



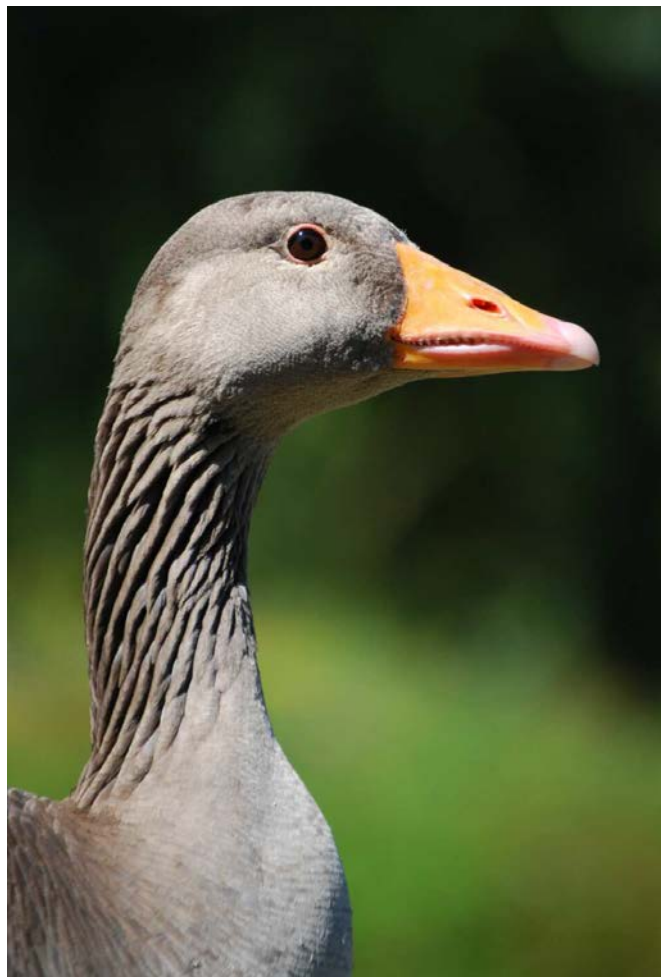
GooseNews

The newsletter of WWT's Goose & Swan Monitoring Programme
Issue no. 7, Autumn 2008

Into the future – the changing nature of geese and counts

One of the strengths of the long-term monitoring of goose and swan populations is being able to look at changes in abundance and distribution over time. In this edition of *GooseNews* there are reports on the latest population estimates of several species that are monitored annually. Most show stable or increasing populations, however, the recent trend for Greenland White-fronted Geese (page 15) counted in Britain is one of decline, from c. 21,000 birds in 2000 to c. 12,500 in March 2007, the lowest count since 1987/88. This population is one of the most site-faithful of all the geese wintering in Britain and Ireland and despite this decrease in numbers, many flocks have persisted. A workshop, organised by Scottish Natural Heritage, is to be held on Islay in February 2009. The key aims of this meeting include reviewing the threats to the population and investigating conservation actions for their reduction, and to reinvigorate the Species Action Plan.

The International Greenland Barnacle Goose Census is undertaken approximately once every five years (page 5). This involves volunteer and professional counters undertaking ground counts at various sites in north and west Scotland and west Ireland, together with the use of light aircraft to check uninhabited offshore islands. The population has steadily increased from c. 8,000 birds in the late 1950s, to c. 70,000 counted during the recent census in March 2008. Whilst there have been dramatic changes in the abundance at some resorts in the last 50 years, with, for example, numbers on Islay increasing 16-fold from 2,800 to c. 45,000, the general distribution of the birds has also remained similar to the late 1950s. Hugh Boyd, writing in the 1950s, described an element of tradition in wintering wildfowl that sees flocks returning to familiar areas year after year attracted by a reliable food source and safe roost.



Greylag Goose (Nicholas Cottrell)

Contents

- | | |
|----|--|
| 3 | Survey dates |
| 4 | Announcements |
| 5 | The rise and rise of Greenland Barnacle Geese |
| 6 | The latest status of Greylag Geese on Orkney |
| 7 | Seasonal habitat choice of Greylag Geese |
| 8 | Some geese ride the wave while others do not |
| 9 | Satellite-tracking Greater White-fronted Geese |
| 10 | Counter profile |
| 11 | Progress reports |
| 21 | Conservation and research news |
| 24 | Contacts |

However, some goose populations can and do respond to changing conditions on the winter quarters. The number of Pink-footed Geese (page 13) has increased ten-fold in the last 50 years, from c. 30,000 to c. 290,000 birds, and their distribution within Britain has shifted southwards to former haunts. Likewise, its Icelandic-breeding congener, the Iceland Greylag Goose, which has shown a decrease in numbers since the peak in the late 1980s, has also shown a noticeable shift in the proportion of the population using different parts of the winter range, although in this case they have shifted northwards.

continued on page 2

For example, the proportion of Greylag Geese counted in November in north and northeast Scotland has increased markedly since 1970 (Figure 1), notably on Orkney in the last 15 years (see Eric Meek's article on page 6). The number of Pink-footed Geese using east England, principally Norfolk, at the southern end of the wintering range, from 1970 to the mid-1980s was very small indeed, but since about 1984 the proportion counted in November has steadily increased to an average of 30% in the early 2000s.

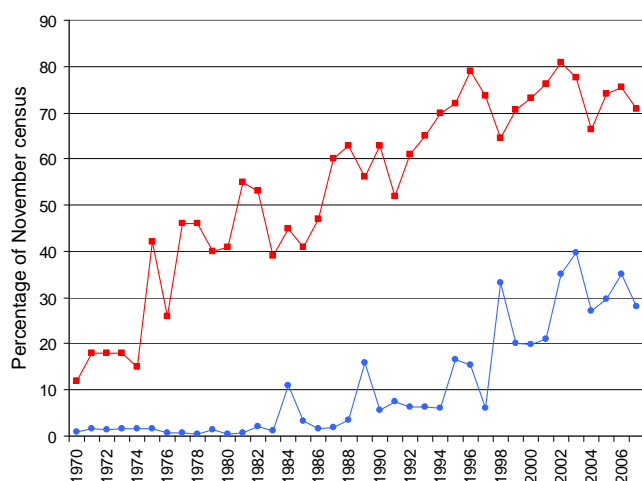


Figure 1. The proportion of Greylag Geese counted in November in north and northeast Scotland (red squares) and Pink-footed Geese counted in east England (blue circles), 1970-2007.

