

GREENLAND WHITE-FRONTED GOOSE STUDY



REPORT OF THE 2004/2005 NATIONAL CENSUS OF GREENLAND WHITE-FRONTED GEESE IN BRITAIN

Corrected final report – October 2005

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SUMMARY

Two complete censuses of all known Greenland White-fronted Goose wintering haunts found a total of 14,079 birds in autumn 2004 and 14,030 in spring 2005. These comprised 7 birds in England, 92 in Wales, 7,945 and 7,152 on Islay and 6,035 and 6,779 in the rest of Scotland in autumn and spring respectively. Counts were missing from Muck where the figures from the last available year were substituted (comprising <0.2% of the totals). Some counts from South Uist, the autumn count from Plockton and Jura and the spring count from Loch Shiel were substituted from the nearest suitable months, amounting to 0.9% and 1.0% of the British totals in autumn and spring. Breeding success was again well below the average for the last 15 years at 7.8% young ($n = 7,688$ aged, close to last year's value), brood size was 3.3 ($n = 144$ broods). The continued run of very low production of young (which fails to replace annual losses in the population) is doubtless the major reason for the continued decline in the population. There was a 19.3% decline in the autumn count since last year (compared to 10.9% in the previous season) and a 14.4% decrease in the spring total over the previous year (compared to 10.3% between 2002/3 and 2003/4). The majority of the decline can be attributed to the fall in numbers on Islay, where the counts dropped by an alarming 29.5% and 25.9% in autumn and spring respectively over the previous year. We await the count data from the rest of Ireland away from Wexford before we can provide the global population estimate for 2004/2005. However, it seems unlikely that the spring 2005 total will exceed 24,000 based on estimates modelled on previous Wexford and Islay counts, suggesting further declines in numbers in this population since the peak in spring 1999.

INTRODUCTION

The 2004/2005 survey was the twenty-third annual census of Greenland White-fronted Geese co-ordinated in Great Britain by the Greenland White-fronted Goose Study. As usual, full censuses were attempted in autumn and spring to coincide with the International counts made concurrently in Northern Ireland and the Republic of Ireland and co-ordinated there by the National Parks and Wildlife Service from Dublin. Table 1 shows the most recent total census data available to the present, although counts from Ireland are missing from 2001, 2003, 2004 and 2005.

Table 1. Spring population census totals for Greenland White-fronted Geese, 2000-2005. The British total for spring 2001 (missing because of the outbreak of Foot and Mouth Disease) has been estimated based on the relationship between spring and autumn counts from previous seasons. At the time of compilation, collation of count coverage for the rest of Ireland from spring 2001, 2003, 2004 and 2005 was incomplete, hence global population totals cannot be estimated in these years.

	spring 2000	spring 2001	spring 2002	spring 2003	spring 2004	spring 2005
<i>Wexford</i>	8330	-	7133	7915	8424	7707
<i>Rest of Ireland</i>	(4617)	-	3158	-	-	-
<i>Islay</i>	11201	13281	9161	10677	9653	7152
<i>Rest of Britain</i>	8056	7787	6960	7595	6734	6878
<i>Population total</i>	32204	?	26412	?	?	?

ARRIVAL/DEPARTURE DATES

The earliest birds were 4 on the Dyfi Estuary in mid-Wales and 8 returning to Loch Ken on 3 October with 17 reported on Colonsay on 4 October. In Caithness, 4 adults were back at Loch of Mey on 5 October and 24 adults at Stemster Farm, Broubster the next day, where 42 went to roost at Loch Saorach on 7 October. The earliest birds on Tiree were seen coming off the sea on 6 October (where the main arrival occurred during 10/11 October). Similarly Coll witnessed the first 6 birds flying over the island on 6 October, with the main arrival overnight on 8/9 October. Three Greenland White-fronted Geese appeared at Meikle Loch, East Brogan (Aberdeenshire) on 12 October, with a single the same day at Mid-Mains (Elgin) and 2 there on 14 October. Geese were first seen at Lorn on 18 October. The only records from Anglesey this winter were 6 birds flying south over Mynydd Bodafon on 18 October, with birds back at Lismore the same day, while the first 7 birds back at the Grindon site in Northumberland also appeared on 18 October (with 16 present there next day).

