

# **GREENLAND WHITE-FRONTED GOOSE STUDY**



## **REPORT OF THE 2006/2007 NATIONAL CENSUS OF GREENLAND WHITE-FRONTED GEESE IN BRITAIN**

*Final report – September 2007*

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## SUMMARY

*Two complete censuses of all known Greenland White-fronted Goose wintering haunts found totals of 12,271 birds in autumn 2006 and 12,536 in spring 2007, compared with 13,609 and 14,287 respectively in the previous season. The 2006/2007 totals comprised 6 birds reported in England, 78 in Wales, 6194 and 6025 on Islay (compared with 7,456 and 7,111 respectively last season) and 5,993 and 6,427 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, Skye, Stranraer and Loch Shiel were substituted from the nearest suitable months, amounting to 3.9% and 4.4% of the British totals in autumn and spring, respectively. Breeding success was again below the average for the last 15 years at 10.2% young although encouragingly up on last year (n = 5,319 aged); brood size was 3.4 (n = 190 broods). The trend for poor reproductive performance in recent years continued in 2007, and after little change in annual number wintering in Britain in the previous two years, there was a 13% decline over the previous season, with a 15% fall in numbers on Islay compared to last spring. The spring counts from Ireland are not available at the present time, so we cannot provide a global population estimate for spring 2007. The encouraging number at Wexford in spring 2007 (9713, a remarkable 19% increase over the previous spring count there) suggests the overall decline may be less than was first feared, though this cannot be confirmed until full details are available from Ireland. However, with continuing low reproductive output in the population, there was another serious decline in the British numbers in 2006/2007 compared to the previous winter.*

## INTRODUCTION

The 2006/2007 survey was the twenty-fifth 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 2003, 2004, 2005 and 2007. Note the count at Wexford was unusually high for recent years and may partly explain the low count on Islay (see below).

*Table 1. Spring population census totals for Greenland White-fronted Geese, 2002-2007. At the time of compilation, collation of count coverage for the rest of Ireland from spring 2003, 2004 and 2005 was incomplete, hence global population totals cannot be estimated in these years.*

	spring 2002	spring 2003	spring 2004	spring 2005	spring 2006	Spring 2007
<i>Wexford</i>	7133	7915	8424	7707	7892	9713
<i>Rest of Ireland</i>	3158	-	-	-	2716	-
<i>Islay</i>	9161	10677	9653	7152	7111	6025
<i>Rest of Britain</i>	6960	7595	6734	6878	7176	6428
<b>Population total</b>	<b>26412</b>	<b>?</b>	<b>?</b>	<b>?</b>	<b>24895</b>	<b>?</b>

## **ARRIVAL/DEPARTURE DATES**

Amongst the earliest birds were 5 heading south over Tiree on 27 September, but generally most places did not receive Greenland White-fronted Geese until very late into October. John Bowler reported at least 805 heading south over Barra on the Outer Hebrides on 19 October, part of a huge movement of Barnacle Geese that day. It seems this date marked a major arrival, which is very late indeed compared to most recent years. For instance, none were seen subsequently on Tiree until 40 were seen on 20 October, the same day that 9 appeared on the Dyfi estuary in mid Wales, 37 at Loch Ken on 21 October were the first there, as were 8 on Colonsay on 24 October. These reports confirm an impression of an exceptionally late arrival of Greenland White-fronted Geese, delayed until the third week of October in 2006.

Two birds remained at Loch Ken behind the main departure on 7 April but were gone by 9 April, while 17 persisted on Tiree until 18 April, with one (probably injured) present until at least 8 May. Recent analysis of the departure dates of birds from Wexford has shown that the date of departure for half of the winter population has advanced there by 11-14 days, from an average of 24 April in 1973 to an average of 10 April by 2007. This is a statistical averaging, because in reality, more than half of the population had physically departed on 2 April 2007. Scanning through old county bird reports and the annual Scottish Bird Report, the reports of departures and especially visible migrations of large flocks passing northwards over the Western Isles corroborate this picture, and these records confirm a similar shift over the same period. Quite what the consequences of these changes might be for the birds during their spring migration are unknown, but despite their earlier arrival to Iceland, the geese seem to be able to accumulate body stores and fat at the same rate (albeit earlier) despite the increasingly earlier timing of the migration period. Some of these questions are being studied at the moment and we will bring more news regarding these changes when the results are available, since it is important that we predict what future changes may mean for the population.