Thus, while the Greylag Geese appear to be shortening their migratory pathway and wintering in increasing numbers at an area much closer to their breeding grounds, there seems to be the opposite effect happening with Pink-footed Geese. An increasing proportion are wintering further south in an area furthest from their breeding grounds. In the case of Pink-footed Geese, birds are largely re-occupying an area of Britain where they used to occur; large numbers wintered in Norfolk and Lincolnshire around The Wash for at least a hundred years up to the late 1930s. However, they declined quickly after 1945 to just a few hundred birds and only increased again in the mid-1980s.

The very large increase in Greylag Goose numbers on Orkney has occurred in an area where they were formerly rare. John Berry, writing in 1939, described them as "never being recorded as more than a casual visitor on migration". One wonders if Greylag Geese wintered on Orkney in times past, perhaps before written records, such that the recent use of Orkney is the re-establishment of a very old tradition. However, as far as the written record goes, it seems likely that they are occupying a new wintering area. Likewise, recent counts from southwest Norway and the Faroe Islands apparently represent occupation of new wintering areas, at least within living memory.

The causes of these shifts in distribution deserve more attention. In the case of Greylag Geese it could include changes in localised disturbance, especially through hunting, changes in the abundance and availability of food resources, partly influenced by climate change, or creation of safe refuges. The

population has certainly exploited reliable food sources and safe roosts on Orkney. However, even during the process of shifting north, they have retained an element of tradition with continued use of traditional roosts in northeast and east central Scotland, albeit in declining numbers. Bob Swann demonstrated that up to 70% of Greylag Geese marked at Loch Eye, Easter Ross, were seen in that same area in the following winter.

A strategy of sustained use of traditional areas, coupled with a degree of flexibility when conditions either necessitate or allow a shift in distribution, at least in some populations, has served migratory geese well over the last fifty years – most populations using Britain and Ireland are increasing or stable. However, being strongly tied to traditional winter haunts, as appears to be the case for Greenland White-fronted Geese, may prove costly. The ecology of the population has been extensively studied by Tony Fox and other members of the Greenland White-fronted Goose Study, and usefully summarised in Tony's doctorate dissertation *The annual cycle of a migratory herbivore on the European continental fringe*. The winter distribution of the population is concentrated along the northern and western fringes of Britain and Ireland and appears to be confined to an area defined by the mean January 3°C isotherm. The geese habitually feed on the lower stem of the common cotton grass *Eriophorum angustifolium*, which they extract from soft substrates in peatlands. The low probability of prolonged ground frost in this wintering range allows the geese to easily extract the underground stem bases. The restricted extent of such peatlands (which formed their traditional winter habitat) would have constrained their population size, even in a landscape unchanged by human activities. Use of this restricted habitat is therefore likely to have shaped its highly site faithful nature. During the last 60 years, the population has shifted from feeding on natural vegetation habitats to intensively managed grassland, notably at Wexford, Ireland, and on Islay, Argyll, yet despite this shift there has been no range expansion, since new feeding areas continue to be associated with long-established roost sites. Therein lies an important contrast between the highly site-faithful Greenland White-fronted Goose and the Greylag and Pink-footed Goose populations which have a more flexible approach to utilising areas within their traditional range, and, in the case of Greylag Geese on Orkney, perhaps establishing a new wintering range.

One of the most important consequences of these distribution shifts, along with changes in the timing of movements that have also occurred in recent years, is that there is now a greater need to reappraise survey methodologies in order to ensure they continue to remain fit for purpose. It is clear that, despite the traditional nature of most geese and swans, many species are able to adapt to changing circumstances, be that either worsening conditions at current wintering areas or the discovery of better locations elsewhere. This flexibility can lead to some very rapid changes in distribution and phenology – the shift of Iceland Greylags largely took place in not much more than a decade. The first example of a change in survey methodology due to changing distribution or phenology was the shift of the autumn/midwinter count of Greenland White-fronted Geese from November to December, in order to take account of later departures from Icelandic stopover sites. A

similar situation has now occurred with Pink-footed Geese and Greylag Geese also coming from Iceland – a December count being introduced to take account of this for the latter species (see the note about changes to the IGC counting protocol on page 4). It seems likely that other examples will follow, but

what is certain is that it will undoubtedly become increasingly important to regularly conduct such reappraisals and, if necessary, modify, survey methodologies in order to maintain their efficacy.

Carl Mitchell

Survey dates for 2008/09

Icelandic-breeding Goose Census

Count forms for the 2008/09 IGC have been mailed to all counters or Local Organisers with this issue of *GooseNews*. If you have not received your forms, or would like to participate for the first time, please contact the Waterbird Monitoring Unit at WWT Slimbridge. The coordinated dates for this year are:

4/5 October, 1/2 November and 6/7 December

As highlighted above, following a review of count periods, please remember that, ideally, all sites supporting Pink-footed Geese should be covered during October and November, whilst those holding Greylag Geese should be counted in November and December. There are still a small number of sites where both species occur. In these cases, please try to count in all months, but if this is not possible please discuss the best way ahead with your Local Organiser, if you have one, or the national organiser, Carl Mitchell (see page 24 for contact details).

If you are unable to count on these dates, please contact either your Local Organiser or Carl Mitchell, so that we may try to arrange for cover of your site by another counter. As usual, we would like to encourage all counters to also carry out a count during September, particularly at those sites where Re-established or Northwest Scotland Greylag Geese occur. September counts are not strictly coordinated but should be carried out as close as possible to the end of the third week of September, although any counts made during the month will be of value (see page 8 of *GooseNews* 2, for further details – available to download from WWT's website at www.wwt.org.uk/research/monitoring/reports.asp).

International Dark-bellied Brent Goose Census

The next flyway-wide coordinated count will be held on 9 May 2009. If you monitor a site where Dark-bellied Brent Geese may be found in May but have not been contacted regarding this survey in the past two years, we would be pleased to hear from you.

Colour-mark reading

All sightings of colour-marked wildfowl, not just geese and swans, can be sent either direct to the relevant project coordinator or to 'Colour-marked Wildfowl' at WWT Slimbridge, or by email to colourmarkedwildfowl@wwt.org.uk.

Further details of other colour-marking projects can be found on the EURING colour-marking website www.cr-birding.be.

Age assessments

Age assessments will continue during 2008/09 as usual. The survey periods vary between species and are shown below.

Population	Period	Notes
Whooper Swan	Oct - Jan	
Bewick's Swan	Nov - Feb	
Iceland Greylag Goose	Oct - mid Nov	care needed with age identification
Northwest Scottish Greylag Goose	Aug - Sep	
Re-established Greylag Goose	Aug - Sep	
Pink-footed Goose	mid Sep - mid Nov	
Bean Goose	Oct - Nov	
European White-fronted Goose	Oct - Jan	focus on Jan
Greenland White-fronted Goose	Oct - Jan	focus on Dec
Dark-bellied Brent Goose	Sep - Mar	focus on Oct - Nov
Light-bellied Brent Goose (both populations)	Sep - Mar	focus on Oct - Nov
Barnacle Goose	Oct - Dec	
Canada Goose	Jun - Jul	care needed with age identification of fledged birds

Announcements

Staff changes at WWT

Since the last issue of *GooseNews*, Robin Ward has left the Waterbird Monitoring Unit, and Jacqueline Reed has joined us, taking responsibility for, among other things, the majority of goose ringing activities.