Birds lingered at Lismore until 11 April (7, although all had gone by 20 April), Colonsay (14 on the same date) and at Loch Ken until 12 April 2005 (where all had gone by 14th). The Grindon, Northumberland birds were last seen on 12 April. Five collared birds that had wintered at Wexford Slobs passed through Tiree on 5 April and 11 birds flying north on 18 April were the last reports. On Coll, 1400 passed over early morning on the 16/20 April, probably birds coming from Islay. Unusually all of the 92 wintering birds on the Dyfi were present until 22 April.

COUNT TOTALS

The counts presented here are based on the regular coverage of all known regular wintering sites organised by GWGS, but also incorporate counts carried out by Scottish National Heritage. Again this year, no data have been incorporated from the WeBS database, as these counts were not available at the time of report writing, but they normally only contribute a few birds from elsewhere in Britain away from those counted at the regular wintering haunts.

Numbers again seem to have fallen dramatically in 2004/2005, especially on Islay. This decline can be explained by another year of low reproductive output in the population which during the last 5 years has been consistently half the long term average since 1960. Regrettably the continued lack of collated counts precludes a current presentation of Irish (and hence total) population trends at the time of this report, but below we have attempted to estimate the global population size because of the continuing downward trend in the population.

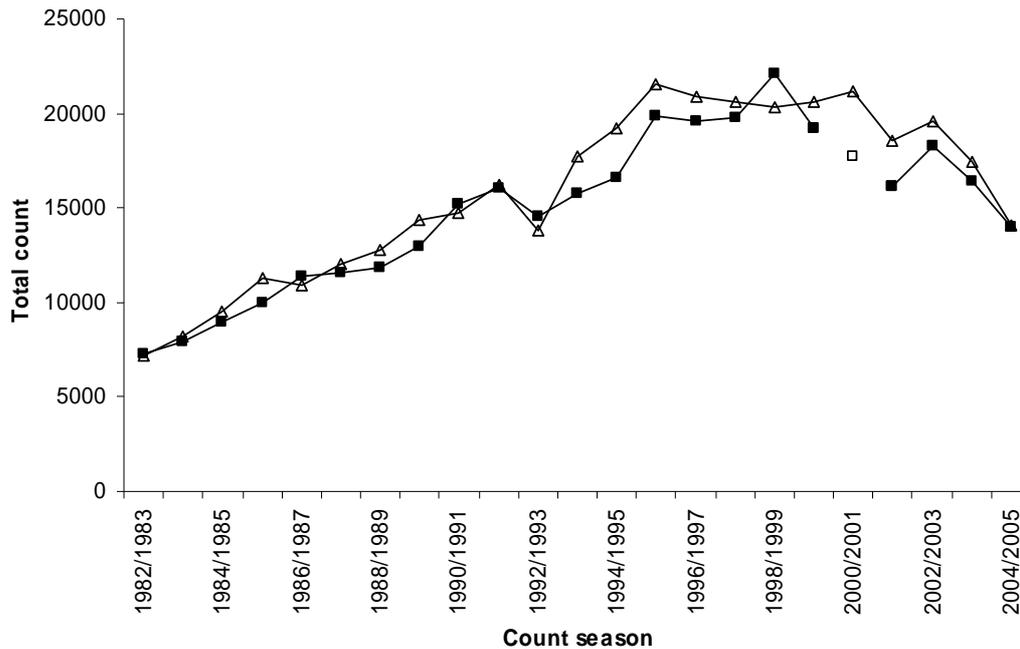


Figure 1. Counts of Greenland White-fronted Geese in Britain, 1982/1983-2004/2005, showing autumn (open triangles) and spring (filled squares) census results for each season. Note the missing value for spring 2001 (unfilled square) on account of the outbreak of Foot and Mouth Disease that year.

