Compared with those for 1958, the 1959 counts (taken from a sample of 55 waters) showed an increase of 8,000 Teal in September, 10,000 in October, 16,000 in November and 19,000 in December. Of special interest at this time was the recapture in South-east England of several Teal which had been ringed in previous winters in the Rhone delta in southern France; such recoveries were previously unknown, despite intensive trapping in both areas for several years.

In 1960, the autumn counts were comparatively small, due possibly to the wetness of the season and the great amount of floodwater, but in 1961, and again in 1962, much larger numbers than usual were present in October and November – the beginning, it seemed, of a new tradition. If this in fact existed, it appears to have been disrupted by the cold weather of early 1963, which is known to have driven

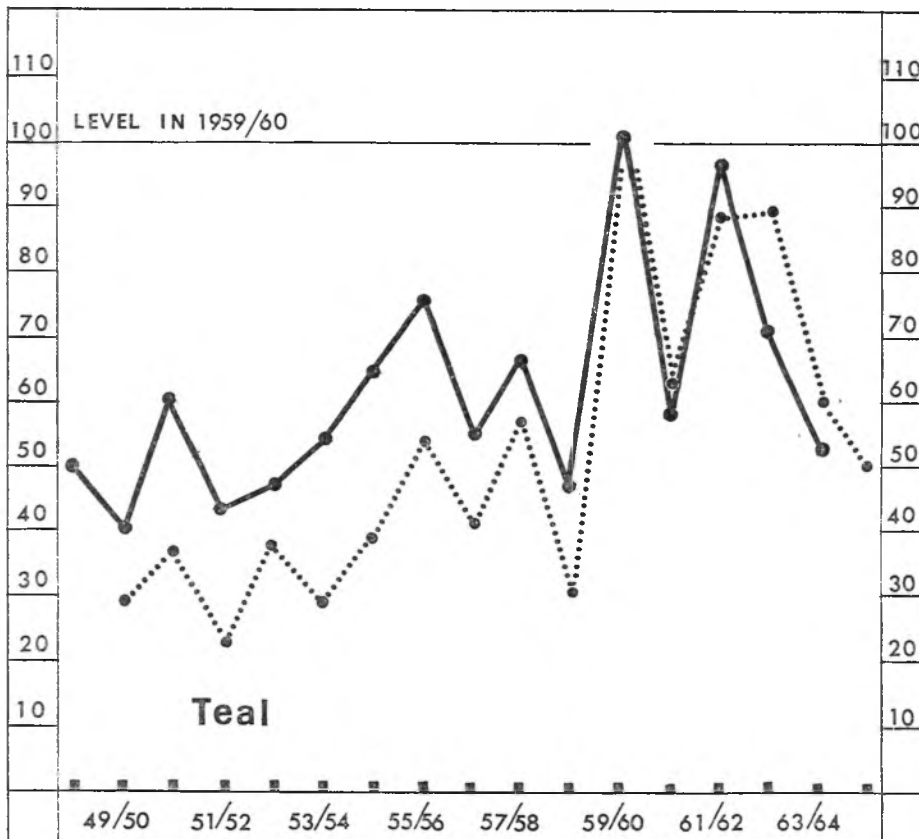


Figure 2. Seasonal indices for Teal, 1948–1964 (solid line), and the monthly indices for September, October and November combined (broken line). The similarity between the two readings makes possible a forecast of the seasonal index some four months in advance.

large numbers of Teal southwards, back into France and Spain. In the following autumn (1963) the September counts were again large for the time of year, but the more important influxes in October and November failed to materialise. In 1964 the September counts failed to produce a realistic index, but the subsequent counts were similar to those in the previous season.

Reviewing the seasons as a whole (Figure 2) it will be seen that the present level of the indices is well within the range of the years prior to 1959, and as such gives no cause for alarm; at the same time the optimistic outlook engendered by the years of plenty can no longer be sustained. In all probability the big influxes between 1959 and 1962 were due to a redistribution of the autumn population and not to a general increase throughout Europe. This is to some extent confirmed by the late winter counts which show no sign of a comparable increase; indeed the trend at this time has

been steadily downwards. In 5-10 years time the draining of another polder in the south-west corner of the IJsselmeer may well result in further large influxes into Britain, but in the meantime any large scale increase seems unlikely.