Naturalised Goose Census 2009

Given current constraints on likely sources of funding, it is now expected that this census will not take place in 2009. If further updates become available they will be provided on the WWT website, and in future issues of *GooseNews*.



Bewick's Swan (Nicholas Cottrell)

International Swan Census 2010

The next International Swan Census is due to take place in January 2010. Whilst this may sound like a long way off, planning will be initiated, in conjunction with the Wetlands International/IUCN-SSC Swan Specialist Group and WeBS Partnership, in the middle of 2009. Further information will be provided on the WWT website in due course, and in *GooseNews* 8.

GSMP website

A reminder that much information on the Goose & Swan Monitoring Programme can be found on WWT's website www.wwt.org.uk/research/monitoring/. This includes detailed information on results of surveys reported in this issue of *GooseNews*, and various resources for GSMP fieldworkers, such as recording forms.

Changes to IGC survey protocol

As participants in the Icelandic-breeding Goose Census (IGC) will be aware, for the past three winters there has been a third coordinated count carried out in December. The reason for initiating this was to determine whether December was now a better month for counting Greylag Geese due to their later arrival from Iceland. Pink-footed Geese have also been arriving increasingly later, with peak counts in November in three of the last six years, compared to two of the previous 12 years, but as their arrival is earlier than that of Greylag Geese, the November count meant that no additional counts were needed in order to deal with this situation.

Following an appraisal of the count data from the past three years, it is clear that whilst November and December are the best months in which to count Greylag Geese, the migration of Pinkfeet has not advanced sufficiently for these to be the most suitable months in which to count this species. Even though numbers of Pinkfeet peak increasingly in November, October still provides the peak count in around half of all years.

Therefore, we see the way forward for monitoring these species as a more separate process. In the past, this would have been difficult due to the large amount of overlap in their distribution, but nowadays, following the rapid redistribution northwards of Iceland Greylag Geese, the two species have almost completely discrete winter distributions. This means that very few counters would face a situation of needing to count in all three months. Given this, we propose that counters at sites supporting roosting Pinkfeet should count on the October and November coordinated dates (see Survey Dates box on page 3), whilst counters at sites with Greylag Geese should focus on November and December. For those very few counters where both species still occur, we would welcome counts from all three months. However, if this is not possible, please liaise with the national organiser, Carl Mitchell, or your Local Organiser, regarding the best alternative approach – either we could try to find another counter willing to cover the additional month, or we could decide which months to prioritise on a site by site basis.

If any IGC counters have any concerns or queries about this change, please contact the Waterbird Monitoring Unit.

Many thanks for all your help

The greatest strength of the GSMP lies in the tremendous volunteer input from you, the counters, ring-readers and other participants. We hope that you will continue to support the GSMP and, through it, the conservation of swans, geese and wetlands throughout the UK and beyond.

GooseNews is the newsletter of WWT's Goose & Swan Monitoring Programme. It is sent to participants each autumn and is available either as a printed copy or a pdf file that can be sent via e-mail. If you would prefer to receive *GooseNews* in an alternative format, please contact WWT monitoring@wwt.org.uk

The rise and rise of Greenland Barnacle Geese

Between 1959 and 2008, twelve full international censuses of the Greenland-breeding population of Barnacle Goose have been conducted at wintering sites in Ireland and Scotland using a combination of aerial survey and ground counts. The twelfth census, conducted primarily during 16-19 March 2008, surveyed a total of 328 islands and mainland sites along the west and north coasts of Ireland and Scotland. In Ireland, 33 sites were found to hold 12,232 Greenland Barnacle Geese and in Scotland, 38 sites were found to hold 58,269 (Figure 2). The total population was thus estimated at 70,501 birds, and represents a 25.0% increase on the 2003 census total (Figure 3).

The rate of growth of numbers on Islay has increased again in recent years (Figure 3), with an increase of 23.3% since the previous census in spring 2003, compared to an increase of 3.7% between 1999 and 2003. Likewise, numbers of geese throughout the remainder of Scotland, including other key sites, increased by 22.3%, compared with 7.9% between 1999 and 2003. In Ireland, an increase of 35.4% occurred since 2003, compared to a previous rate of increase of 4.3%.

The 2008 census found 26 sites that exceeded nationally important numbers and nine that exceeded internationally important numbers. The number of sites exceeding nationally and internationally important numbers has decreased since 1959 (Figure 4).

Several key sites hold the majority of geese and a comparison of the number of occupied sites in each census indicates that this was higher in 2008 than in any previous year. In Scotland, combined numbers at the key sites have undergone a continued high rate of increase, whereas numbers at outlying minor sites have stabilised following an initial increase up to the early 1970s. In Ireland, combined numbers at the key sites have similar rates of increase as areas elsewhere, although much of this growth is attributable to increasing numbers at Ballintemple/Lissadell. Numbers on the Inishkeas Islands have remained comparatively constant since the 1960s. Numbers at sites outside these two key areas have continued to increase steadily from the mid 1970s.

Carl Mitchell & Alyn Walsh

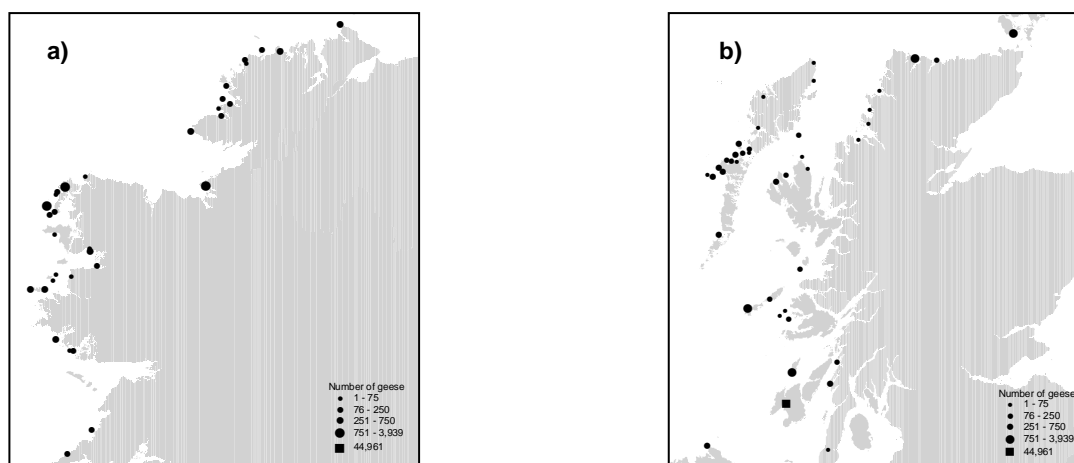


Figure 2. The distribution of a) 33 sites in Ireland and b) 38 sites in Scotland holding Barnacle Geese in March 2008.

