INTERNATIONAL WILDFOWL RESEARCH INSTITUTE
c/o BRITISH MUSEUM (NATURAL HISTORY)
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WILDFOWL COUNTS
1947–1952

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FOREWORD

This is the first year that any attempt has been made to produce a comprehensive report on Wildfowl Counts, and on the results which are beginning to appear from them. The report is divided into three parts, the first of which, by Mr. G. Atkinson Willes, deals with the British Isles, and describes the organization of the counts and the progress made in extending the cover of them. Details are given of the methods used to collate the information received, and some results are included. It is not, of course, possible to give any detailed information concerning the numbers of wildfowl frequenting individual waters, as all reports received by the Wildfowl Inquiry Committee are treated as highly confidential, but it has proved possible to publish a certain amount of general information without abusing any confidences. Readers of this report are, however, asked to treat the information on wildfowl primarily from the point of view of its general interest, as until further data have been collected no conclusions of real value can be drawn.

The second part of the report deals with the progress of Wildfowl Counts in other countries, and gives a précis of any results which have been obtained from them.

The third part contains a report on geese in the British Zone of Germany which has been compiled by Dr. J. G. Harrison from reports received from members of the British Occupation Forces.

The Institute is greatly indebted to the Nature Conservancy for grants defraying the greater part of the expenses of the work of the Wildfowl Counts, and also to the American Committee International Wild Life Protection for further assistance.

EDWARD HINDLE,
Honorary Director,
International Wildfowl Research Institute.

PART I.

WILDFOWL COUNTS IN THE BRITISH ISLES.

By G. Atkinson Willes,

Hon. Research Associate, International Wildfowl Research Institute.
Central Organizer, Wildfowl Counts.

In 1947 the British Section of the International Wildfowl Inquiry Committee undertook the task of determining the status of wildfowl in the United Kingdom, and of ascertaining whether the numbers of each species of wildfowl are increasing, decreasing, or static. To collect the necessary evidence there was evolved the plan of making regular monthly counts of wildfowl over a prolonged period, and on as wide a basis as possible, so that direct comparison of the numbers of each species might be made year by year. A project such as this, which demands so much continued effort, was bound to take some years to develop, and could only hope to succeed through the help and goodwill of voluntary counters and the co-operation of the owners of inland waters. To achieve this, Regional Organizers were appointed in as many areas as possible, each to be responsible in his own area for deciding which waters warranted counting, and for enlisting suitable people to make the observations. In the more isolated areas it proved very difficult to count all the waters which should have been covered, and even now there are many places for which observers are not available. In some areas, however, a fairly comprehensive cover of all the major waters was achieved, and the results from them, for the first three seasons after the pilot scheme of 1947/48, were so promising, and the interest and co-operation of counters so great, that it was decided to extend the Wildfowl Counts to the greatest possible degree.

The main effort during the summer of 1951 therefore was directed towards the extension of the counts to areas not yet covered, and this met with a remarkable response. Regional Organizers were appointed in a further 14 counties, and I visited most of the 18 existing Regional Organizers, for discussions on problems arising out of peculiar local conditions. It proved possible to abandon the counts on some of the smallest waters when once the returns from them showed that they were unlikely to carry a sufficiently large population of wildfowl to warrant the continued effort of counting, and in many cases it was also possible to switch the observers to more important places. The work done on abandoned waters is not wasted effort, as definite negative information has been obtained, and it is proposed to ask for specimen counts from them at intervals to ascertain whether the situation remains unchanged.

The progress of the counts up to April 1952 may be seen from the following table, which shows the number of waters which were regularly counted each month throughout the season, and also the number of waters for which isolated or irregular returns were received:—

	1948/49	1949/50	1950/51	1951/52
" Regular " Counts				
England	131	206	191	358
Scotland	37	50	53	84
Wales	7	7	3	7
Ireland	—	—	—	18
	175	263	247	467
" Occasional " Counts				
England	283	173	161	126
Scotland	79	34	40	41
Wales	5	6	7	5
Ireland	—	—	—	11
	367	213	208	183
Total " regular " and " occasional " ..	542	476	455	650

Information on wildfowl has now been obtained from a total of 973 waters, although in some cases the counts have been extremely irregular.

LIST OF REGIONAL ORGANIZERS.

BERKSHIRE: C. E. Douglas (Reading Ornithological Club), 26 Hall's Road, Tilehurst, Reading.

BUCKINGHAMSHIRE: J. Field (Middle Thames Natural History Society), Widbrook Cottage, Widbrook Common, Cookham.

CAMBRIDGESHIRE: Julian Taylor (Cambridge Bird Club), Trinity College, Cambridge.

CHESHIRE: Major A. W. Boyd, M.C., Frandley House, Nr. Northwich.

CORNWALL: A. G. Parsons (Cornwall Bird Preservation Society), Radiotherapy Centre, Redruth Hospital, Redruth.

CUMBERLAND: W. Atkinson, 2 Duke Street, Penrith.

DERBYSHIRE: Capt. W. K. Marshall, The Silverhill, Radburne, Kirk Langley, Nr. Derby.

DEVONSHIRE: E. H. Ware (Devon Bird Watching and Preservation Society), High Beech, Woodbury, Nr. Exeter.

DORSETSHIRE: J. C. Follett, Windward, Mayfield Avenue, Parkstone; *and* P. S. Day, 15 Old Station Road, Upwey, Weymouth.

DURHAM AND NORTHUMBERLAND: G. W. Temperley (Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne), Hancock Museum, Barras Bridge, Newcastle-upon-Tyne.

ESSEX: Major-General C. B. Wainwright, C.B., Little Berechurch, Colchester.

GLOUCESTERSHIRE: H. Boyd, The New Grounds, Slimbridge, Glos.

HAMPSHIRE: E. Cohen, Hazelhurst, Sway, Hampshire.

HEREFORDSHIRE: C. J. Brecknell (Herefordshire Ornithological Club), 243 Ledbury Road, Hereford.

HUNTINGDONSHIRE: Professor A. N. Worden (Hunts Fauna and Flora Society), Cromwell House, Huntingdon.

KENT: G. B. Rimes (Rochester and District Naturalists' Society), 65 Third Avenue, Gillingham.

LEICESTERSHIRE AND RUTLAND: J. L. Otter (Leicestershire and Rutland Ornithological Society), Halstead, Tilton-on-the-Hill, Leicestershire.

LINCOLNSHIRE: R. K. Cornwallis (Lincolnshire Naturalists' Trust, Ltd.), Bleasby Grange, Legsby, Market Rasen.

LONDON AND MIDDLESEX: R. C. Homes (London Natural History Society), 62D Albemarle Road, Beckenham, Kent.

NORFOLK: J. Williams, Old Hall Farm, Tunstead, Nr. Norwich.

NORTHAMPTONSHIRE: Northampton and District: R. Felton (Northamptonshire Natural History Society and Field Club), 37 Brecon Street, Spencer Estate, Northampton. Kettering and District: M. Goodman (Kettering and District Naturalists' Society and Field Club), 18 Hallwood Road, Kettering.

NOTTINGHAMSHIRE: J. Staton (Trent Valley Bird Watchers), Caladris, Doveridge Avenue, Carlton, Nottingham. A. Dobbs, 40 Caythorpe Rise, Sherwood, Nottingham.

OXFORDSHIRE: Dr. Bruce Campbell, 2 King Edward Street, Oxford.

SHROPSHIRE: Edward M. Rutter, Eversley, Kennedy Road, Shrewsbury.

SOMERSET: B. King, Mayfield, Uplands Road, Saltford, Bristol.

STAFFORDSHIRE, WORCESTERSHIRE AND WARWICKSHIRE: C. A. Norris (Birmingham and West Midland Bird Club), Sycamore Cottage, Clent, Worcestershire.

SUFFOLK (EAST): Lieut.-Colonel Penn, Bawdsey Hall, Woodbridge.

SURREY: J. N. Bateson, The Spinney, Carthouse Lane, Horsell, Nr. Woking.

SUSSEX: J. Reynolds, 6 Argyle Road, Bognor.

WESTMORLAND: J. W. Allen (Kendal Natural History Society), 122 Highgate, Kendal.

WILTSHIRE: Mrs. E. C. Barnes (Wiltshire Archaeological and Natural History Society), Hungerdown House, Seagry, Chippenham.

YORKSHIRE: G. H. Ainsworth, 144 Gillshill Road, Hull; *and* R. M. Garnett, The Chapel House, Thornton-le-Dale, Yorkshire. Harrogate and District: Alan Walker, Penlee, 14 St. Helens Road, Harrogate.

WALES: North: Major H. P. Clogstoun, Parc, Llawnda, Caernarvon. South: Colonel G. Morrey Salmon, 24 Bryngwyn Road, Cyncoed, Cardiff.

SCOTLAND: Chief Organizers: Miss E. V. Baxter and Miss J. Rintoul (Scottish Ornithologists' Club), The Grove, Upper Largo, Fife, assisted by: James Bartholomew, Glenorchard, Torrance; Miss Kinnear, Meadow Cottage, Seamill, Ayrshire; Colonel W. M. Logan Home, Edrom, Berwickshire; P. E. D. Cooper, 31 Rosebank, by Carluke, Lanark; W. E. Neill (Tay Valley Wildfowlers' Association), 53 Canal Street, Perth.