As with Mallard it is possible to predict with some confidence the level of the final seasonal index from the results of the autumn counts. For the past ten years the pattern described by the two sets of values has been remarkably similar, the only serious divergence being in 1962-63 when the size of the seasonal index was affected by a marked exodus of birds during the cold winter. In the earlier years, the disparity between the two graph lines is due to sudden changes which took place in the master season; with further changes taking place, a similar disparity is likely to emerge, but this will in no way preclude the possibility of forecasting so long as it remains constant.

Wigeon *Anas penelope*

Table III. Monthly indices to show the relative abundance of Wigeon in the same months of different years; the figures in brackets are the highest indices obtained in the periods for which an average index only is given.

		Oct	Nov	Dec	Jan	Feb	Mar
Average Index	1949-54	103(140)	99(119)	74(92)	90(115)	126(155)	92(123)
Average Index	1954-59	91(115)	114(144)	77(91)	104(130)	129(184)	97(151)
Master Year	1959-60	100	100	100	100	100	100
Index	1960-61	87	111	62	104	126	93
	1961-62	129	124	120	131	110	87
	1962-63	100	101	76	118	103	50
	1963-64	116	65	63	115	72	81
	1964-65	121	102	78	79	110	83

Compared with those for other species, the Wigeon indices show much wider variation from year to year, and yet over the past 15 years it is evident that the level of population has been well maintained, with no significant trend towards increase or decrease. This is particularly apparent in the seasonal indices plotted in Figure 3, but the same may also be deduced from the monthly indices. From the latter it is clear that the population in any given month is liable to quite substantial fluctuation, but at the same time the range of variation has remained more or less constant, and there are few months in which any perceptible change has taken place. Since 1960 the results for January have perhaps been more consistently high than previously, and those for March more consistently low, but any suggestion of a trend would be premature. The results for December show rather less variation than those in other months, and it is often at this time that the largest counts are made.

Although the numbers of Wigeon counted in September, October and Nov-

ember comprise only a quarter of the total numbers recorded in the season (compared with about a third in the case of Mallard and Teal), the autumn results are still sufficiently representative to permit a forecast of the seasonal index. Except in the early years between 1949 and 1953, when there was no correlation between the autumn and seasonal indices, the two sets of values are shown to follow the same pattern with very fair regularity. That this should be so suggests that weather conditions in mid- and late winter have much less influence on the size of the British population than was at one time supposed. In this respect the results for 1962-63 are of special interest; the similarity between the autumn and seasonal indices (in relation to the neighbouring years) implying that the pattern for that season was already determined as early as mid-November. The cold weather that followed in January and February did not apparently bring big influxes from the Continent (see Table III) nor did it cause a massive exodus.