COUNT BREAKDOWN

A full breakdown of the count totals giving the maximum counts per month and the census period total is appended at the back of the report.

Greenland White-fronted Geese were located once in the vicinity of Kentra Moss, confirming the continuing presence of small numbers of geese at this resort. Brian Neath also located a single family in the Plockton area, where small numbers have continued to have a tenuous hold for the past 6 winters after an absence last year. As well as the overall decline witnessed at most resorts this winter (most notably on Islay) again it would seem that it is the small and vulnerable flocks which teeter on the verge of disappearance at the present time.

AGE RATIOS IN 2004/2005

Breeding success for Greenland White-fronted Geese in 2004 was again extremely low, amounting to almost half of the long-term average level since 1960. Such consistently low production over the last 5 years is having a serious effect, as numbers of young birds fall well below those needed to replace annual losses. Overall production was 7.8% among the aged samples (Table 2), but the majority of places again failed to reach 6% young in the flocks. There were 8.1% young on Islay (compared with 13.8% average during 1982-2002, and 8.5% last year) and 7.5% in the rest of Britain (compared with 13.5% average during 1982-2003 and 8.8% last year). Mean brood size was 3.33 (see Table 2) based on 144 families sampled from a restricted number of sites. The average values were 3.66 on Islay (slightly up on last year, and higher than the 1982-2002 average, 3.25) and 2.75 elsewhere (also slightly higher than last season).

Table 2. Summary of age ratio determinations and brood sizes for Greenland White-fronted Geese wintering in Britain 2004/2005.

SITE	% YOUNG	SAMPLE	MEAN BROOD SIZE	SAMPLE
Loch of Mey, Caithness	2.59	193	3.20	5
Westfield, Caithness	4.90	102	2.60	5
Drumbuie, Plockton	60.00	5	3.00	1
Kentra Moss	0.00	37		0
Tiree	2.48	525	1.86	7
Coll	15.13	357		0
Colonsay	1.23	81	1	1
Benderloch/Appin/Eriska	18.29	82	3.00	5
Moine Mhor	5.00	20	1.00	1
Rhunahaorine, Kintyre ¹	7.31	752	3.44	16
Machrihanish, Kintyre ¹	8.50	200	4.25	4
Islay ¹	8.07	4855	3.66	92
Loch Ken	3.41	205		0
Stranraer	6.33	79	1.25	4
Endrick Mouth	7.78	90		0
Grindon	0.00	7		0
Dyfi Estuary	4.35	92	1.33	3
Britain, excl. Islay	7.45%	2833	2.75	52
OVERALL	7.84%	7688	3.33	144

¹Details from Islay and Kintyre courtesy of Dr Malcolm Ogilvie

It is clear that the production of young in the seasons since summer 1999 has been well below the running average for the years 1962-2004 (see Figure 2 below).