NORTHERN IRELAND: L. Turtle, 34 Malone Park, Belfast.

EIRE: Major J. F. Nagle-Dunne (Irish Game Protection Association), 13–16 Dame Street, Dublin; *and* A. G. Mason (Irish Ornithologists' Club), 83 Wellington Road, Dublin.

THE METHODS USED TO COLLATE THE INFORMATION RECEIVED.

1. DUCKS.

On receipt of the returns from counters, the following routine is carried out:—

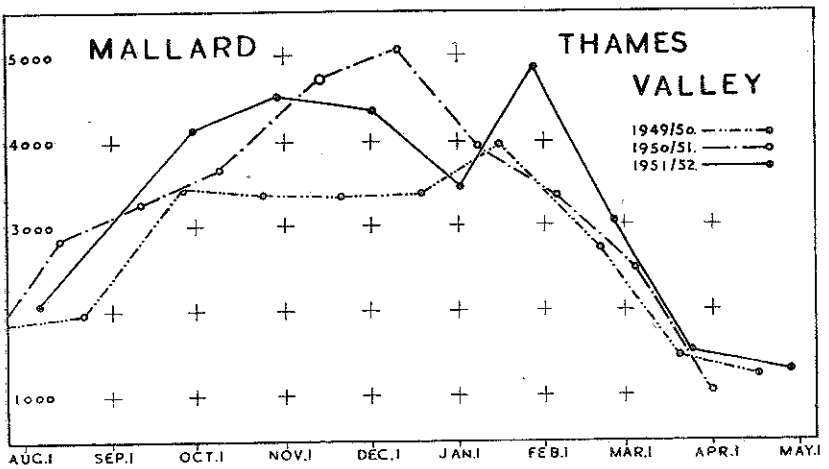
(1) The various waters are allotted to the geographical areas to which they belong. The British Isles are divided into 23 areas, the approximate boundaries of which are shown on the maps on pages 14–17. They are bounded as far as possible by high ground providing unsuitable habitats for wildfowl, so that they may each present an entity of wildfowl population.

(2) The monthly reports for each water are consolidated on to sheets which show the "record" of the water for the year. The "regular" counts—those which have been consistently counted throughout the season—are separated from the irregular or "occasional" counts.

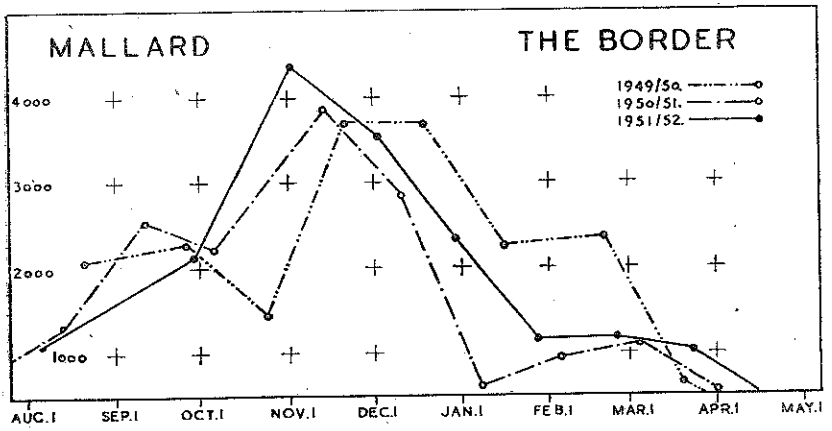
(3) From the record sheets of every water counted regularly in a geographical area the monthly figures for each species of duck are extracted, and consolidated on to separate pages. As all waters are counted on the same dates, a direct addition of these consolidated figures will give the total number of each species observed on each count date throughout the season in the geographical area concerned. These totals are presented on graphs. Perusal of the occasional counts helps to give some idea of the percentage of the whole population which is being covered by the regular counts.

(4) In the following year a similar procedure is adopted and, as the scheme is still expanding, it will probably be found that considerably more "regular" counts are available. To obtain a comparison with the previous year only the results from the same series of waters which were counted in that period can be used. These are extracted and their totals are plotted on the same graph to provide the comparison required. The enlarged series of waters of the current year is presented on a new graph to provide the basis of similar comparison in later years.

For example, in the "Thames Valley" during 1948/49 26 waters were regularly counted. These constituted "Series 1". In 1949/50 the same 26 waters were again regularly counted, and also 11 additional



This graph shows the seasonal fluctuations in the Mallard population on 37 waters in the Thames Valley area for the period August 1949–April 1952. In each season the arrival and departure of the migratory birds follows the same pattern. The peak in December 1950 was probably caused by the period of hard weather in Holland and Germany and the one in January 1952 by heavy frost and snow in Scotland and Northern England. Apart from these midwinter peaks, the three seasons show striking similarity.



The totals of the results for Mallard from 29 waters in the Border area also follow their own pattern over the same period. The steady drop during December is present in all three seasons, but has been accentuated by hard weather in January of both 1951 and 1952. The peak period in November is surprisingly similar in each year. It is possible that the peak period of January 1952 in the upper graph may be balanced by the corresponding fall in numbers in the Border area.

waters. The results for the 26 waters were extracted and their totals laid alongside the corresponding totals for 1948/49. A new graph, " Series 2 ", showing the totals for the 26 original waters plus the totals for the 11 new waters, was also drawn. Since then both of these graphs have been continued year by year, and further new series have also been started. The graph Series 2 is shown opposite, and also a similar Series 2 graph from the Border area.

Both these graphs demonstrate clearly how the comparison of one year with another is achieved, and on the whole show a surprising similarity in their form. Most of the sudden depressions can be accounted for by hard weather and ice and, conversely, the peaks can be attributed to hard weather elsewhere. As more and more lines are drawn in year by year it is hoped that the general trend of increase or decrease will become apparent.

2. Geese and Swans.

It was decided that the system of comparative graphs used for ducks was not suitable for use in comparing the yearly status of geese and swans. The rigorous rejection of " occasional " counts, and of those not common to subsequent or preceding years, would mean that much valuable information would be suppressed, or at least not readily presented. A considerable amount of information from other countries in N.W. Europe is also received, and as it is desirable to present every scrap of information obtained on geese and swans, however isolated, in a readily assimilable form, the following method has been adopted.

An outline map of N.W. Europe is allotted to each species for each month of the counting season. On these maps the records are entered against the areas from which they emanate. Entries for each of the four weeks of the month are made in different coloured inks, and in this way a reasonably sensitive record is made of both local and main migrations.

The interpretation of the comparative status year by year is not, of course, as readily achieved as with the graphs which provide immediate comparisons of totals. In the long term, however, a yardstick of comparison is provided, and in, say, ten years time it will be possible to look back and compare the populations of geese in each place with those of today.

ADVANTAGES AND DISADVANTAGES OF THE METHODS USED TO PRESENT INFORMATION.

1. Ducks.

Advantages.

(*a*) The widespread distribution of the common species of ducks means that a welter of detailed reports is produced, For these to be interpreted at all they must be heavily condensed. The graphs present this condensed information in a concise form, and have the further advantage that the results for a series of years may be shown comparatively on the same sheet.

(*b*) It has been found that the periods of peak population of wildfowl on individual waters frequently do not coincide with the periods of peak population in the geographical area. As the counts are required to produce information on the status of wildfowl in the British Isles in general, it is better that such individual peak periods should be combined with the results from neighbouring waters, and that the peak period of the geographical area should be given its true significance.

(*c*) As possibly the returns from as many as forty or fifty waters are incorporated in some of the graphs, the human error in counting, which is estimated to be anything up to 15%, tends to level itself out to a certain extent. As, however, the counts provide only comparative figures from selected waters, and are not designed to produce a *census* of wildfowl, the presence of a constant error of set limits does not materially affect the result.

Disadvantages.

(*a*) Without any doubt the chief disadvantages of the system adopted is its inflexibility. It is not possible to incorporate into the graphs either "occasional" or intermediate counts, and this necessarily means that a certain amount of information has to be kept separately. Such information, however, is of great use in helping to estimate what percentage of the total population is being presented in the graphs, and is by no means wasted.

(*b*) The decrease in numbers of wildfowl frequenting certain waters, due to the advance of civilization, is likely to be masked, at any rate temporarily, by corresponding increases elsewhere in the same geographical area, owing to the concentration of fowl on to the remaining suitable waters. Such local changes in populations can be easily discovered, however, by reference to the annual record sheets of the waters concerned.

(*c*) The system is not suitable for presenting observations on the rarest species of ducks, which is perhaps unimportant as the Wildfowl Counts are not primarily designed to obtain information on them. Separate records therefore are kept of any species which appear too infrequently to provide comparative figures.

2. Geese and Swans.

Advantages.

(*a*) Every single scrap of information can be used to good effect. It does not matter whether the report is isolated or regular, nor whether it is made on a recognized count date or not—it can still be used. Also information unearthed years afterwards can easily be added, if it is considered to be reliable. Therefore counters are urged to forward ALL information on geese which they may come by, and to send in any notes which they may have made as far back as 1947, or even before then.

(*b*) The rise and fall of adjacent populations of geese gives some clue to migration routes, and these are readily to be seen from the maps. Dates

of first arrivals are also entered, and these give further indications of the migration routes followed.

Disadvantages.