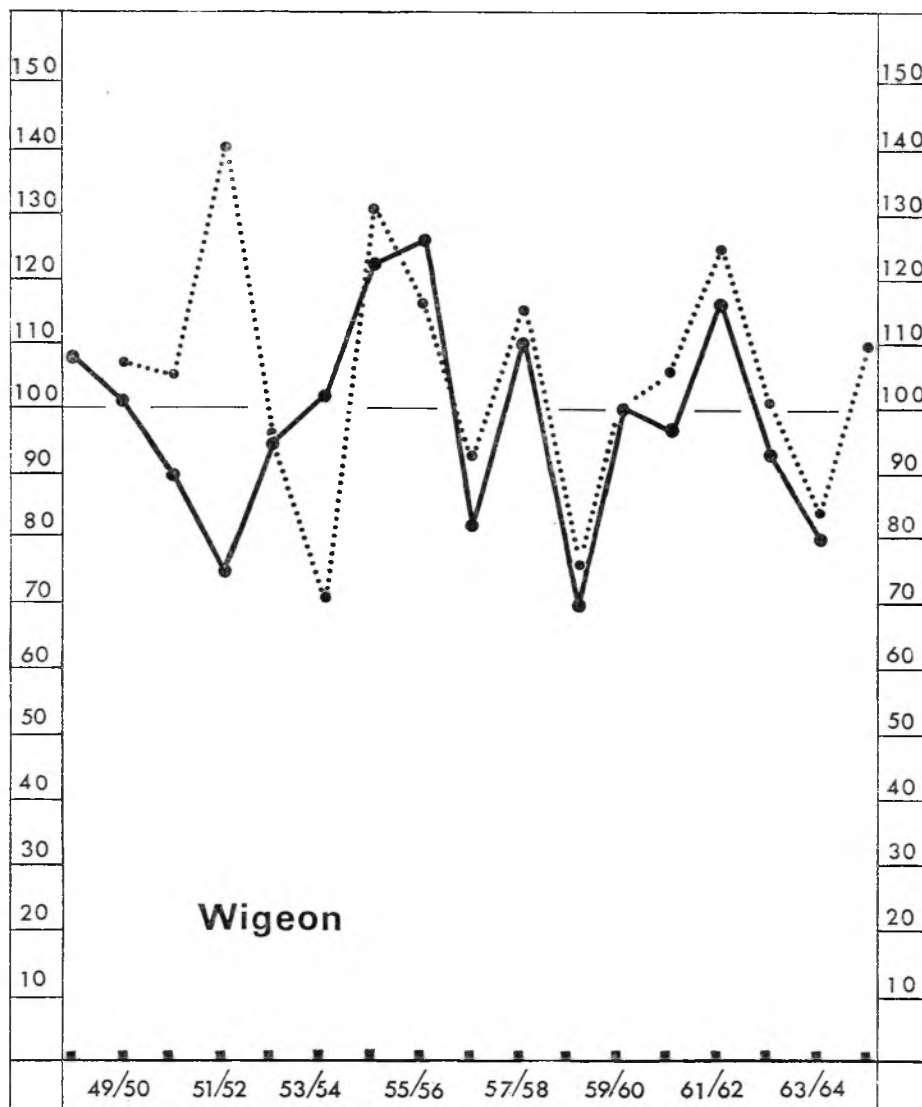


Figure 3. Seasonal indices for Wigeon, 1948-1964 (solid line), and the monthly indices for September, October and November combined (broken line). The similarity between the two readings makes possible a forecast of the seasonal index some four months in advance.

Pochard *Aythya ferina*

The increase in the numbers of Pochard is one of the most striking results so far obtained, the recent level of population being almost double that in the early 1950's. From the seasonal indices in Figure 4 it will be seen that these gains have been achieved not by a gradual progression but in two distinct upward steps. The first of these occurred in the winter of

1952-53 (although the new level was not established until two years later); there was then a period of remarkable stability until the second up-surge in 1960-61. As a measure of the two increases, the average level of the indices was 67 in the period 1949 to 1952; from 1954 to 1959-60 it stood at 95, and from 1960 until 1963 at 130. At each stage the individual indices

Table IV. Monthly indices to show the relative abundance of Pochard in the same months of different years.

	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>
Average Index 1949-52	65	79	63	73	79	44
Index 1952-53	210	136	129	65	90	37
Index 1953-54	88	63	56	68	72	62
Average Index 1954-59	111	124	93	84	81	69
Master Year 1959-60	100	100	100	100	100	100
Index 1960-61	186	171	115	84	90	76
1961-62	147	221	111	90	110	70
1962-63	227	181	124	116	125	105
1963-64	95	111	112	153	116	150
1964-65	112	176	100	117	120	197