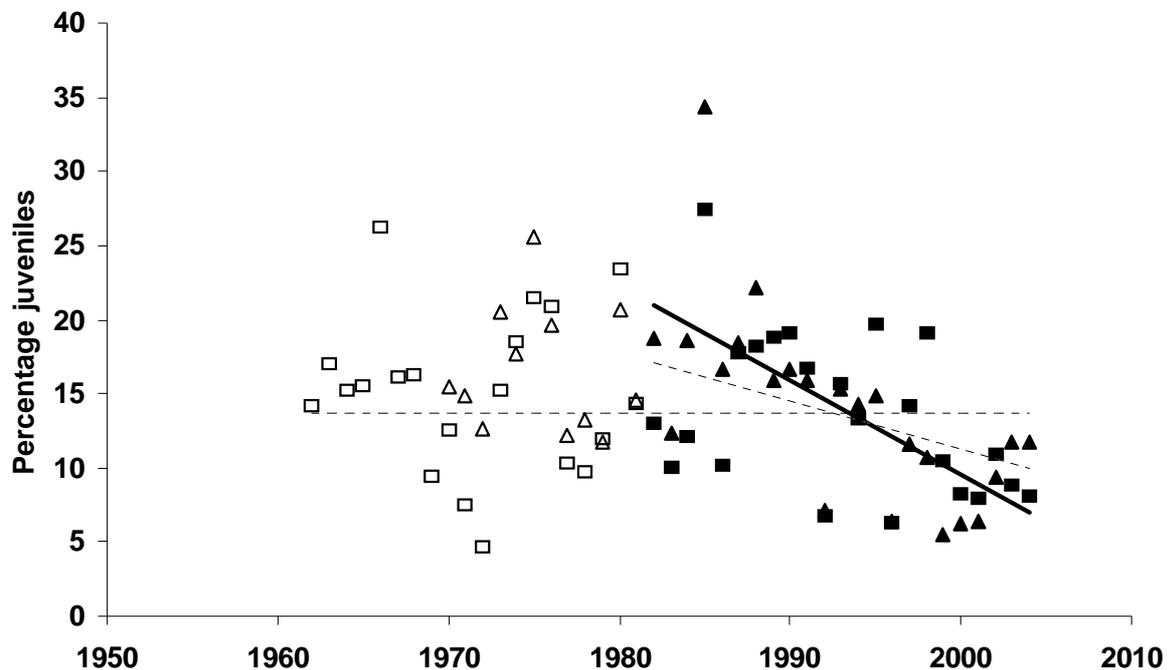


Figure 2. Percentages of first winter geese amongst samples of Greenland White-fronted Geese at Wexford (south east Ireland) and on Islay, 1962-2004. Islay values are shown as triangles, samples from Wexford as squares, open symbols show the situation prior to protection of hunting on the wintering grounds, filled symbols indicate values from the two sites since the cessation of hunting. The horizontal dotted line shows the 1962-2004 Islay mean for comparison. Note that the percentages have been well below the mean in each of the last 8 seasons.

GLOBAL POPULATION SIZE

We can attempt to estimate the total population size from the counts available from Islay and Wexford combined since these make up c.63% of the total world population total during 1982-2002. A simple regression model of Wexford plus Islay spring counts can explain 88% of the variation in the total count in all other resorts, so it is possible to predict the total population with some confidence based on numbers at these two resorts. Doing so for the springs of 2003, 2004 and 2005 provide the estimates shown in Figure 3 including an estimate of 23,840 for spring 2005. This graph shows the substantial decline that has occurred in the population as a whole. Although these estimates are based on the numbers at Wexford and Islay, which may not reflect trends in the population as a whole, there is no doubt that continued declines are apparent elsewhere (e.g. in Scotland at the major resorts on Kintyre, Loch Ken and Stranraer). Hence, it is not unreasonable to assume that the total population size is now under 25,000, a fall of over 10,000 birds (i.e. a reduction by one third) since the peak 1999. It is also interesting to see the Islay numbers reducing markedly during the last summer, such that after a period where their numbers exceeded Wexford, the spring count at the major Irish resort now exceeds that on Islay.