(*a*) The inclusion of " occasional " counts tends at times to give a false impression of peak periods in population. Very careful interpretation of the maps is needed to give a true picture of the comparative status from year to year.

(*b*) With each system it is thought that the advantages outweigh the disadvantages, and that they provide as true a picture as possible of the status of wildfowl from the available data. In cases of doubt it is always possible to refer back to the record sheets of individual waters or, if necessary, to the original report forms.

HOW COUNTERS CAN HELP TO MAKE THEIR RETURNS MOST USEFUL.

From the foregoing description of the use to which the returns of counters are put one or two points emerge.

(1) The distinction has been shown between " regular " and " occasional " counts. In point of fact, if a count date is missed, whenever possible an estimate of the population is made based both on the numbers recorded in previous years and on the adjacent count dates. Frequently on major waters this is not possible, as the percentage of error involved forms too large a proportion of the total figure for the area. This means that either the remaining counts for that water must be treated as " occasional " or that the total for the area for that month must be ignored. In either case much valuable information cannot be put to its fullest use, and so counters of large waters in particular are asked either to find a substitute or to make a count as soon as possible after the set date, if they find that they are unable to observe on the count day.

(2) In the same way, returns which report " very large numbers " or " a few " eventually have to be converted into figures if they are to be used to their full value. Counters are therefore requested to make an estimate themselves rather than to use such terms, and it is likely to be much more accurate than the guess made by the person working out the figures, as the counter has the advantage of having seen the birds. It is, of course, most important that such estimates should be indicated.

(3) The maps on pages 14–17 show the areas most fully covered by Wildfowl Counts. If readers know of any person who would be likely to help in the areas not yet fully covered they are asked to forward their names and addresses to Headquarters.

(4) It is stressed again that any reports on geese, from any place, at any time, are of the greatest value. They can either be put on a separate form or on the back of the next regular count schedule.

(5) Any theories of counters on local behaviour or feeding habits of wildfowl are gratefully received and help to build up the detailed picture.

RESULTS AND IMPRESSIONS GAINED FROM THE WILDFOWL COUNTS 1948–1952.

It would be folly to try and extract too many conclusions from the returns of such a comparatively short period. It is only now possible for the first time to discern with some certainty the normal seasonal fluctuations in populations. Hitherto, although common sense argued that the results were reflecting the fluctuations of a normal season, there have been insufficient data to be certain that the first two or three seasons were not in fact abnormal ones, producing abnormal results. However, the comparative annual graphs of Mallard in particular have been remarkable for their similarity. The curves which represent the seasonal fluctuations in population follow the same pattern in each year and, in some cases, fall exactly over each other. They may now be taken to disclose, therefore, the average populations which may be expected in a normal season, and provide a good basis against which to compare future years.

It is thought that it will be of interest to counters to give some idea of the total number of ducks which are being counted. In the attached tables are given the numbers of Mallard and Wigeon which have been reported from each of the geographical areas during the last season. It should be emphasized that some areas have been counted much more fully than others, and therefore in each case the numbers of waters which contributed records are added in order to give an idea of the extent of the cover. The seasonal fluctuations within each geographical area are, however, a true representation, as in each month the same sets of waters were used to reach the totals.

To those who have theories of their own (and who hasn't ?) the results may provide confirmation or otherwise. Some counters may wish to give the tables more than a passing glance, and it is suggested that the following lines of investigation may be of interest :—

(1) Underline the periods of maximum population in each area, and conjecture where the birds have come from and where they go to afterwards. When doing this remember that nearly all inland water north of the Wash–Severn was frozen on 27th January, 1951.

(2) Make an estimate of the total population of these two species in the British Isles on any one date.

(3) Compare the results you were getting from your own water with the results from the geographical area in which it lies. Do the peaks coincide ?

(4) Speculate on the fact that sometimes the totals for consecutive months in the same area, and for the months before and after a peak, reach almost exactly the same figure. In these cases the individual waters

MALLARD, 1951/52.

	No. of waters used.		Aug. 5	Sept. 30	Oct. 28	Dec. 2	Dec. 30	Jan. 27	Feb. 24	Mar. 27	Apr. 27
	Inland	Coastal									
Moray and Dee	3	4	—	—	1622	810	1161	1000	868	407	277
Tay and Forth	30	6	—	—	5655	8210	7513	5989	6452	2673	—
Clyde	22	6	761	895	1023	1674	1994	2026	1413	752	248
Border	21	8	1110	2641	4349	3550	2341	1169	1195	1030	287
Solway	11	2	—	3848	4527	3943	3753	2096	1849	1105	—
The North	87	26	—	—	17176	18187	16762	12280	11777	5967	—
Humber	23	2	—	3413	3417	5486	4553	4409	2688	1121	—
Ribble–Dee	12	4	—	3961	5178	4890	4491	3025	2413	1122	390
Wash	30	3	2704	6735	6365	7779	6650	6641	6107	2558	813
Midlands	47	—	—	3074	3519	4307	2925	3095	2343	1231	822
The Midlands	112	9	—	17183	18479	22462	18619	17170	13551	6032	—
Thames Estuary	12	41	—	3651	3790	6855	3920	4296	3143	2308	686
Thames Valley	61	—	2693	5685	6040	6456	4930	7100	4429	2332	1791
Severn	23	8	1269	2349	2346	3056	2799	2743	1621	475	361
South and West	21	23	3335	4162	4692	4364	3954	3436	2267	1302	—
The South	117	72	—	15847	16868	20731	15603	17575	11460	6417	—
Grand Total	316	107	—	—	52523	61380	50984	47025	36788	18416	—

This table shows the total numbers of Mallard which were actually observed on the waters counted in each geographical area in Great Britain during the season 1951/52. The numbers of waters which have contributed returns are given, and these may help to give some idea of the extent of the cover.

WIGEON, 1951/52.

	No. of waters used.		Aug. 5	Sept. 30	Oct. 28	Dec. 2	Dec. 30	Jan. 27	Feb. 24	Mar. 23	Apr. 27
	Inland	Coastal									
Moray and Dee	3	4	—	3325	7274	2542	3426	*c.* 2500	1215	795	*c.* 300
Tay and Forth	30	6	—	—	4454	4853	2432	2614	3386	1676	213
Clyde	22	6	—	850	1136	1209	*c.* 1100	568	1368	652	29
Solway	11	2	—	2108	2360	2952	3594	1420	2184	1284	—
Border	21	8	47	—	9326	11111	8236	10476	2646	739	158
The North	87	26	—	—	24550	22667	18788	17578	10799	5146	—
Humber	23	2	—	535	2424	2026	2683	2837	2952	1024	—
Ribble Dee	12	4	—	1612	2494	2498	2993	1786	1826	365	30
Wash	30	3	4	1472	691	3598	1360	2003	4968	1293	30
Midlands	47	–	20	182	716	1037	1102	1794	1261	500	13
The Midlands	112	9	—	3801	6325	9159	8138	8420	11007	3182	—
Thames Estuary	12	41	15	6592	10609	13713	10353	10732	13101	3938	352
Thames Valley	61	—	12	20	75	553	615	367	491	247	24
Severn	23	8	Nil	221	891	2573	4171	4480	3239	935	36
South and West	21	23	2	1609	6985	6978	6295	6643	5546	1495	—
The South	117	72	29	8442	18560	23817	21434	22222	22377	6615	—
Grand Total	316	107	—	—	49435	55643	48360	48220	44183	14943	—

This table shows the total numbers of Wigeon which were actually observed on the waters counted in each geographical area in Great Britain during the season 1951/52. The numbers of waters which have contributed returns are given, and these may help to give some idea of the extent of the cover.

almost always show different results, although their totals are the same. Do these totals represent the same birds (with a migration superimposed in the second case), or have some come in and some left ?

A SUMMARY OF THE INFORMATION AVAILABLE ON THE PRESENT STATUS OF THE BRENT GOOSE IN N.W. EUROPE.

A considerable amount of argument has been waged in the Press and elsewhere over the alleged decline in the numbers of Brent Geese wintering in N.W. Europe. The evidence available to the Wildfowl Inquiry Committee is summarized below, and it is sincerely hoped that it may stimulate the production of further records which may help to lighten a gloomy prospect.