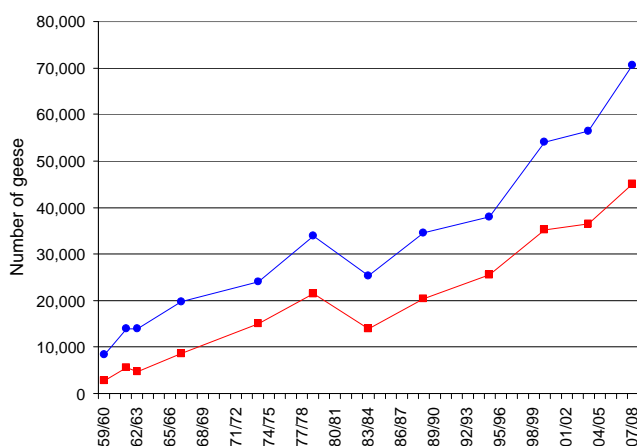


Figure 3. Census totals for the Greenland population of Barnacle Geese: total population (blue circles); Islay (red squares).

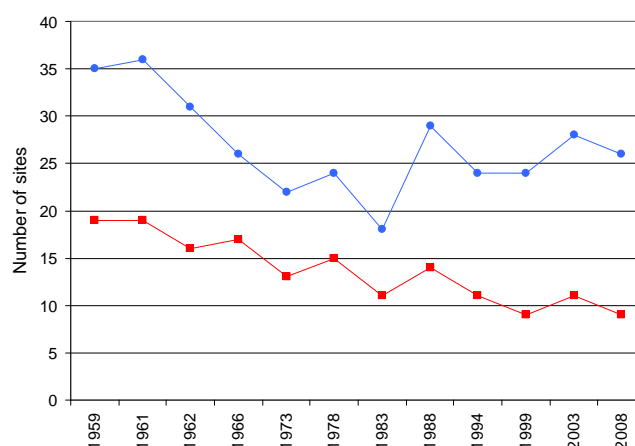


Figure 4. Number of sites in Britain and Ireland holding nationally (blue circles) or internationally (red squares) important numbers of Greenland Barnacle Geese in Census years, 1959-2008.

The latest status of Greylag Geese in Orkney

Greylag Geese first bred in Orkney in the mid-1980s and by 2002 the number of reported breeding pairs had increased to 150, although it was felt that the actual number might be as high as 300 pairs. The post-breeding population, prior to the arrival of migrants from Iceland, was thought to be some 1,500 birds. The commencement of breeding coincided with the release, on the island of Shapinsay, of some 50 goslings of South Uist stock, and it is thought that the colonisation of Shapinsay and perhaps other uninhabited islands close by resulted from this release. However, whether nesting elsewhere in Orkney resulted from this introduction is open to question. Breeding began in Shetland at about the same time and it seems unlikely that birds there originated from Shapinsay. An alternative possibility is that wintering birds, perhaps individuals injured by shot, began to over-summer in Orkney (and Shetland), rather than return to their usual Icelandic breeding grounds. A third possibility is even more intriguing; a number of neck-collared individuals from the native (Northwest Scotland) population at Loch Loyal, Sutherland, have been seen in Orkney, including at least two with broods of young and one incubating a clutch of eggs, so at least part of the colonisation appears to have occurred naturally.

Wintering numbers of Greylags in Orkney rose very gradually during the 1980s and it was only in 1986/87 that the numbers first exceeded 1,000 birds. However, thereafter numbers began to increase rapidly, with 13,361 being the peak count in 1997/98, 20,475 in 1999/2000, and 30,126 in November 2002.

Breeding numbers 2003 - 2007

Surveying breeding Greylags in an archipelago such as Orkney is a difficult process and, apart from detailed work on some RSPB reserves, has depended very much on non-systematic counts of nests and broods in widely scattered areas together with counts of flocks in the post-breeding period prior to the arrival of migrants. The main source of error is likely to be the lack of counts from some of the small uninhabited islands, especially those in Wide Firth. Figure 5 shows the increase in reported breeding pairs, including the especially large increase in recent years, to an estimated 580 pairs in 2007.

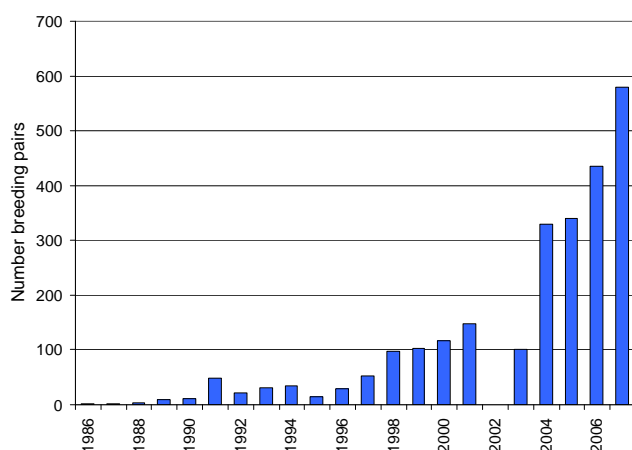


Figure 5. The reported number of breeding pairs of Greylag Geese on Orkney, 1986-2007.

It has become apparent that considerable numbers of non-breeders are also present during the summer months. There was thought to be 3,085 birds in 2005 and 2,070 in 2007. The post-breeding population, calculated by adding breeding adults, their young, and non-breeders is now thought to be c. 5,000 birds.

The largest concentrations during the summer are in the northern part of the West Mainland where moorland areas that provide nest sites are juxtaposed with the two large lochs of Swannay and Hundland, which act as brood-rearing areas. Perhaps as many as 250 pairs nest in this area. Survey work (for other purposes) in the East Mainland revealed a minimum of 118 breeding pairs there, while Sanday (at least 33 pairs), Papa Westray & Holm of Papay (25), Copinsay (20), Burray (15) and Stronsay (14) all contributed to the overall total.

It is hoped that the gaps in our knowledge of breeding Greylags in Orkney will be filled in summer 2008 when a survey of summering Greylags throughout Scotland is undertaken by the Wildfowl & Wetlands Trust.

Wintering numbers 2003-2007

Wintering numbers also continue to increase. Since the November 2002 total of 30,126 birds, numbers have increased to a new record high of 67,540 in December 2007. Figure 6 illustrates the astonishing increase in the winter population.