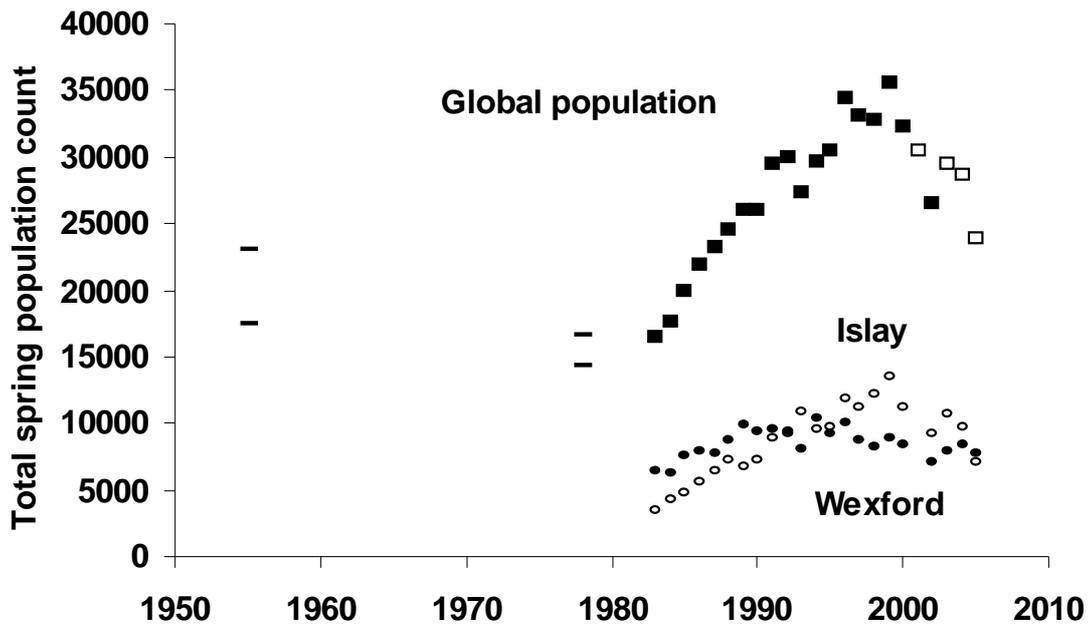


Figure 3. Global population size of the Greenland White-fronted Goose from the mid-1950s until the present. Horizontal lines indicate the maximum and minimum estimated numbers published by Rutledge & Ogilvie in their 1979 *Irish Birds* paper. Solid squares give the global count totals for years with co-ordinated international spring counts. The unfilled square for 2001 was estimated from the autumn count because of the Foot and Mouth epidemic that year. Estimates for the last 3 winters (also shown as unfilled squares) are generated from Wexford and Islay counts as described in the text. Spring counts from Islay and Wexford are also shown for reference.

OTHER NEWS

Greenland

This summer the Danish Environmental Protection Agency funded aerial surveys of west Greenland to assess the distribution and abundance of geese there. The main aim was to establish the extent to which the stocks of North American Canada Goose has increased in the breeding period since the first survey took place in 1999. Christian Glahder and Tony Fox chartered a twin-engined high-wing Parthenavia aircraft from Iceland and flew virtually the same transect lines in June 2005 as were covered in 1999. We sampled observations on the basis of the number of single birds or pairs that we encountered, because it is assumed that these have some allegiance to place (i.e. they are associated with nest sites in contrast to floating non-breeders). Nevertheless, we also recorded flocks for a general assessment of overall densities. The results presented here are preliminary as we await the final detailed analyses of these counts. One problem that we faced with interpretation of the results was that the distribution of breeding birds of both species was markedly different in 1999 and 2005. Both Canada and White-fronted Goose pairs were less numerous in the south and more numerous further north in 2005 than in 1999. This was undoubtedly the result of the delayed thaw in 1999, when snow cover restrained geese to more a southerly distribution that year.

In spite of this, the findings were striking – although the overall density of Canada Goose pairs did not change between 1999 (0.0756 pairs km⁻²) and 2005 (0.0740 pairs km⁻²), the overall density of White-fronted Goose pairs fell from 0.1322 pairs km⁻² in 1999 to 0.0483

pairs km⁻² in 2005. This 3-fold decrease in breeding pairs of Greenland White-fronted Geese corresponds well to a similar magnitude of decline amongst the numbers of families returning the Islay wintering quarters in south-west Scotland 557 in 1999 to 171 in 2004 the last year for which data are available. The ratio of the number of birds observed in pairs to those observed in flocks increased amongst Canada Geese from 0.364 in 1999 to 1.185 in 2005. Hence, although the density of breeding pairs did not change, the overall density of all Canada Geese encountered rose 7-fold! In contrast, fewer non-breeding Greenland White-fronted Geese were seen in 2005 compared to 1999, the ratio falling from 1.488 to 0.683. Together with the fall in breeding pairs detected, this led to a decline of 52% in density from 0.336 birds km⁻² to 0.163 birds km⁻². This decline is also very similar to the overall decline in wintering numbers on Islay where numbers fell from 13560 in spring 1999 to 7152 in spring 2005 (47%).