The following table shows the maximum numbers observed through the medium of the Wildfowl Counts in each area since October, 1949 :

Area	Max. No. recorded since 1949	Date
MORAY	No information	—
TAY	53	28.10.51
FORTH	Nil	—
NORTHUMBERLAND ..	32	March, 1950
HUMBER	6	28.10.51
LINCOLNSHIRE	1000	16.2.52
NORFOLK	700	March, 1950
SUFFOLK and ESSEX ..	5400	December, 1950
KENT	100	December, 1951
SOUTH COAST	600	28.10.51

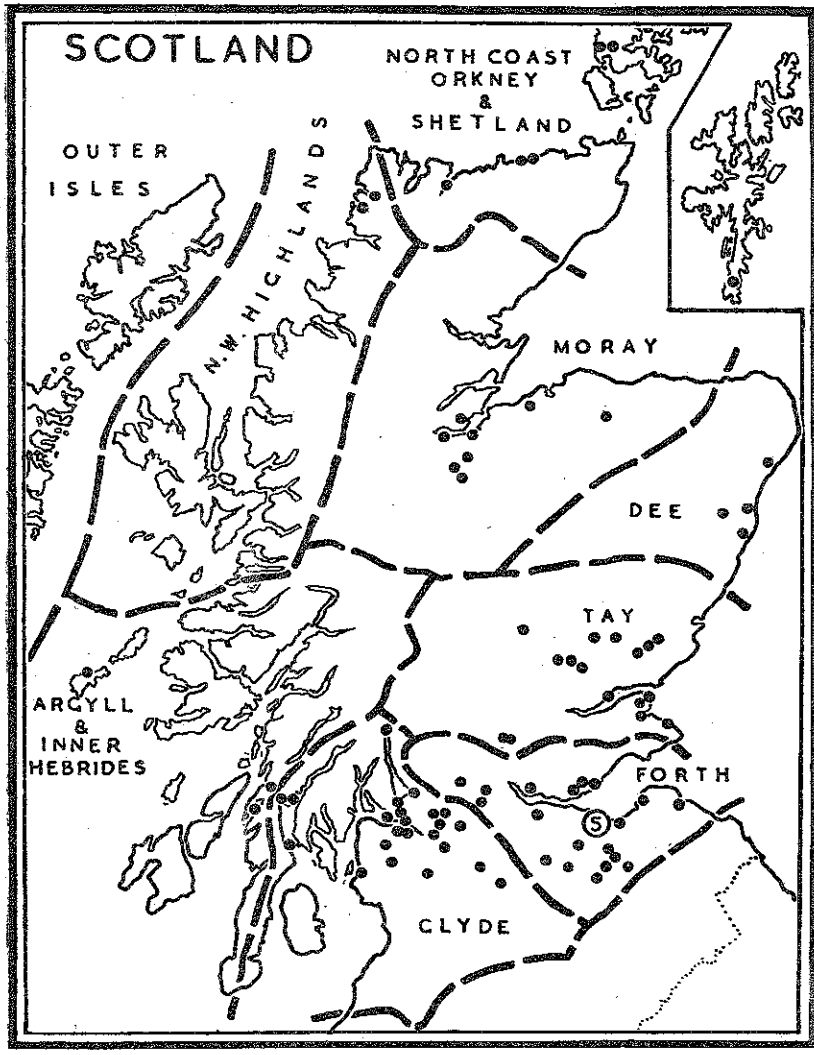
It is, therefore, improbable that any really large concentration of these birds now exists on the East Coast of Great Britain.

The returns for the season 1951/52 from Northern Ireland are as follows:

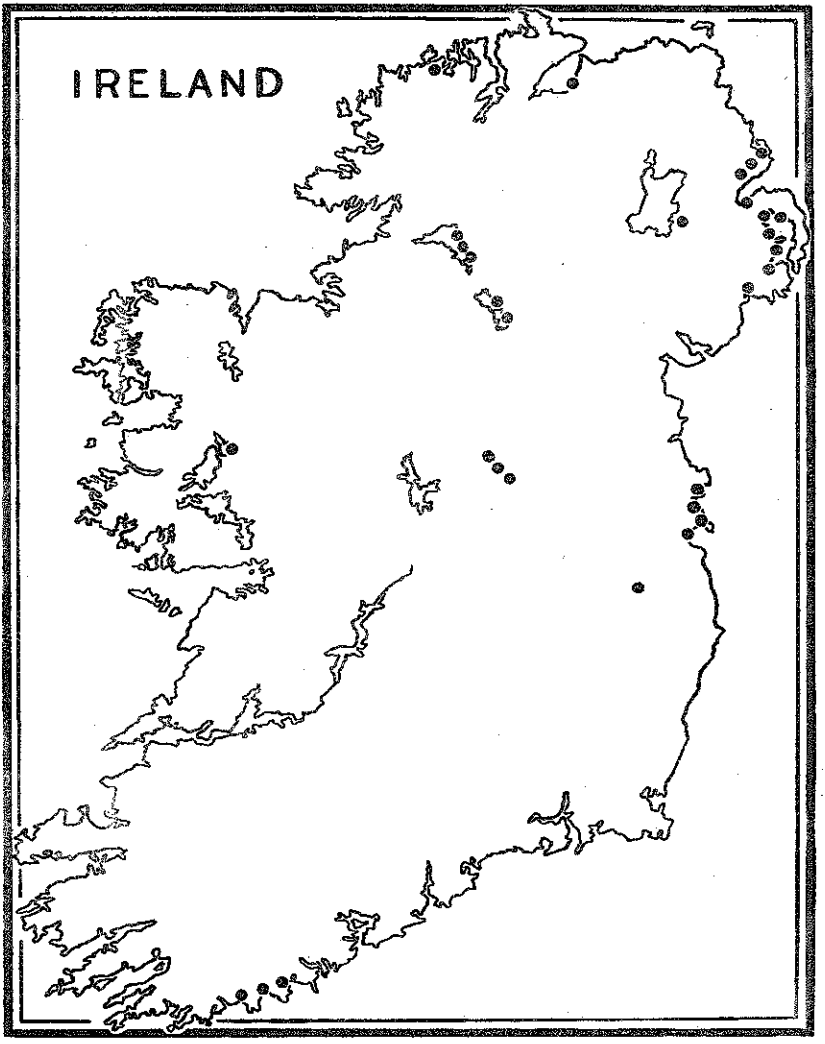
Area	Max. No. recorded winter 1951/1952	Date
LONDONDERRY	260	11.11.51
ANTRIM	43	March, 1952
Co. DOWN	600	Oct.–Dec. '51

The Netherlands Wildfowl Inquiry Committee report that in the Waddenzee the numbers have decreased from several thousands in 1930 to a few flocks of less than a hundred birds during the winters 1947–49. A précis of their full report is given in the section describing the work of the Netherlands Committee.

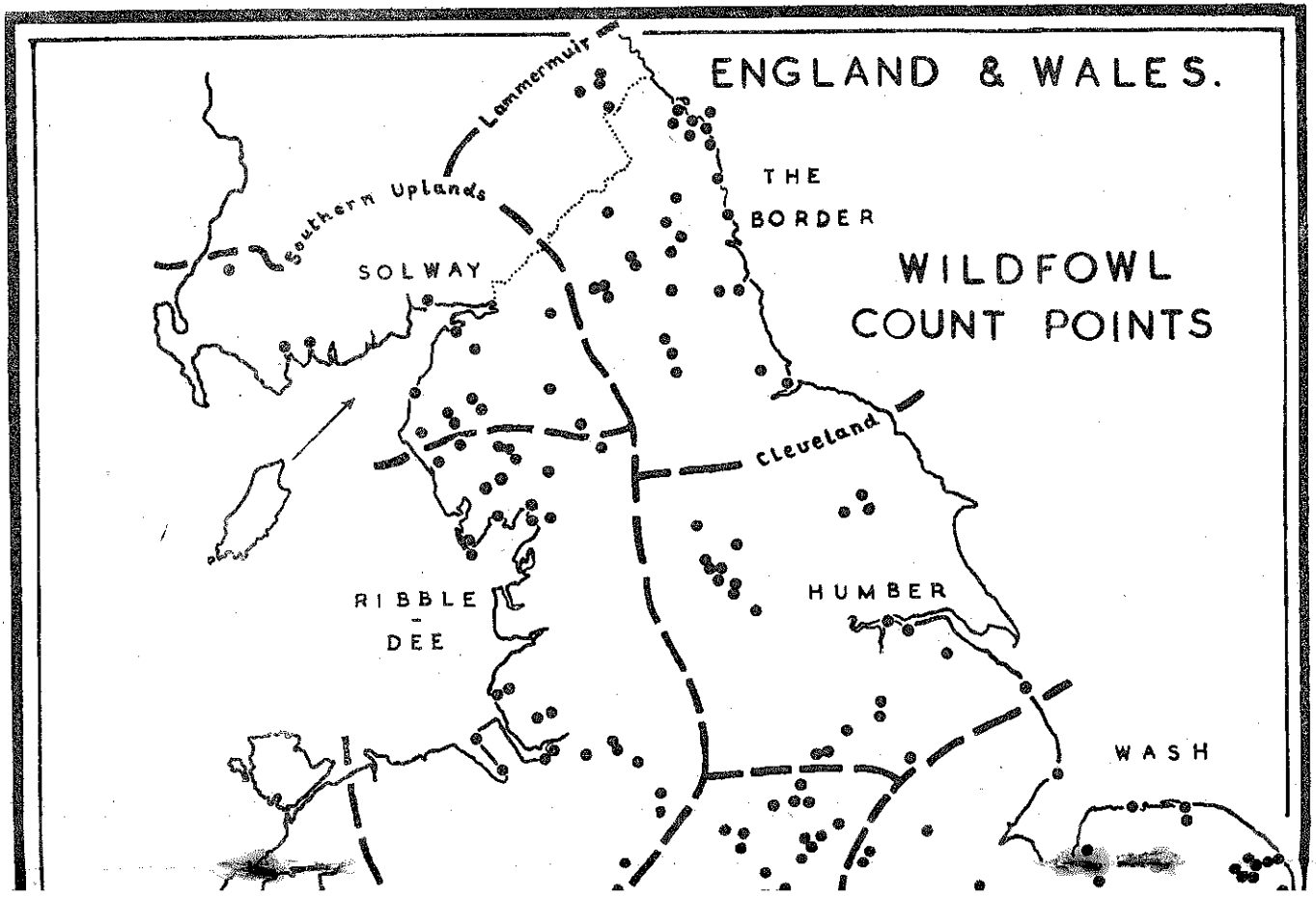
On the N.W. German seaboard the vast flocks of former years have dwindled to the comparatively small numbers described by Dr. J. G. Harrison in his report on the Status of Wild Geese in N.W. Germany. Monsieur L. Lippens, writing in *Gerfaut* in 1951, comments on the almost complete disappearance of the Brent from the Belgian coast since 1942. They were common in cold winters in the past, and heavy influxes were recorded in