## **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.

After a slight stabilisation of numbers last year, numbers fell again in Britain (see Figure 1), despite the boost in reproduction caused by large numbers of young at some resorts (e.g. Kintyre). Numbers fell on Islay by 12% and there were few signs of recovery in numbers elsewhere. However, the count from Wexford suggests a recovery over recent years there (see Table 1), suggesting a major redistribution of wintering geese occurred during 2006/7 compared to the previous year, making a complete count of the wintering grounds a pressing priority.

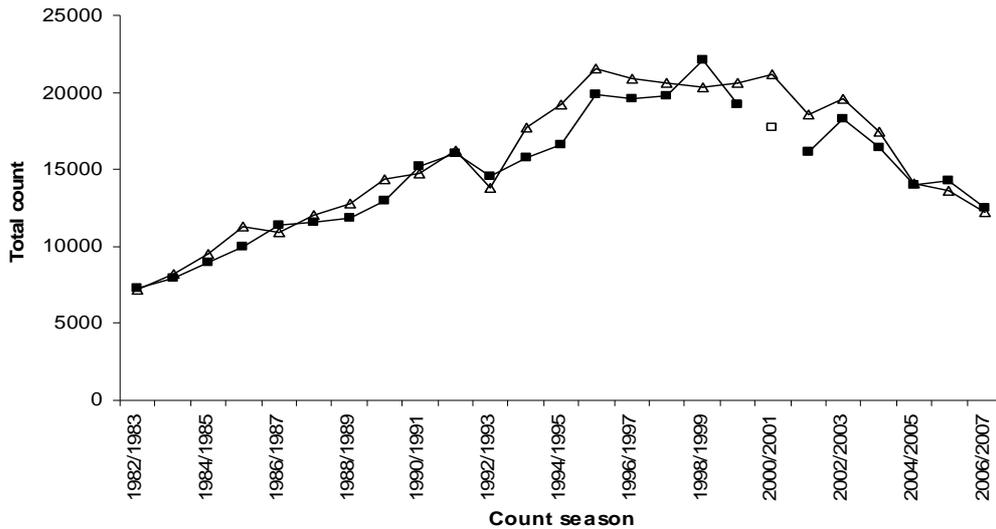


Figure 1. Counts of Greenland White-fronted Geese in Britain, 1982/1983-2006/2007, showing autumn (open triangles) and spring (filled squares) census results for each season. Note the missing value for spring 2001 (unfilled square) on account of the outbreak of Foot and Mouth Disease that year.

## 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.

After the short description of the Orkney flocks in the last report, Eric Meek reports this year that he and his valiant group of counters were unable to locate any geese away from the Loons and Swannay Loch/Ludenhill areas. These sites together supported up to a maximum of 105 Greenland White-fronted Geese in 2006/7. The team are convinced that these are the same birds using the two areas, and that the geese may move rapidly between the areas, making assessment of total numbers difficult. For example on 26 December 2006, 94 were seen at The Loons and 75 reported from Swannay Loch/Ludenhill, but Eric considered that birds had probably moved between the sites in the interim. The sadder news is that given that there were no reports of birds away from these areas, this almost certainly means the end of the East Mainland flock on Orkney and, after some years without observations, it would seem that Stronsay is also no longer a regular resort. In the west, birds were again not reported from Assapol on Mull, but there were no counts carried out there during the international census periods. There were also no reports again from the Plockton area, after an absence the year before last suggesting that this group of birds may finally also have disappeared.