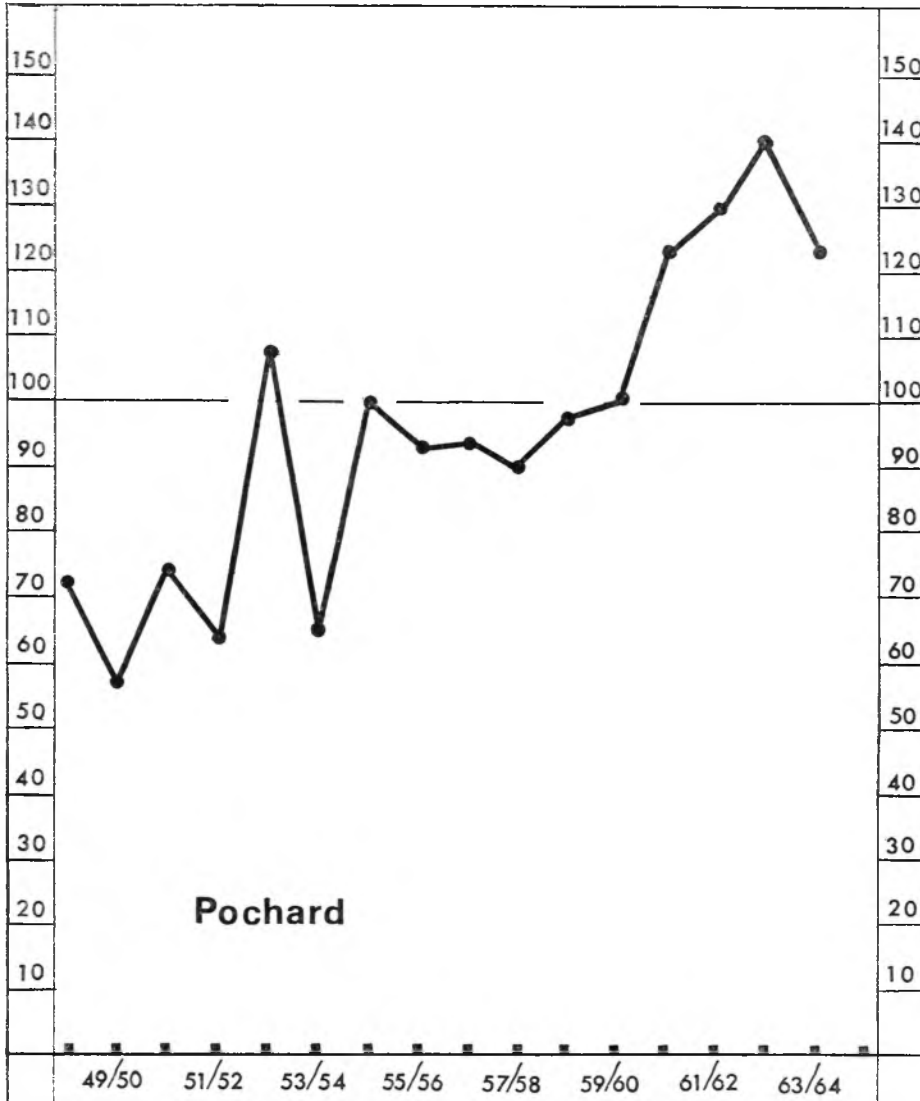


Figure 4. Seasonal indices for Pochard, 1948-1964

varied from the mean levels by less than 15%, and in the middle period by as little as 5%.

As with the Tufted Duck, these increases are attributable in part to a lengthening of the period during which large numbers of birds are present. The effect of this factor upon the size of the seasonal index is clearly shown by the monthly indices in the winters of 1952-53 and 1953-54, which in this case have been excluded from the averages for the early years (see Table IV). In 1952-53 a very large influx of birds occurred in October, and for the next two months the numbers were well above the average for the previous three years. From January onwards the population was about normal for the time of year (implying that no fresh immigrants had arrived to augment the early influx); but because the birds had been in the country that much longer the seasonal index was raised by more than 60%. In the following year the autumn influx failed to materialise and the seasonal index fell back to its former level. From then on, however, the early arrival date became a regular feature, and this, together with a general increase over the winter as a whole, resulted in the plateau

between 1954 and 1959. More recently the process has been repeated, the second up-surge in 1960 being due partly to an even larger autumn influx and partly to the upward trend of the mid- and late winter results.

Of special interest are the figures for the season 1963-64, the one immediately after the cold winter. That autumn the numbers were substantially lower than they had been in the previous three seasons, and for a time it seemed as though the species had suffered heavy losses. By December, however, the usual numbers had arrived, and for the rest of the winter the level was considerably higher than normal, especially during January and March. In 1964 the arrival date was again delayed, but in this case only until November.

The reasons for these changes in habit are not yet known, but the answer must presumably lie in northern or eastern Europe. From the ringing data it appears that the British winter population is composed almost entirely of birds from Germany, Poland and Russia; the native stock is small and there is no immigration from Iceland, where the Pochard is a recent and still rare invader.

Tufted Duck *Aythya fuligula*

Table V. Monthly indices to show the relative abundance of Tufted Ducks in the same months of different years; the figures in brackets are the highest indices obtained in the periods for which an average index only is given.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Average Index 1949-54	67(120)	27(47)	57(74)	84(107)	68(88)	79(115)	77(87)
Average Index 1954-59	86(116)	55(72)	94(124)	116(144)	77(92)	101(126)	106(114)
Master Year	1959-60	100	100	100	100	100	100
Index	1960-61	81	103	137	68	79	118
	1961-62	119	112	113	76	77	120
	1962-63	60	73	95	92	96	171
	1963-64	73	70	97	88	123	94
	1964-65	—	60	95	88	73	82

In a previous review of the Tufted Duck (Eltringham and Atkinson-Willes, 1961) the annual rate of increase over the period 1948-1959/60 was calculated at $8\frac{1}{2}\%$, a result confirmed by independent studies in both England and Scandinavia (Haartman 1957; Homes 1958). With the data for a further four seasons to hand, it appears that this increase has now ceased (see Figure 5), and that the seasonal indices have remained constant at a level which was first attained in the winter of 1957-58. It should be stressed, however, that the level of these indices depends not only on the size of population, but to some extent on the length of time during which large numbers of birds are present. From the

monthly results set out in Table V, it appears that both factors are contributory in this instance, though the relative importance of each is not yet clear.