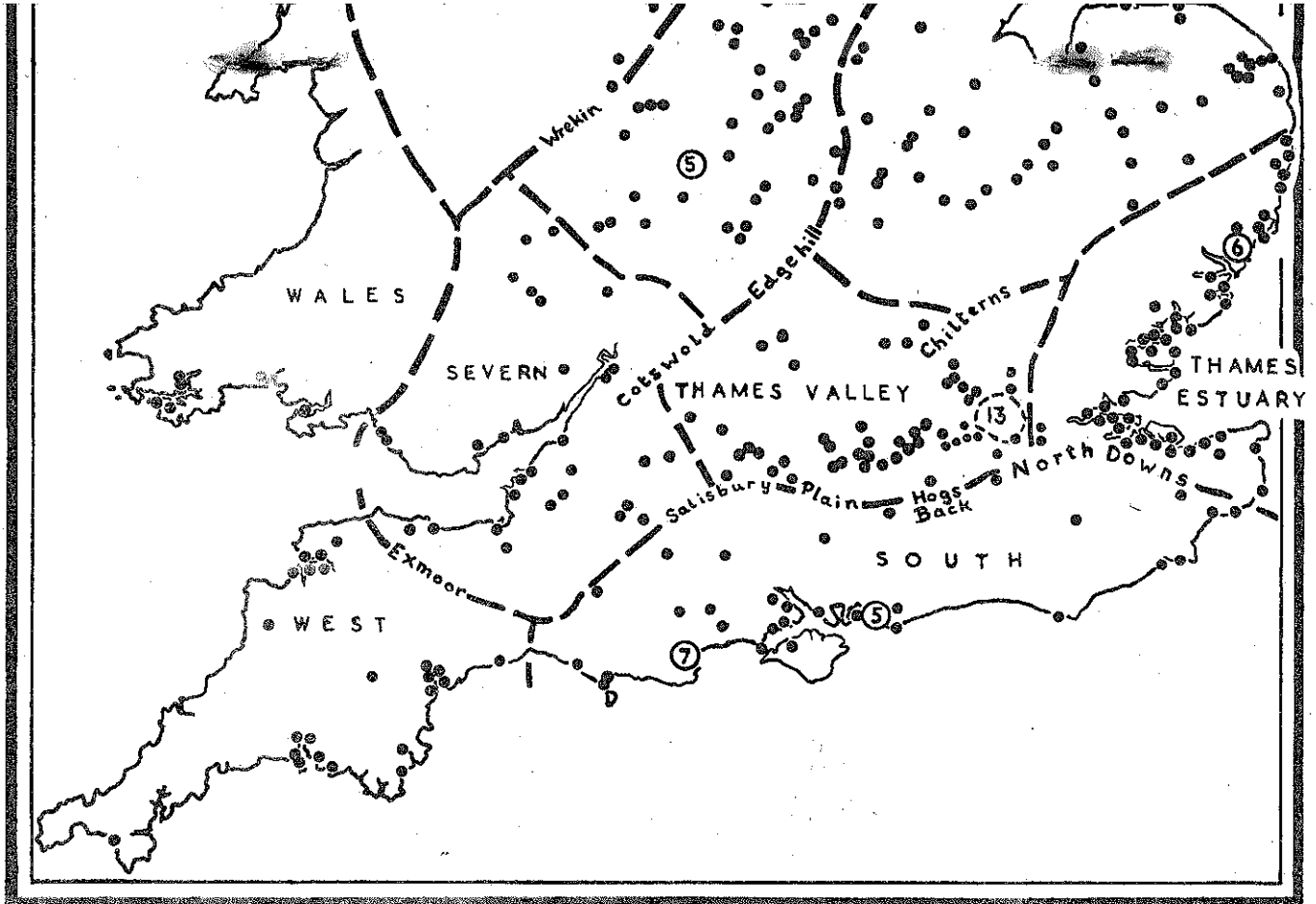


The map above and those on the following pages show the localities which are covered by regular wildfowl counts. Count points are indicated by the black dots or, where several count points are grouped closely together, by a circle ringing the number of count points in the group. The boundaries of the geographical areas, into which the country is divided to facilitate the consolidation of returns,



are marked by heavy black lines, and the names of the areas are shown in block letters. Wherever possible, as reference to a physical map will show, these boundaries follow high ground or other natural features which provide unsuitable habitats for wildfowl. No attempt has yet been made to divide Ireland into areas as insufficient information is available to show where the boundaries ought to lie.


ENGLAND & WALES.
WILDFOWL
COUNT POINTS
Lammermuir
Southern Uplands
SOLWAY
THE
BORDER
Cleveland
RIBBLE
-
DEE
HUMBER
WASH


WALES
Wrekin
5
Edgehill
Cotswold
Chilterns
6
SEVERN
THAMES VALLEY
13
THAMES
ESTUARY
Salisbury Plain
Hogs Back
North Downs
Exmoor
SOUTH
WEST
7
D
5

1937 and 1940, but in latter years, even during the hard winter of 1946/47, none were recorded.

It is significant that no country bordering the North Sea is even able to show evidence of a large scale migration moving through, and this seems to refute the theory that new and more southerly wintering grounds have been adopted.

If it is accepted that a serious decline in status has overtaken the Brent, without doubt this may be attributed, not to overshooting, but to the almost complete disappearance of their main food, the sea grass, *Zostera marina*. This plant was almost completely destroyed by disease on the whole of the Atlantic and North Sea coasts during the 1930's. Reports from several sources, both at that time and since, tell of birds in poor condition becoming increasingly tame and attempting to discover alternative food. Last winter, however, an encouraging recovery in the amount of *Zostera* was reported from several areas.

The report by Dr. J. G. Harrison records that the bodies of hundreds of newly arrived Brent were discovered off the coast of Schleswig-Holstein in September 1951, but, as no post-mortem was carried out, the cause of death was not established.

From the above information the present status of the Brent Goose appears critical, and any information on their numbers, food or behaviour will be most valuable.

PROPOSED FUTURE WORK ON THE WILDFOWL COUNTS.

The consolidation of the mass of information received into a manageable form will enable the evidence for further lines of enquiry to be speedily extracted. In particular it is hoped to begin the following work as soon as opportunity permits.

(1) The relation of the graphs and goose maps to Air Ministry weather reports. Fluctuations in the population of wildfowl depend largely on weather conditions, and peaks and depressions in numbers frequently may be explained by meteorological reports, provided that these can be presented clearly. This work is of high priority, as the results of the Wildfowl Counts will not attain their full significance until it has been done.

(2) To expand the cover of the Wildfowl Counts still further.

(3) The information on migration routes obtained from ringing returns is to be summarized and applied to the results obtained from the Wildfowl Counts. It is hoped by this means to establish the relationship of the various geographical areas with each other so that, should a seasonal decrease, due possibly to weather, become apparent in one area, a corresponding rise in another area may be attributed to it. The possibility of relating the various geographical areas with the breeding grounds which supply them with their winter populations of wildfowl is also to be investigated. It is hoped in

this way to determine which areas have had successful breeding seasons and which ones have failed to maintain their stocks.

(4) At some future date, when more information has been compiled, maps are to be made to show the distribution and average density of various species of wildfowl at selected periods of the year. The exact way in which this will be done has not yet been decided, but probably the method will be adopted whereby the main centres of population are marked with conventional signs to represent the size of population, and the remaining areas are shaded in various colours to represent the average density per square mile.

It is thought that if such maps could be produced they would provide an excellent starting point for more detailed investigations. It would be possible to determine the relative importance of factors conducive to high wildfowl populations by comparing them with maps showing geological formations, human populations, mean meteorological conditions and botanical distributions.

When these investigations have been completed it may be possible for the Wildfowl Inquiry Committee to give their own opinion on some of the problems which have been presented to counters on an earlier page, but at the moment there are links missing in the chain of evidence, and where guesses are involved we are humble enough to appreciate that yours are as good as ours.

PART II.

THE PROGRESS OF WILDFOWL COUNTS IN OTHER COUNTRIES.

By G. Atkinson Willes.

Counters in Great Britain may be interested to know that they are not alone in their efforts to study the status of wildfowl. Every country in Western Europe is a member of the International Committee for Bird Preservation (I.C.B.P.), and several, Great Britain among them, have formed Wildfowl Inquiry Committees within the framework of their national sections. At a conference of the European Continental Section of the I.C.B.P. held in 1947 it was agreed that all investigations made on the status of wildfowl in Europe should be finally collated by the British Section. To undertake this work the International Wildfowl Research Institute was founded and accommodation was provided by the British Museum (Natural History) in London. The Institute not only collates all the various aspects of research on European wildfowl, but also promotes new lines of investigation, and acts as a centre of information.