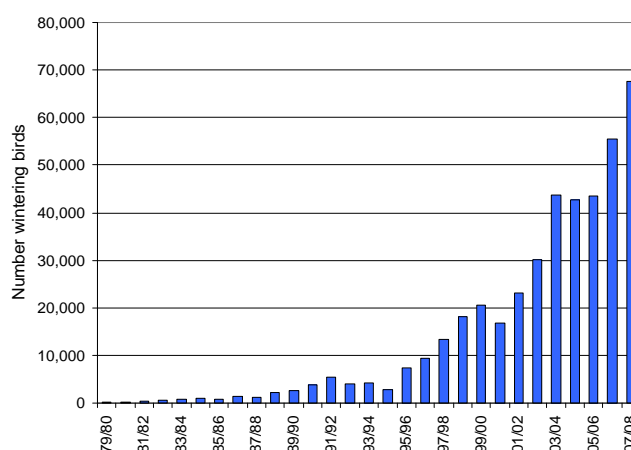


Figure 6. The number of wintering Greylag Geese on Orkney, 1979/80 - 2007/08.

The great majority of birds are found on the Mainland with, in December 2007, 33,152 birds (49%) in the West Mainland and 13,829 (20%) in the East Mainland. Other islands with important concentrations are Stronsay (4,233; 6%), South Ronaldsay (3,800; 6%); Shapinsay (3,774; 6%) and Sanday (2,830; 4%).

Although the number of breeding and summering non-breeding birds has increased remarkably, they only contribute some 7% of the total wintering number in Orkney. The great majority of the winter population originates in Iceland, a fact all the more remarkable considering that the Icelandic population

has been stable or perhaps even declining in recent years, apparently due to heavy shooting pressure in Iceland.

All the indications are that the phenomenal increase in winter numbers in Orkney is being fuelled by birds abandoning their former wintering areas further south in Scotland and terminating their migratory journey in Orkney instead. Three possible reasons for this shift in distribution are suggested:

- climate change resulting in milder winter temperatures that facilitate wintering at a more northerly latitude.
- the high quality of Orkney grassland that provides ideal foraging for the geese.
- shooting pressure in the former wintering areas being sufficiently high to persuade the geese to choose an alternative area.

‘Short-stopping’ has been observed in other goose species in the Western Palearctic, notably European White-fronted Geese of which up to 7,000 formerly wintered in Gloucestershire as recently as the 1970s but now number fewer than 600. They instead winter in The Netherlands and Germany. Short-stopping has also been recently noted in the Scandinavian Greylag Goose population. In the 1980s, these birds predominantly wintered in Spain, but by the 1990s most wintered in The Netherlands, and since the early 2000s, up to 40,000 have wintered in southern Sweden (L. Nilsson pers. comm.).

With four more years of observations now available, it would appear that the chief reason for the rapid increase in numbers lies in a combination of a) and b) above. Factor c) does not appear to be operating as shooting pressure is also now high in the islands. The Orkney Islands are well known as a ‘factory’ that produces good grass, a fact witnessed by the superb quality of the beef cattle reared there. The steady warming of the climate means that this grass now grows throughout the winter with barely any period of dormancy as used to occur in the past. With such high quality food now available all winter, it would appear that the Greylags have opted for conserving even more energy and have shortened their migration by some 400-500 km.

One further factor that may have attracted more geese to winter in Orkney is the presence of a resident population that may be responsible for ‘pulling in’ more migrant birds than might otherwise be the case. Orkney’s breeding Greylags are assumed to be resident, although there is only one piece of good evidence to back up this suggestion – the presence, over several winters, of one of the native Sutherland colour-marked birds that is a known breeder.

My thanks go to all the goose counters who devote two whole days each year to surveying our wintering geese and to all those who have also sent in details of breeding birds. Thanks too to Andy Knight and Alan Leitch who provided help with the graphics and to Arjun Amar and Paul Walton for commenting on an initial draft.

Eric Meek

This article first appeared in the 2007 Orkney Bird Report

Seasonal habitat choice of Greylag Geese from different European populations

Almost all European Greylag Goose populations have been increasing; probably due to year-round availability of high quality food and intermittence of hunting. We investigated habitat choice for feeding of four European Greylag populations in Britain, the Netherlands, Sweden and Germany in 2007. We focused on two periods within the annual cycle that potentially differ in the requirements for food quality and site safety: the early growth period of goslings and the post-breeding moult period of adults. We used stable carbon isotope ratios in wing/tail coverts, which are grown during each period, to determine whether the geese were feeding in terrestrial or freshwater habitats.

During offspring growth, stable carbon isotope ratios (δC) showed low variation within and between populations, indicating uniform habitat choice, with an average proportion of terrestrial food between 87% in Germany and 96% in Britain (Figure 7). However, feathers grown during the post-breeding moult had higher δC values in three populations and similar δC in the German population in comparison to feathers of goslings. Such higher δC are typical for freshwater plants, indicating that moulting adult Greylag Geese increased the time they spent near and feeding in wetland habitats. The proportion of freshwater plants in the diet increased to 11% in British geese, 20% in Swedish birds and 23% in birds moulting in the Netherlands.

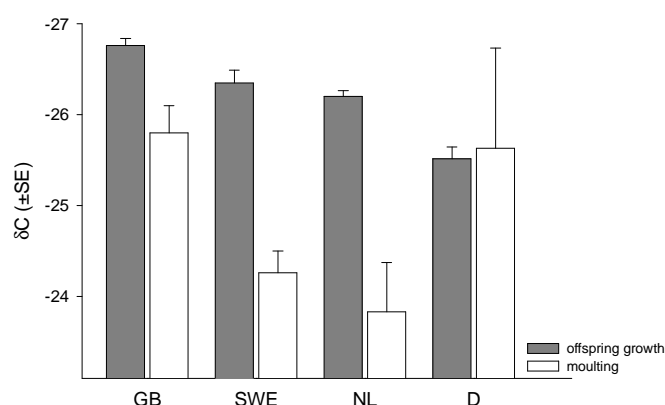


Figure 7. Stable carbon isotope ratio (δC) of feathers, grown during gosling growth period (grey bars) and post-breeding moult (white bars), from Greylag Geese breeding in Britain (GB), Sweden (SWE), the Netherlands (NL) and Germany (D). Data given as means \pm s.e.

Our study showed that Greylag Geese from Scandinavia, central Europe and Britain, generally relied on terrestrial habitats for feeding during offspring growth and moult. However, the degree of terrestrial site use changed within the annual cycle, with freshwater habitats becoming more important during post-breeding moult.