It therefore seems that although the numbers of Canada Geese behaving as if breeding in west Greenland did not increase between 1999 and 2005, the absolute total numbers of birds has increased 7 fold (presumably a result of dramatic increases in numbers of non-breeding birds, perhaps including moult migrants from Canada). Over the same time, the numbers of breeding White-fronted Geese have decreased 3-fold and their overall density has halved. The fact that these measures correlate with observations on the wintering grounds gives added confidence in the survey data.

Of course, these survey results cannot prove any causal linkage between the increase in Canada Geese and the decrease in Greenland White-fronted Geese, but they do show continued and dramatic increases in densities of a species known to be behaviourally dominant over the Greenland White-fronted Goose. This reinforces the need for deeper analysis of the spatial relationships between the two species and for ecological studies on the breeding biology of the two species where they occur together and apart in west Greenland.

A post moulting survey, attempted in August to see how the two goose species are distributed prior to autumn migration (the least studied period on the summering grounds about which we know very little) failed to achieve adequate cover because of bad weather. Another attempt may be made next summer. We are again very grateful to Úlfar Henningsson, our obliging pilot and the Greenlandic authorities for permission to carry out the surveys.

Iceland

This autumn, a small group again travelled to Hvanneyri Agricultural University in western Iceland to look at autumn staging of Greenland White-fronted Geese there. The team arrived on 16 September, normally a little before the first arrivals in Iceland in a normal season. However, this was clearly not a normal season, as the first white-fronts were present from 4th September, and some were seen arriving in the southern lowlands on 6th September. There have also been early reports of arriving geese at several Scottish resorts in September, so we shall be interested to see if this was an early passage generally. Sixty geese were caught and fitted with brand new collars (so look out for any bright orange collars this winter) and a maximum of 3300 birds had been counted on the site. The latter is a record count, and representing as it does c. 14% of the population, even without factoring in turnover through the season, this means that more than one in eight of all Greenland White-fronted Geese use this one site in autumn. More news about the studies there will be forthcoming when the team return. Our thanks to all at Hvanneyri for their help and support, but especially to Professor

Björn Thosteinsson, Kerstin Langenberger and the staff for their help during the stay.

REPORT ACKNOWLEDGEMENTS

Thanks as ever go to the magnificent counters who often put up with atrocious weather and who count, collate and send the efforts of their labours to us to report! Of course, we realise that counting, ageing and looking out for collars is not always a chore, but the business of managing records and sending them in to us certainly can be! For this reason, we are extremely appreciative as always to all those who have helped with counts for yet another season. In 2004/5, these include: John Adair, Bob Adam, Dave Batty, Pat Batty, John Bowler, Roger Broad, Paul Collin, Colin Corse, Peter Cunningham, John Dye, Keith Fairclough, Ian Fisher (for collation of the Grindon records), Derren Fox, Mike Gear, Mary Gregory, Louise Gregory, Dick Hewitt, Ian Hopkins, Keith Hoey, Paul Isaacson, Tim Jacobs, David Jardine, Russell Jones, Wilma Kelly, Andy Knight, Stan Laybourne, Dennis McCullough, Marco McGinty, Rae McKenzie, Leigh Marshall, Dick Matson, Eric Meek, Andy Mitchell, Carl Mitchell, Margaret Morris, Brian Neath, Bill Neill, Malcolm Ogilvie, Scott Paterson, Mike Peacock, Chris Rollie, Dave Sexton, Dick Squires, Andrew Stevenson, David Stroud, Arthur Thirlwell, James Towill, Simon Wellock, Catriona White and Fergus Younger. Thanks to SNH for coverage of sites in Argyll, to the counter teams on Kintyre and Islay and our sincere apologies as ever for forgetting anybody whom we may have inadvertently omitted. The census is supported by the Joint Nature Conservation Committee through a sub-contract from the Wildfowl and Wetlands Trust, and we thank Rich Hearn for his help as nominated officer for the project.