The plan of making regular counts of wildfowl was first formulated in Great Britain, and each year more and more support is given by other countries. Some are following the British pattern exactly and are making observations on the same count dates; others have found it necessary to modify their organization to suit local conditions, but the ultimate aim of all is to discover the trends in the status of wildfowl. The following is a brief summary of the work being done on Wildfowl Counts in Europe:—

Austria.

The Austrian Wildfowl Inquiry Committee is organizing Wildfowl Counts in all parts of Austria with the help of ornithologists and sportsmen.

Belgium.

The densely populated nature of the country necessarily restricts the areas suitable for wildfowl. No organized system of Wildfowl Counts is in operation, but Monsieur Leon Lippens (a Vice-President of the I.C.B.P. and a keen sportsman) has made a prolonged and specialized study of the wildfowl on the coast of Belgium. He published a report on the geese of this area in *Gerfaut*, 1951, No. 2 (pp. 81–91).

Denmark.

The Wildfowl Counts in Denmark were being organized by Dr. Paul Jespersen, President of the Danish Ornithological Society, and his death in December, 1951, is a very great loss.

EIRE.

The Irish Game Preservation Society has given its full support to the Wildfowl Counts and widely circularized its members asking for their help. Wildfowl Counts are being organized in the following areas by the persons or societies named :

Dublin : A. W. Mason, Irish Ornithologists' Club.
Co. Cork : J. E. O'Donovan.
Co. Mayo : Major Ruttledge.

The returns are sent direct to London and incorporated with those from the British Isles.

FRANCE.

The organization of counts has been undertaken by Monsieur Georges Olivier in conjunction with the Conseil International de la Chasse. Their first season was 1951/52, and it is expected that their cover will expand rapidly. It is modelled exactly on the British pattern.

GERMANY.

The counts made by German observers are organized by the Vogelwarte Helgoland at Wilhelmshaven. The work is delegated to regional organizers, and all returns are collated at the Vogelwarte before being forwarded to London. Though the observations made by members of the British Occupation Forces have been organized separately, a close liaison has been maintained with the Vogelwarte Helgoland.

NETHERLANDS.

The Netherlands Wildfowl Inquiry Sub-Committee was formed in 1947 with T. Lebret as Secretary. The Sub-Committee, which is most active, has entrusted the major part of the investigation into the status of wildfowl in the Netherlands to the Institute for Applied Biological Investigations in the Field (I.T.B.O.N., c/o Mariendaal, Oosterbeek, Gelderland), with whom it is working in close co-operation. A comprehensive report on their work and opinions was published in the summer of 1950, and their report on the status of the Brent (*Branta b. bernicla*) in Holland is of particular interest.

The decline of the Brent in the Netherlands.

The Brent Goose has two areas of distribution in the Netherlands—the tidal areas of the Wadden, between the mainland and the Friesian Islands, in the North, and the estuaries in the provinces of Zeeland and Zuid-Holland in the South. These two areas are about 100 miles apart.

In the Waddenzee in 1925 the Brent were reported as " everywhere common ", but here, as elsewhere, the almost complete disappearance of the sea grass, *Zostera marina*, had a serious effect on them. In 1936 the birds were reported to be thin and very tame, appearing on inland meadows and near harbour works, where they had not before been seen. A considerable

decrease in their numbers was reported in 1942, and in 1944 and 1945 the geese were observed only during April and May. This suggests that they wintered south of Holland, or possibly in Zeeland, and only passed through the Wadden on their return migration. During the winters of 1947–1949 only a few flocks of less than 100 birds were observed, in place of the several thousands formerly seen.

Information from the province of Zeeland in the south is scanty, but in winter and spring flocks numbering from 200–600 have been observed. Although exact counts do not exist, there appears to have been a slight increase in this area since 1937. It was thought that the fluctuation in numbers in the Netherlands might reflect broader fluctuations in the whole area of distribution, dependent primarily on breeding results and age ratios. Counts were therefore made between 8th February and 28th March, 1948, which revealed a ratio of 50 juveniles to 188 adults, or 21 per cent of the total as juvenile.

SWITZERLAND.

Counting is organized by Dr. Schifferli, Vogelwarte, Sempach, and about 100 observers are taking part. The diving ducks form the most important part of their investigations.

It is hoped that an increasing stream of information on wildfowl will be received from abroad and that, with this, and the observations being made in the British Isles, it will eventually be possible to deduce and maintain a true picture of the fluctuations of the wildfowl populations of Europe as a whole. It is stressed that these populations in the various countries of Europe must be considered as a single unit and not as a series of unrelated entities, and that the status of wildfowl in each country is of vital concern to all other countries within the breeding and wintering range.

PART III.

THE RECENT STATUS AND DISTRIBUTION OF WILD GEESE IN NORTH-WEST GERMANY.

By Jeffrey G. Harrison,

Hon. Research Associate, International Wildfowl Research Institute.

Since 1946 a large number of British sportsmen have been stationed in the British Zone of Germany, and as the Zone included all the German North Sea coastal marshes, they have had wonderful opportunities to observe the many wild geese that regularly visit these marshlands each winter.

Efforts have been made by the International Wildfowl Research Institute to encourage all wildfowlers among the British Occupation Forces to carry out systematic study and to make accurate counts of the various species of wild geese. The years 1946–1948 were not very productive of notes, but from 1949 onwards a much wider network of observers was established and a large number of informative notes have been collected, covering the whole of the North Sea coast from the Danish to the Dutch borders. The Elbe Estuary and the Emsland—the two main haunts for geese—have been particularly well covered, but there have been only a few notes from the Weser Estuary, which lies within the American Enclave, and has, therefore, not been visited by British wildfowlers. However, the reports suggest that it is the least favoured of the German estuaries.

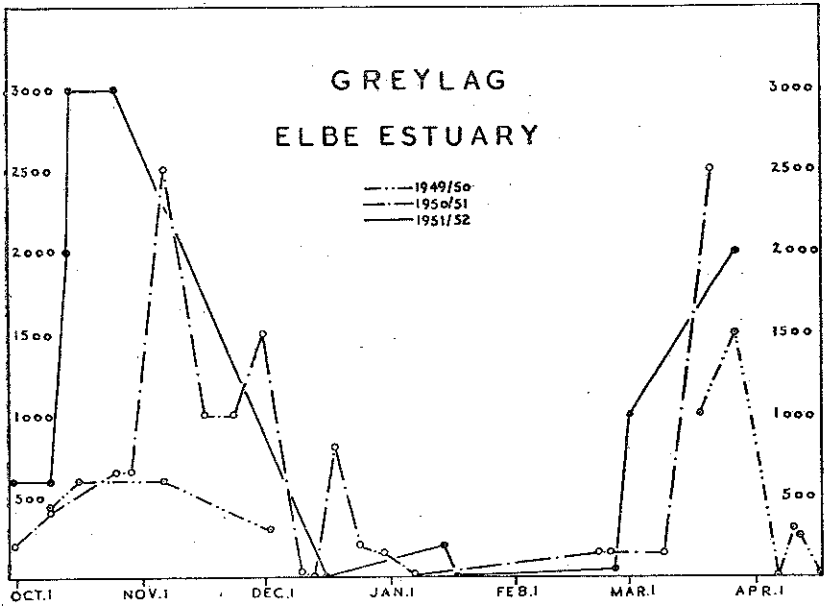
There seems to be no doubt that the status of a number of species of geese is altering in North-West Germany and many of the notes in this brief review are at variance with the existing information in the *Handbuch der Deutschen Vogelkunde*, published in 1938.

It must be stressed that this is not a complete review of the subject, but has been compiled solely from the notes obtained from British observers—it is a British contribution towards a fuller understanding of the status of geese in Germany. All wildfowling has now officially been returned to German ownership, and while it is to be hoped that our wildfowlers will still be able to continue with their fowling as guests, it seems unlikely that reports will continue to be sent in on the same scale. It has therefore been decided to produce this report, summarizing the position as it appears to-day. It is perhaps also worth stressing that in every case the information sent in came from an active wildfowler, and there is no doubt that it was the stimulus of the gun that produced the results, although many of these wildfowlers continued their observations throughout the closed season. It is a matter for great satisfaction that the present-day wildfowler should take such a wide interest in his sport.

THE GREY LAG-GOOSE : *Anser anser anser* (L.); Graugans.

North-West Germany is not particularly favoured as a wintering ground by Grey Lag with the exception of certain areas on the Elbe Estuary which are used regularly for two or three months in the autumn and a few weeks in the spring. Very large numbers are, however, occasionally found during migration in other areas.

Distribution on the Elbe is limited to those places where reed beds provide succulent tubers and shoots for food. The Grey Lag seem to prefer these to grass, and it is only rarely in the spring that they resort to the water meadows. It is apparent from the graph, which represents the numbers present on their most favoured locality on the Elbe, that the Grey Lag is a passage migrant in both spring and autumn and also a partial winter visitor. The majority leave before the onset of cold weather, and even the remainder do not stay during frost. The latter, however, do not appear to travel far, as in both 1950 and 1951 the first of them had returned within five days of the marshes becoming ice-free. The main peak of the autumn migration coincided with the October full moon in 1949 and 1951 and with the November full moon in 1950. The spring peak coincided with the March moon in all three years.