Steffen Hahn & Marcel Klaassen

Some geese ride the wave while others do not

As in the previous two winters, another four Svalbard Barnacle Geese were satellite tracked in 2007/08, when, with the help of the North Solway Ringing Group, two birds were tagged in November 2007 and two in March 2008. These birds were followed north along with 'Braveheart', the only bird with a functional transmitter from the previous winter. Unfortunately, we lost contact with many of the other birds on their return route south in the autumn with all of the tags shutting down due to problems with charge as birds lingered in Norway into the last week of September. Although Braveheart's tag continued to function, Godzilla (tagged in November 2007) and Magnar (tagged in April 2006) were also seen regularly on the Solway with their mates and tags still in place, with Magnar again being seen in Helgeland in May 2008. The tracks from the latest set of tags, in addition to that still transmitting on Braveheart, as with those from the previous spring, again suggest the geese employ a range of migratory strategies when tackling the single goal of reaching Svalbard by the beginning of June. Even the same bird can employ a very different approach between years - for example in May 2008 Braveheart staged for three weeks on Rockcliffe Marsh before departing on the evening of 19 May via Edinburgh with only brief stops up the coast of Norway before stopping at Bear Island for five days from 23 to 28 May and then completing the journey to Spitsbergen. By contrast, in April 2007 the same bird left Caerlaverock on 18 April headed out over Aberdeen and spent almost four weeks fattening up in Norway before moving on to Spitsbergen by 18 May without a stop-over at Bear Island (see www.wwt.org.uk/research/tracking/maps.asp).

Also, with regard to broader questions as to whether or not they are capital breeders, this appears to be a question of degree, with some birds riding the 'Green Wave' (of spring vegetation growth) while others do not. This spring we again

had some birds in the Arctic in Svalbard experiencing sub-zero temperatures and meagre pickings amongst the snow, while others are still basking in the sun on the saltmarsh of the Solway until the last week of May. Some have fattened for two weeks on vegetation cropped within the Arctic Circle before moving on the final 500 miles to the breeding grounds while others have fattened predominantly on saltmarsh 1,800 miles from their final destination. Of course, some of these strategies may result in successful breeding while others do not but what is clear is that these tracks shown by the tags do not represent the decisions of just one or two tagged birds but are followed by many thousands of other birds as backed up by observation and counts of the birds at the different sites during the migration.

In Griffin (in press) it is suggested that the strategy of late-leaving geese may be largely to bypass Norway on their way to Svalbard, which agrees with the observation that few geese remain on Helgeland after 20 May. If this is the case then the traditional view of the migratory range should perhaps be revised to include the Solway Firth not only as the prime wintering site but also as a significant spring staging site for a proportion of the population, equivalent in large part to the function of the Helgeland and Vesterålen staging areas in Norway. In addition to the late-stagers in the current crop of tags, of the nine tags deployed by April 2007, three had residency times ranging from 2.5 to 5.5 days at Norwegian staging sites, giving weight to this hypothesis.

Larry Griffin

Griffin, LR. In press. Identifying the pre-breeding areas of the Svalbard Barnacle goose *Branta leucopsis* between mainland Norway and Svalbard: an application of GPS satellite-tracking techniques. *Vogelwelt*.



Barnacle Geese (Richard Taylor-Jones)

Satellite-tracking Greater White-fronted Geese in 2006-2008

In 1998, the Goose Ecology workgroup at the University of Osnabrueck and Alterra Institute (Wageningen) started to study the migration of White-fronted Geese. More than 10,000 birds have been individually marked with black (and later, light green) neck collars, and whilst these birds have provided many observations, there was a lack of sightings from late spring when birds are migrating through west Russia. Therefore, in January 2006 we fitted five male geese with 45g GPS Solar PTT satellite transmitters in order to examine their migration routes. In 2007, 14 further males were caught by Dutch goose catchers and fitted with PTTs, and in January and February 2008 we fitted another ten male White-fronted Geese with transmitters. The transmitters provided a location for each bird several times each day (with an accuracy of ± 18 m) via the Argos satellite and the internet to the project base. Additionally, a special web tool allowed incoming data to be presented almost immediately on the project website (www.blessgans.de/?112) (Figure 8).

Initially, most of the geese stayed in the Netherlands, often quite near to the place they were caught. By the end of March, they started their spring migration and were recorded moving east. White-fronts tend to migrate relatively long distances, stopping at traditional staging sites for refuelling. The choice of these sites seems to be mainly based on individual traditions. Birds caught in the southern Netherlands tended to migrate inland to eastern Germany, while those from the northern Netherlands travelled along the coast via the Dollard region to the Elbe/Odra Rivers. From eastern Germany, migration scattered, taking a wide corridor to eastern and northeastern Poland. From here the birds passed over Kaliningrad or the Baltic Sea to Lithuania, where an important migration area in the Nemounas Delta was discovered. After a stopover there, the geese migrated via Estonia and Karelia to the Archangelsk region and the Kanin Peninsula in Russia.

Surprisingly, a few tracked geese turned southeastwards from Lithuania, crossed Belorussia and roosted in the Kiev region close to the border with Russia. From there, they went north to the Kanin Peninsula. This part of the flyway was unknown to

us and was used by one of the 19 tracked birds in 2006 and 2007, and in 2008 three birds used this route.

The next important stepping stone used by most of the birds was the Kanin Peninsula and the Malazemelskaya tundra. There most birds refuelled for the last time before migrating to their breeding grounds on Kolguev Island or the mainland tundra. Birds that eventually reached the Yamal, Vaigach, Kara Sea, or Taimyr Peninsula continued to migrate slowly eastwards along the coast. By mid June, all birds had reached their breeding grounds. In 2007, four of nine birds bred on Kolguev Island. Presumed failed breeders left the breeding grounds for moulting sites, and by using satellite transmitters we located moulting sites on Novaya Zemlya and in east Taimyr. Previously, there was only limited knowledge of large White-fronted Goose moult concentrations in the Russian Arctic. The transmitters and our field observations showed us that these sites were used by non-breeders as well as by failed breeders, both migrating several hundreds of kilometres from their breeding grounds to these presumed traditional moulting sites. Field observations of a late northeast migration of White-fronted and Barnacle Geese at the end of June on Kolguev Island probably involved birds undertaking a moult migration to Novaya Zemlya.

By spring 2008, in addition to the ten newly marked birds, four from 2007 were still transmitting so altogether 14 marked birds started spring migration that year. Unfortunately, only one of the 2007 transmitters was still transmitting by June 2008, but it is nevertheless of considerable interest to compare the timing and locations of spring migration undertaken by the same individuals in both 2007 and 2008. This can be done by visiting the project website, where the migration pathways of all the other birds can also be followed. With thanks for financial support from Vogelschutz-Komitee e.V. (Hamburg, D) and Alterra Institute.