## AGE RATIOS IN 2005/2006

We received substantially fewer age ratio samples last winter compared to earlier years and it would be very useful, given the downturn in the abundance of Greenland White-fronted Geese at present, to boost this sample from many more sites than are presently covered. Breeding success for Greenland White-fronted Geese in 2006 was low, but not nearly as bad as in some recent years, although still below the long-term average level since 1960. Overall production

was 10.2% (compared with 8.6% last season) among the aged samples (Table 2), but there was considerable variance between wintering sites, with two of the Kintyre flocks in particular apparently performing very well compared to everywhere else (including that at the nearby site of Rhunahaorine). Such large differences in production of young between flocks has not been noted before and perhaps could provide some clue as to the reasons behind the poor productivity of recent years. Production of young on Islay was closer to average (10.0% compared with 13.3% average during 1982-2005, and 8.6% last year) and in the rest of Britain was 10.5% (compared with 13.0% average during 1982-2005 and 8.2% last year). Mean brood size was 3.36 (see Table 2) based on 190 families sampled from a restricted number of sites. The average values were 3.26 on Islay (slightly down on last year) and 2.73 elsewhere. Mean brood size at Wexford was 3.37 based on 102 broods, so these patterns again confirm the remarkable capacity of Greenland White-fronted Geese to return with large families, even though very few pairs return to the winter quarters with young. Hence it does seem that if pairs breed successfully, they do tend to be very good at it!

*Table 2. Summary of age ratio determinations and brood sizes for Greenland White-fronted Geese wintering in Britain 2006/2007.*

SITE	% YOUNG	SAMPLE	MEAN BROOD SIZE	SAMPLE
Loch of Mey, Caithness	9.15	164	3.00	5
Westfield, Caithness	7.97	138	1.83	6
Tiree	2.89	484	2.00	7
Coll	15.05	372	-	-
Colonsay	10.17	59	-	-
Lorn/Benderloch	14.05	121	2.17	6
Rhunahaorine, Kintyre <sup>1</sup>	6.17	243	4.50	4
Machrihanish, Kintyre <sup>1</sup>	20.16	377	4.33	3
Clachan, Kintyre <sup>1</sup>	23.60	161	4.33	3
Islay <sup>1</sup>	9.99	2822	3.51	153
Loch Ken	2.47	162	1.33	3
Stranraer	5.96	151	-	-
Dyfi Estuary	0	65	-	-
Britain, excl. Islay	10.45%	2497	2.73	37
OVERALL	10.21%	5319	3.36	190

<sup>1</sup>Details from Islay and Kintyre courtesy of Dr Malcolm Ogilvie

## OTHER NEWS

### *Iceland*

After the expectation following the announcement of the end of hunting of Greenland White-fronted Geese in Iceland from autumn 2006, it is saddening to see that the numbers continue their downward trend in this the second winter following protection. Until autumn 2006, this source of mortality still accounted for some 3,500 birds per annum, so it might be expected that removal of this source of mortality might have had a greater effect on annual survival and hence overall population size that in fact has been the case. We shall of course continue to monitor the situation to see the longer-term effect this will have on the numbers of Greenland White-fronted Geese in the coming years. Since young birds were very much over-represented in the shooting bag, it will take a few years before these birds attain breeding age and recruit into the breeding population. We will also continue to monitor adult annual survival through the resightings of collared individuals to look at the long-term changes there.

In spring 2007, a team travelled to west Iceland to again study the geese based at the University at Hvanneyri. The group consisted of Roy King, John Turner, David Stroud (Joint Nature Conservation Committee), Ruth Cromie (Wildfowl & Wetlands Trust), Anne Würtz Petersen (a masters student at Aarhus University) and Tony Fox. Anne undertook a major analysis of the effects of disturbance on the distribution and abundance of geese between the many different fields on the site. Using data collected in 2007 and historical material from similar studies in 1997-1999, she was able to show that the major factor determining goose densities in fields were the grass swards, but that nearness to roads and buildings had relatively little modifying effects on the numbers of geese present. The analysis continues but the findings are significant and important for managing the geese at the University farm, which is designated as a refuge for the geese. The group caught 33 new geese and fitted them with collars, all of which were health screened by Ruth and David. The team also generated more than 380 resightings of 101 different collared individuals, both at Hvanneyri and in the surrounding area. The group also contributed to giving a course to students at the University, which included some very early mornings to assist with the cannon-net catches! Results from this work will be forthcoming in a major report being collated and prepared on the studies carried out in Iceland over the last 21 years.