Substantial increases undoubtedly took place during the 1950's, the average level of the indices for each and every month being noticeably higher in the second five year period (1954-55 to 1958-59) than in the first. It is clear, however, that the rate of increase was greater in the autumn than it was in the latter part of the winter. Since 1959 the indices for February and March have shown further gains, and the same is also true of October and November, despite a decrease in the last three seasons. In December, on the other hand, the indices

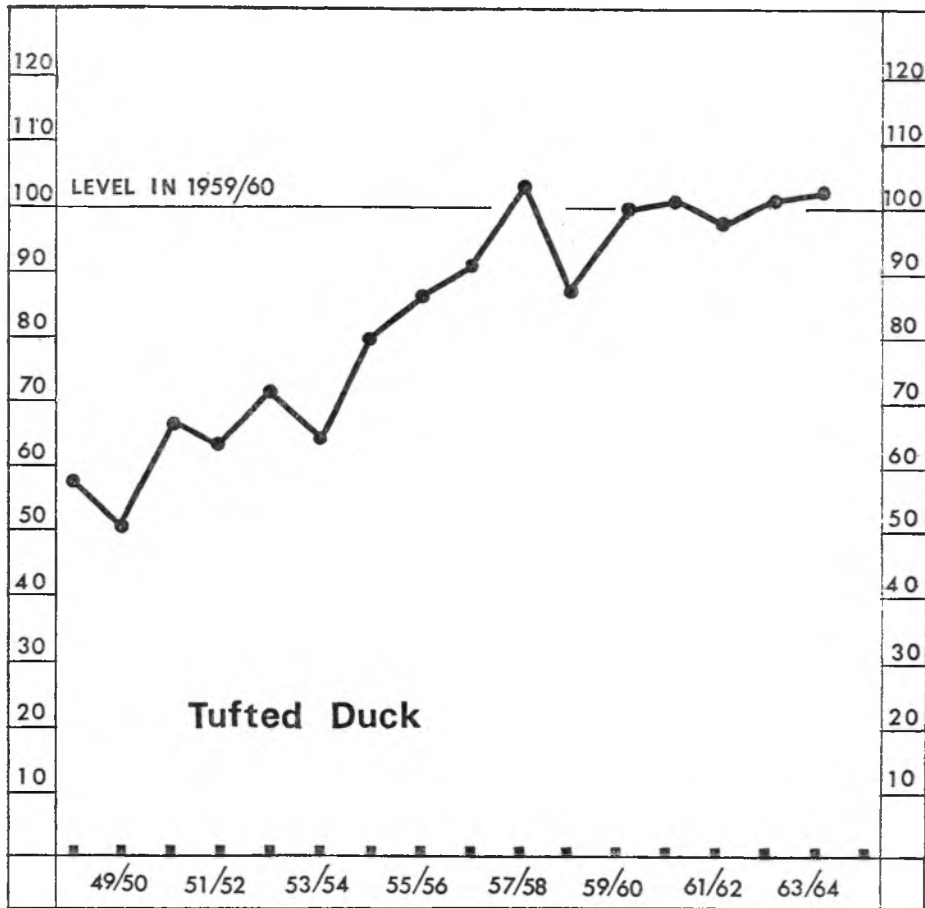


Figure 5. Seasonal indices for Tufted Duck, 1948-1964.

have dropped and for the past five seasons the average level has been virtually the same as it was 10-15 years ago.

These changes in the relative abundance of Tufted Ducks at various stages of the winter are a subject for further investigation. In undertaking it, an attempt must be made to differentiate between the native stocks and the two immigrant populations from Iceland and Russia, and to ascertain whether or not the trends in the populations are the same. Until this can be

achieved, any further interpretations would be out of place.

Acknowledgements

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