Helmut Kruckenberg

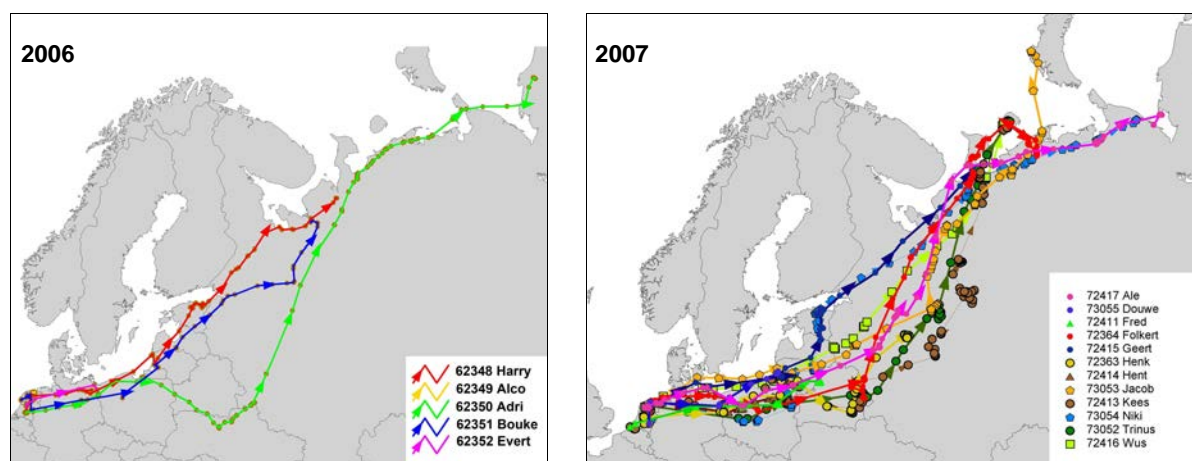


Figure 8. Migration routes of Greater White-fronted Geese in spring 2006 and 2007

Counter profile

Ivan Brockway: Area Organiser for the Moray Firth



Which area do you count and how long have you been goose counting?

I count Loch Eye and have been doing so for nearly 30 years. I am also the IGC Coordinator for the Moray Firth area.

Describe the roost and counting conditions. Have goose numbers and their distribution, local to you, changed over the years?

Loch Eye is a lowland loch in Easter Ross in the Scottish Highlands. It is about 2 km by 1 km in size and is situated east of Tain, Ross-shire. The loch is equidistant (about 5 - 6 km) from both the Moray Firth and the Cromarty Firth.

I now count at dawn but when I started counting in the late 1970s we used to count at dusk as, in those days, the vast majority of geese (Greylag Geese) would arrive at the loch from their feeding grounds over a very short and very predictable period in the late afternoon. You could almost set your watch by them as the vast majority often arrived over a period of only 20 to 30 minutes. In those years only one official count was completed each autumn – usually the first weekend in November. However, for the last 15 or so years the daily arrival at the roost site from the feeding grounds has been much more erratic. With the geese arriving in northern Scotland from Iceland over a longer period and many leaving the area quite soon after arrival, there has not been the usual build up of numbers that there once was. They also are much more likely to use any convenient roost – perhaps a small lochan or even the firth – and not depend so heavily on Loch Eye. Those that are using Loch Eye as a daily roost site also arrive over a much longer time span with many still arriving after dark – too late to make counting possible. I therefore count on most occasions at dawn.

These changes in behaviour and distribution of geese over more recent years raise serious questions about the best counting strategy. Especially in the Highlands, where there can be numerous possible short term roosts, it is almost impossible to cover them all and, inevitably, some geese are increasingly likely to be missed. Counting feeding flocks is also very problematical with the real likelihood of double counting or missing some geese altogether.

Have there been any particular changes in recent years, especially since the rapid build up of wintering geese in Orkney?

We could always count on there being some Greylag Geese – usually several hundred or even thousands – that would use Loch Eye throughout the winter. However, in the past two to three years the number using the loch has dropped dramatically. Three years ago, when the first of the December counts was reintroduced, over 12,000 Greylags were counted. This was high even for Loch Eye during December. However, the following December the count had fallen to ONE and last year there were no geese at all using the loch in early December. But then I expect they had their hands full counting in Orkney!

Favourite moment since starting goose counting?

I remember on one occasion in the early 1980s over 22,000 Greylags arrived at the loch over a period of not much more than 15 to 20 minutes, one Saturday afternoon in early November. The sky was full of geese and although counting was a bit hectic, together with a friend we managed to get a reasonably accurate count. But the sight and especially the sound I will always remember.

What do you most enjoy or what motivates you most about goose counting?

I have always been interested in the scientific study of wildlife and being able to contribute to the overall body of knowledge about geese has been very satisfying. It is always fascinating when the annual reports are published to look and see how your own observations and counts fit into the national picture. But the arrival of thousands of geese at a roost in late afternoon or their leaving in the early morning is one of the most amazing and exciting of wildlife spectacles and to be able to watch and hear this each autumn has been, and continues to be, one of the most satisfying and enjoyable experiences of my life. However, when the alarm goes at 6 am on a cold and wet November count morning the fascination and enjoyment is not always that apparent!

How would you improve the Goose & Swan Monitoring Programme?

I do not wish to be pessimistic or defeatist but I am not sure that it is possible to make the counts more accurate with the existing resources and manpower. With geese no longer being concentrated on established, traditional roosts, or using them for only a brief period, it has become almost impossible to cover all sites that geese now use. It may be that with the great increase in the wintering flocks in Orkney the majority of Greylags will be counted there - if there are sufficient counters to cover all the sites. Although this may be even more difficult if the geese are using not only Mainland Orkney sites but also many of the more remote islands in the Orkney group. With regard to the timing of counts, our (Highland Ringing Group) ringing project did show that Greylag Geese are more stable in their movements during the midwinter period and this may prove to be the best time to count.

Progress reports

Breeding success of Bewick's Swans in 2007/08

Bewick's Swan age counts were conducted at three major wintering sites in the UK during winter 2007/08: WWT Slimbridge (Southwest England), WWT Martin Mere/Ribble Estuary (Northwest England) and the Ouse Washes (East central England). A total of 2,278 Bewick's Swans was aged. Data described here for Martin Mere/Ribble Estuary and for the Ouse Washes were collected in January 2008. Age counts at Slimbridge (where individual swans wintering at the site are identified daily by their natural bill markings) are for all swans recorded at the site during the winter season (October to March). Brood sizes were recorded for 44 families: 39 on the Ouse Washes, four at Slimbridge and one at Martin Mere/Ribble Estuary. With the exception of Slimbridge, the percentage of juveniles and mean brood size was derived from age counts conducted on just one day, in an effort to avoid any bias that would arise from repeated observations of the same families at certain sites. Age counts were conducted on 22 January at Martin Mere/Ribble Estuary and on 4 January on the Ouse Washes.