This graph shows the numbers of Grey Lag observed on their favourite grounds in the Elbe Estuary between October, 1949, and April, 1952. No observations were made between early December, 1949, and late March, 1950, and so the graph line has been omitted between those dates. From the observations which were made during that season it will be seen that the numbers of Grey Lag did not approach the totals of the two following seasons.

From Schleswig-Holstein reports have been scanty, but confirm that Grey Lag breed on the lakes in the north-east. Observations are confined mainly to the spring and autumn migrations, but it seems probable that the species is otherwise a passage migrant only. On the Jade Basin and in the Emsland they are rare, being seen on the former only occasionally each year, once in numbers up to fifty, and in the latter even more rarely. On the East Friesian Islands small skeins have been observed each year and it is probably regularly there on migration.

Although N.W. Germany does not seem to be generally favoured by Grey Lag as a wintering ground, there is no doubt that very large numbers pass through on migration. The main line of autumnal migration appears to cross Schleswig-Holstein in a south-westerly direction from the Baltic to the Elbe Estuary. One afternoon in early October, 1949, no fewer than 17,000 Grey Lag were seen to arrive from the north-east on a small lake near the Baltic entrance to the Kiel Canal. Similarly, at 10 a.m. on 12th October, 1951, " very large numbers " were observed arriving on the Elbe Estuary from the north-east. On leaving the Elbe the line of migration appears to follow the North Sea coast towards Holland as, between the end of November and mid-December, skeins have been repeatedly heard passing over Cuxhaven towards the sea. Some birds, however, probably turn south before reaching the mouth of the Elbe, as on 30th November, 1951, the arrival of a flock of 1000 on a lake lying betwen the estuaries of the Elbe and the Weser concided with the time of main departure from the former.

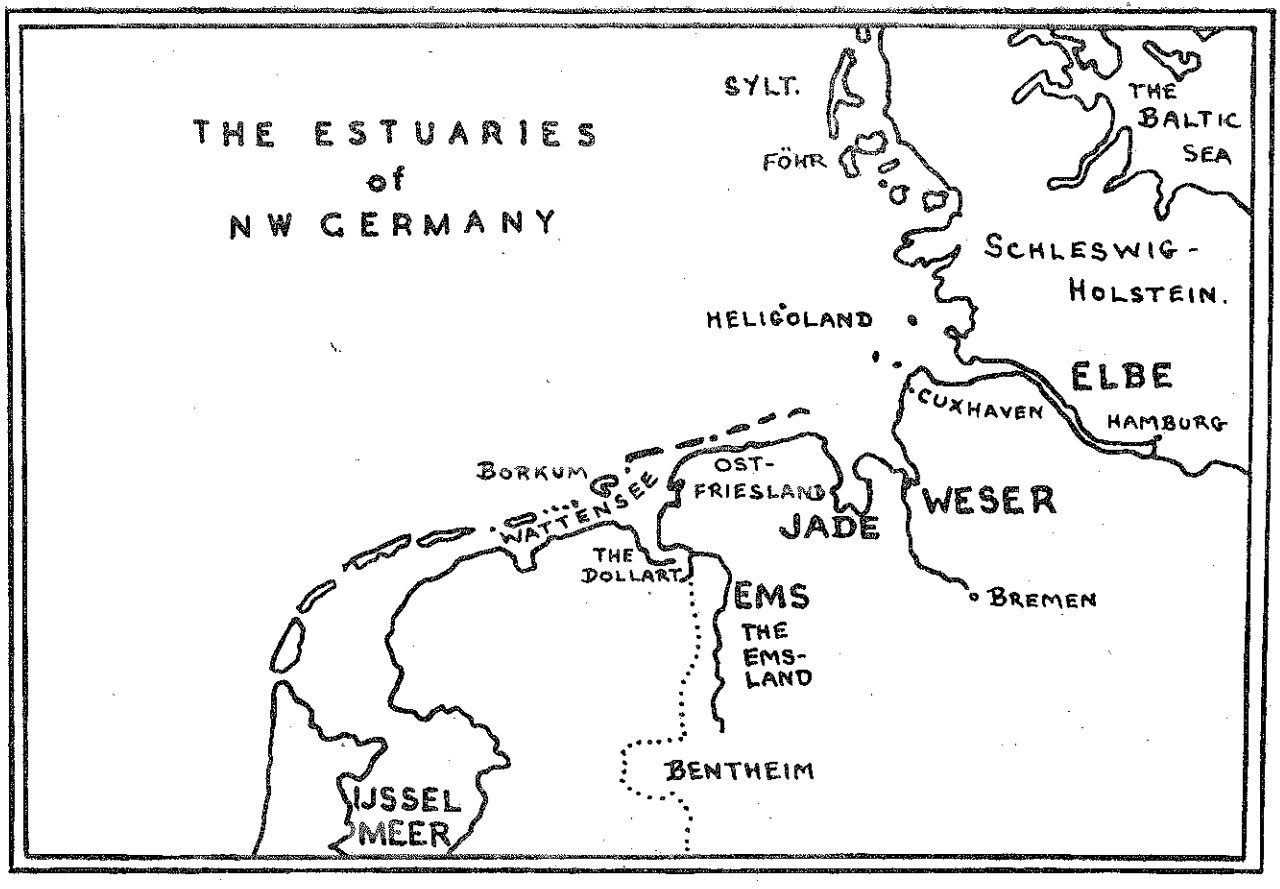
The return migration in the spring seems to be in about the same strength and to follow approximately the same route. On 20th February, 1951, the first returning skeins were seen following the Elbe Estuary as if from the sea. Numerous small skeins have also been seen moving north-east across Schleswig-Holstein and eastwards over Hamburg. The latter were probably returning to their breeding grounds on the upper reaches of the Elbe, Oder and Neisse. Reports from the islands of Föhr and Sylt off the west coast of Schleswig-Holstein of up to 1500 birds in February and March suggest yet another route due northwards along the North Sea coast towards Denmark.

All these observations point to the Elbe Estuary being the focus of both autumn and spring migrations. Ringing records indicate that the ultimate winter destination of many of these birds may be in Spain, and it seems certain that very few ever reach Great Britain.

THE WHITE-FRONTED GOOSE : *Anser albifrons albifrons* (Scop.); Blässgans.

There seems to be little doubt that this species has recently increased considerably as a winter visitor to N.W. Germany ; their numbers are greatest between October and January, and they do not reappear on spring migration except in far smaller numbers.

On the Elbe Estuary they are found wherever there are suitable grass marshes to meet their food requirements, the majority arriving during the


THE ESTUARIES
of
NW GERMANY
SYLT.
FÖHR
THE BALTIC SEA
SCHLESWIG-HOLSTEIN.
HELIGOLAND
ELBE
CUXHAVEN
HAMBURG
BORKUM
WATTENSEE
OST-FRIESLAND
JADE
WESER
THE DOLLART
EMS
THE EMS-LAND
BREMEN
BENTHEIM
IJSSEL MEER

October full moon period and leaving again during November and December. The following totals were estimated :

Autumn 1949—10,000,
Autumn 1950—10,000,
Autumn 1951—12,000.

In 1949 and 1951 the main gaggles were concentrated on two marshes, but in 1950 their distribution was far more widespread, although it was noticeable that there were still many apparently suitable marshes that were never visited. Their departure from the estuary took place gradually in 1950 and 1951, but in 1949 almost all the White-fronts assembled on one of their main feeding grounds on 8th December and left during the next twenty-four hours.

In the mild weather of 1951/1952 a few small skeins remained throughout the winter, and in the two previous severe winters two hundred " weather migrants " arrived about a month after the main gaggles had gone. Return migration in spring was on a far reduced scale; only one marsh was visited by the geese for about two weeks in March, and the following numbers were estimated :

Spring 1950—600,
Spring 1951—600,
Spring 1952—500.

Elsewhere in Schleswig-Holstein the reports are of small gaggles along the North Sea coast in autumn. South of the Elbe this goose was reported to be using the marshes between the Elbe and the Weser for the first time in any numbers from December, 1951, until the end of January, 1952, when up to 2000 were counted. They appeared to roost on the Weser. The only spring record from this locality was of one skein of 33. On the Jade Basin small skeins of less than 20 geese were reported in the winters of 1948/1949 and 1949/1950, but in the following winter their numbers reached 1500, and 250 had already arrived by mid-October, 1951, when the Basin was last visited. In Ost-Friesland, White-fronts were present from early October until mid-November in 1950 and 1951, 1000 in the first year and almost 3000 in the second.

The ultimate destination of all the White-fronted Geese before they leave Germany appears to be in the Emsland, and for the past three years between 10,000 and 15,000 have been estimated on the flooded pasture marshes. They arrive about mid-November and remain until hard weather drives them from Germany. In 1950 the first big decreases on the Elbe were followed by reports of the first arrivals in the Emsland three days later. In 1951 a thousand were seen on the marsh on 1st October—an exceptionally early date.

Reports of migrating White-fronts have been less numerous than those for Grey Lag, but a number of small skeins have been observed travelling S.W. across Schleswig-Holstein in autumn and N.E. in spring, and others have been heard rather more frequently at night. On leaving the Elbe in autumn large skeins appear to follow the estuary to the mouth, and many have been reported flying over Cuxhaven. There are no records from the East Friesian Islands, which suggests that they follow the mainland coastal belt towards the Emsland. On leaving here some travel south-west through Grafschaft Bentheim, towards the Ijsselmeer, but the majority probably go due west into northern Holland. It is usually about three weeks later that the big increases take place in England.