### *Greenland*

As we explained this time last year, in summer 2007 the Danish Environmental Protection Agency again provided funding for aerial surveys of west Greenland to assess the distribution and abundance of geese there post moult. The main focus was tracking the abundance of North American Canada Geese that have so increased in the breeding period since the first survey took place in 1999. Christian Glahder and Tony Fox were again in west Greenland in mid August to attempt to survey the summering areas post moult. This is a period we know precious little about, yet it is a critical period for the geese, during which they fatten up, accumulating fuel for the journey back to the winter quarters. At last, after two unsuccessful years, the survey was completed and we came back in late August with transects flown using a twin-engined high-wing Parthenavia aircraft flown from Denmark. The data are still being

worked up, but first indications are that both geese tended to concentrate near to the edge of the inland ice cap during this previously unstudied period. We saw many flocks on the white water of meltwater lakes adjacent to the ice front, even though the vegetation cover in such areas is usually highly restricted. Both species of geese were more conspicuous at this time, when families are starting to fly and the moulters have also regained the powers of flight. The ratio of Canada Geese to White-fronted Geese on our statistically rigorous transects were just over 2:1, slightly more than in June 2005 (when of course both species tend to be more cryptic), but overall (i.e. during transit flights and other non standard coverage) we registered 6 times more Canadas than White-fronts. We were also a little surprised to find 500 snow geese, almost certainly lesser snows because of the large proportion of blue phase individuals amongst the flocks. These numbers are substantially up on 2005 and included what looked like a large flock of gosling not yet able to fly on Svartenhuk peninsula at 72°N. In addition, we carried out extensive surveys south of the Sukkertoppen ice cap as part of an assessment of the environmental impacts of the potential development of the area for hydro power. This was an area we surveyed in 1999 but found largely empty of geese, and so it proved again in 2007. We are currently working all the aerial survey data up for a major report of this work going back to 1999 and 2005 which should be finished soon.

## **REPORT ACKNOWLEDGEMENTS**

Here we are again! Thank to every one again this year for supplying counts. We do enjoy keeping in touch, and are incredibly grateful to you for your dedication to the cause of counting these wonderful birds – thank you to all of you! In 2006/7, these include: John Adair, Bob Adam, Vicky Anderson, Dave Batty, Pat Batty, P. Berry, John Bowler, Roger Broad, George Christie, Paul Collin, Colin Corse, Peter Cunningham, Keith Duncan, John Dye, Keith Fairclough, Ian Fisher, Derren Fox, Michael Francis, Dominic Funnell, Mike Gear, Mary Gregory, Louise Gregory, Larry Griffin, Nick Haycock, Dick Hewitt, Ian Hopkins, A. & E. Horner, Keith Hoey, Dave Irving, Paul Isaacson, Tim Jacobs, David Jardine, Tracey Johnston, Russell Jones, Wilma Kelly, John Kemp, Andy Knight, Stan Laybourne, Ross Lilley, Stephen Longster, Ruth Mathias, Dennis McCullough, Marco McGinty, Rae McKenzie, Bob McMillan, Leigh Marshall, Dick Matson, Eric Meek, Andy Mitchell, Carl Mitchell, Margaret Morris, Brian Neath, Bill Neill, Malcolm Ogilvie, Scott Paterson, Mike Peacock, Brian Rabbitts, John Raymond, Alan Reid, Dave Rogers, Chris Rollie, Malcolm Russell, Dave Sexton, Stuart Shaw, Alan Simpson, Dick Squires, Andrew Stevenson, David Stroud, Arthur Thirlwell, James Towill, Andrew Upton, Simon Wellock, Jim Williams, Anna White, Catriona White and Fergus Younger (with humble apologies if we have inadvertently forgotten anyone!). We gratefully acknowledge Alyn Walsh for kindly providing the counts from Wexford and the brood size data from there, part of the continuing programme of research and surveillance carried out by the National Parks and Wildlife Service at the site. Thanks to SNH for coverage of sites in Argyll, especially Tracey Johnston and Margaret Morris, 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 WWT officer for the project.