There are no records to show the return route in spring except for the small numbers that visit the Elbe and later cross the Schleswig-Holstein peninsula towards the Baltic. It is, however, of great interest to note that a White-front ringed by the Severn Wildfowl Trust in February, 1950, was recovered in the same latitude in S.W. Russia six weeks later. This might indicate a more southerly return migration route, as suggested by Peter Scott, but the present evidence is tenuous in the extreme, although these notes appear to support the theory.

THE BEAN GOOSE: *Anser arvensis*; Saatgans.

The reports from N.W. Germany over the past four years indicate that there has been a decrease in the numbers of this species, although it appears that there may have been considerable confusion over identification in years gone by.

On the Elbe Estuary in the past three years small parties have been seen between mid-September and mid-December, but the largest skeins only numbered fifty birds, and at this time of the year the total population for the whole estuary was probably at the most only 150 birds. The onset of severe weather in January, 1950, and again in late December, 1950, brought a gaggle of 200 "weather migrants" to one particular marsh, where they remained until the thaw. In 1951/52, only 60 appeared as the winter was exceptionally mild. There was no evidence of any spring migration.

There are no reports from elsewhere in Schleswig-Holstein or from the Jade Basin, but it is of interest that until 1949 all the grey geese from the latter locality, formerly thought to be this species, were discovered to be Pink-footed Geese. The only reports of Bean Geese from the Weser Estuary were of two small skeins in early 1952. It is an irregular visitor to the Emsland, but gaggles up to 50 strong have been seen there occasionally in each of the past four winters, and in 1948 one of 100 was seen.

On both the Elbe and in the Emsland their staple diet is grass, and they tend to favour those marshes with trees and bushes nearby.

Seven Bean Geese shot on the Elbe and two from the Emsland have been identified either by Mr. R. A. H. Coombes or Dr. J. M. Harrison as belonging

to the race *Anser arvensis arvensis* Brehm, the Forest Bean Goose. *Anser arvensis rossicus* Buturlin, the Tundra Bean Goose, was not identified.

THE PINK-FOOTED GOOSE: *Anser arvensis brachyrhynchus* Baillon ; Kurtzschnäbligegans.

Until 1949 this species was considered to be one of the rarest of the grey geese in N.W. Germany, but it is now known to be a regular winter visitor in considerable numbers and, unlike the other species of grey geese, it does not seem to be seriously affected by hard weather.

There is only one certain record from the Elbe Estuary, where twenty were found feeding under the full moon on 20th October, 1950, on the Schleswig-Holstein shore ; this is only the second record for Pink-footed Geese in that province. Another single bird was reported as being shot on the Nieder-Sachsen shore of the Estuary in October, 1948, but this goose was not seen by any competent ornithologist, although from enquiry it would appear to have been correctly identified.

Pink-footed Geese had not been recorded on the Jade Basin before January, 1949, although they were almost certainly present, as the average number seen each winter since then has been 3000. They arrive in early October and remain until the middle of April, irrespective of weather conditions. Their staple diet in this part of the world is grass ; the meadows are grazed during open conditions, but with the onset of hard weather they resort to the salting grass. There is evidence suggesting that the Jade geese sometimes flight as far as the Emsland to feed, returning to the Basin late in the evening. At the end of January, 1950, during a particularly severe spell of cold weather, a remarkable increase brought the Pink-footed Geese on the Basin to an estimated total of 10,000, although where these geese came from has not been established.

In Ost-Friesland 2000 were discovered during October and November, 1950, and again in 1951, but their particular marsh was not visited later in the year, and it is not known whether they remained there throughout the winter. The Pink-footed Goose has been reported from the Emsland in each of the past five winters in numbers varying between 200 and 500 birds. Although they are in close association with White-fronted Geese, the gaggles tend to remain apart, and when the latter leave, with the first onset of cold weather, the Pink-footed Geese remain behind until the marshes become completely icebound.

THE BARNACLE GOOSE: *Branta leucopsis* (Bechst.); Weisswangengans.

Reports suggest that the Barnacle Goose has increased as a winter visitor to N.W. Germany. Its distribution is almost entirely limited to suitable saltings on which turf-forming grass is growing, and as this is the principle method of land reclamation at present in use along the whole of the German North Sea coast, there seems every reason to associate the increase of the Barnacle Goose with the extensive reclamation schemes that are being

developed. Possibly this increase may also be linked with the reported decreases from the British Isles in recent years.

The food of the Barnacle Goose in N.W. Germany appears to be mainly salting grass, but occasionally large numbers have been seen flighting inland in Ost-Friesland and from the Jade Basin to feed on the fresh meadow grass, the Jade birds in company with Pink-footed Geese. On the Elbe this species associates freely with White-fronted Geese and has on a few occasions been watched feeding on reed tubers and young shoots in company with Grey Lag-Geese.

The North Sea coasts of Schleswig-Holstein and Nieder-Sachsen seem to be equally favoured, although there is a definite tendency for the former to be used more in autumn and early spring and the latter during mid-winter. In 1949 and 1951 gaggles estimated as at least 5000 have been seen on both coasts ; in January, 1949, one such gaggle was reported from Schleswig-Holstein within a few days of another from Friesland, and it seems very probable that these records refer to 10,000 geese, although the observations, unfortunately, have never coincided to the day. The main arrivals appear in October and November and leave again in March, but there is a remarkably early record of 200 seen on the Elbe Estuary on 12th and 13th August, 1951. In view of the numbers visiting the coast, there have been surprisingly few reports of Barnacle Geese from the Friesian Islands, small gaggles on Sylt and Borkum during autumn migration being the only ones.

Although this goose is on the whole a coast-loving species, it occurs regularly on the Jade Basin each year, and in both 1950 and 1951 a maximum of 300 was seen in January and February. There is also one instance of a single bird that was seen well inland feeding among grey geese in the Emsland. On the Elbe Barnacle Geese are seen regularly in small numbers up to fifteen or twenty miles inland. Their numbers in autumn have reached 250, but they have never been recorded in spring from these particular marshes. The most interesting inland records refer to a marsh approximately forty miles from the sea where there is little or no grass of the type usually associated with Barnacle Geese. Here the following numbers have been seen :

8.1.1950—10.	16.12.1950—50.
15.1.1950—40.	7.1.1951—10.
7.4.1950—100.	6–13.1.1952—20.

A possible explanation of these visits is that the birds are on migration but, if so, it is difficult to explain why Barnacle Geese should be so rarely seen on the southern Baltic coast.

THE BRENT GOOSE : *Branta bernicla* ; Ringelgans.

The widespread and serious decrease in this species is reflected in the paucity of records from the German North Sea coast during the past four years. The shallow *Wattensee* that lies between the mainland and the

Friesian Islands and extends from Sylt to Borkum was once the winter stronghold of this goose on the N.W. European seaboard, and uncountable numbers were an everyday sight. The *Zostera* beds off this coast were largely destroyed during the past twenty years, and although there is little doubt that the *Zostera* disease was initially responsible for the decline of the Brent Goose, it now seems that there are other factors to be considered. In the past two or three years the definite recovery on the part of the *Zostera* in this area has not so far been followed by any recovery on the part of the Brents. Indeed, in September, 1951, fishermen off the Schleswig-Holstein coast reported finding the bodies of hundreds of newly-arrived Brents, although the cause of this mass mortality was not ascertained.

It is possible that this species may have taken up new winter quarters which have not been located although, even if this were so, they would presumably continue to migrate through N.W. Germany. The scanty records received, however, show no evidence of this, and as a vivid example, during an intensive study of spring migration in 1951 off the mouth of the Elbe, during which the course of over 25,000 migrants was plotted, only 29 Brents were seen.

The largest gaggles seen off the Schleswig-Holstein coast numbered 1500, on the Island of Sylt, in the month of November, and smaller gaggles were seen on the other islands. A southward movement was noticed during hard weather, and this coincided with increases off the Friesland coast, although there the largest gaggles only numbered 700, on the Island of Borkum. The first arrivals have been seen in the latter half of September, and they have remained in numbers up to the end of the first week in May. On 25th March, 1951, three skeins numbering about 250 Brents were seen flying high off Heligoland on a course that would have taken them from S.E. England to the Schleswig-Holstein shore. A further hundred were seen on Heligoland (Düne) on 1st May, 1951. There were no records for the Elbe Estuary.

Where good observations were obtained all the Brents were identified as belonging to the dark-breasted race, *Branta bernicla bernicla* (L.), and there were no reports of the pale-breasted race, *Branta bernicla hrota* (Müll.).

THE CANADA GOOSE: *Branta canadensis*; Kanadagans.

This goose has yet to be officially recognized as a wild bird in Germany. Five of them were seen on a marsh in the Emsland on 25th November, 1950, and one was shot weighing thirteen pounds. Another was seen on the Elbe Estuary on 16th December, 1950, and again a week later. In November, 1951, a further small gaggle was seen in the Emsland.

Canada Geese have been regular winter visitors to the Dutch marshes since 1945 in small gaggles. They are now breeding in the wild in Sweden, and a Dutch ringing recovery has proved the Swedish origin of these winter visitors to Holland, which appear to be readapting themselves to a migratory existence.

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