Overall, flocks contained 4.7% young, and the mean brood size per successful pair was 1.4 (Table 1). The percentage young was much lower than the previous five-year mean of 11.0% (± 1.1 s.e.), and was the lowest since 1992/93 (4.1%, Figure 9). Breeding success was well below average for all regions surveyed. The highest proportion of young was recorded on the Ouse Washes (5.0%), although this was the lowest recorded in the area since 1996/97 (4.4%). The Ouse Washes is the most important site for the population in January so the proportion of young recorded there is representative not only of most Bewick's Swans wintering in the UK, but also of a large section of the Northwest European population. At Martin Mere/Ribble Estuary, the proportion of young (3.9%) was similarly below the region's five-year mean (13.1%, ± 1.8 s.e) and was the lowest recorded there since 1992/93 (3.3%). The lowest breeding success was found at Slimbridge where the percentage of young (3.3%) – the lowest recorded since a handful of adults were counted in 1958/59 (0%, WWT unpubl. data) – was far below that of the preceding five-year mean (15.3%, ± 1.2 s.e), and was exceptionally low given that swans wintering there generally have above average breeding success when compared with the rest of the population.

Since 2003/04 there has been quite marked variation in the proportion of young recorded in different parts of the UK.

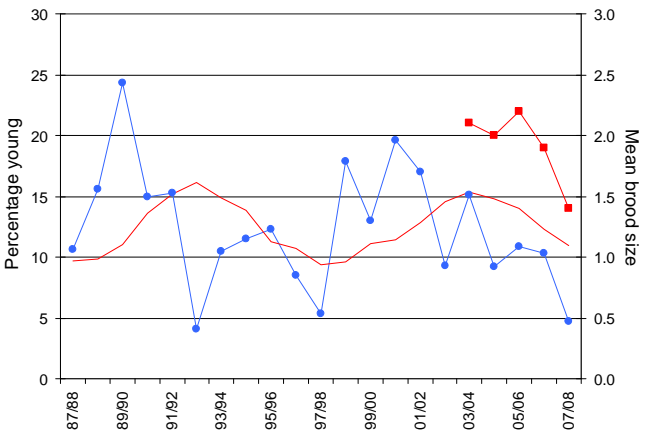


Figure 9. The mean percentage of Bewick's Swan cygnets recorded in Britain, 1987/88 – 2007/08 (blue circles), with the rolling five-year mean (red line), and mean brood size (red squares). Five-year mean values were calculated for the five years preceding the year in question.

This was less evident during 2007/08 with the percentage of young ranging from 3.3% to 5.0% (Table 1). Regional variation in brood size could not be assessed accurately in 2007/08 because very few broods were recorded at Slimbridge and Martin Mere/Ribble. However, the overall mean brood size for all three regions (1.4 young per family) was below that recorded over the previous four years.

Age counts of Bewick's Swans wintering in England in 2007/08 indicate an exceptionally poor breeding success in 2007. A similar level of breeding success was recorded on the continent, where only 3.8% of 6,341 birds aged in November were juvenile (W. Tijsen, pers comm.). This gives an overall percentage of young for the whole population of 4.3% and indicates that 2007 was an exceptionally poor breeding year for the Northwest European population of Bewick's Swan. Conditions on the Arctic breeding grounds are important in determining breeding success, in particular weather conditions. Reports of a late spring thaw in the Pechora Delta (A. Glotov, pers comm.) suggest that conditions were not ideal, fitting with the observed breeding success, and thus it seems that impacted on the breeding success of swans nesting at least in that part of the breeding range.

Julia Newth & Eileen Rees

Table 1. The proportion of young and mean brood size for Bewick's Swans at three UK sites during the 2007/08 winter.

Region	Total aged (no. of young)	% young	No. of broods (no. of young)	Mean brood size
Martin Mere/Ribble Estuary (Northwest England)	51 [2]	3.9	1 ⁽¹⁾ [2]	2.0
Ouse Washes (East central England)	1,954 [97]	5.0	39 [49]	1.3
Slimbridge (Southwest England)	273 [9]	3.3	4 [9]	2.3
Overall	2,278 [108]	4.7	44 [60]	1.4

⁽¹⁾ This figure refers to the brood count for the maximum number of birds observed on 22nd January at Lytham Moss, Lancashire. A brood of three cygnets was also recorded at the same location on 12th January.

Progress reports

Breeding success of Whooper Swans wintering in Britain during 2007/08

Whooper Swan age counts were conducted within four regions across Britain during the 2007/08 winter. In England, these were undertaken in November and December 2007, whereas in Scotland the swans were aged in December 2007 and January 2008. A total of 3,138 was aged in England (2,756 birds) and Scotland (382 birds). Brood sizes were recorded for 260 families: 228 in England and 32 in Scotland. Relatively few families were recorded in Southwest Scotland and so the mean brood size was calculated from 17 families identified by darvic rings that were present at WWT Caerlaverock throughout the winter (October to March).

For East central England (Ouse Washes), Northwest England (WWT Martin Mere/Ribble Estuary) and Southwest Scotland (WWT Caerlaverock), the percentage of young (and mean brood size for Northwest England and East central England) was derived from age counts conducted on one day: 23 November in Northwest England, 15 December in East central England, and 24 December in Southwest Scotland. This was to avoid any bias that would arise from repeated observations of the same families at certain sites. Fewer counts were conducted in North and Central Scotland and so breeding success was determined from data collected across two days (2 January in the Highland region and 14 January in Inner Hebrides).

Overall, flocks contained 20.7% young, and the mean brood size per successful pair was 2.6 (Table 2; Figure 10). The percentage young at Martin Mere/Ribble Estuary, the Ouse Washes and Caerlaverock (20.4%) was well above the previous five-year mean (13.4%, ± 0.7 s.e.), and was the highest recorded since 1996/97 (20.7%). Breeding success was above average for all regions surveyed. The highest proportions of young were recorded in North and Central Scotland (25.9%) and Northwest England (21.2%). A sharp increase in breeding success has been recorded among swans wintering in East central England and Northwest England since the 2005/06 winter (135.2% and 41.3%, respectively). Following an increase in breeding success between 2004/05 and 2006/07 in Southwest Scotland, the proportion of young recorded there in 2007/08 (14.0%) remained similar to that during 2006/07 (14.1%). Cygnets therefore appear to have been less evenly distributed across the wintering range than in winters 2005/06 and 2006/07, when the percentage of young ranged from 8.8-14.9% and 11.8-17.3%, respectively.

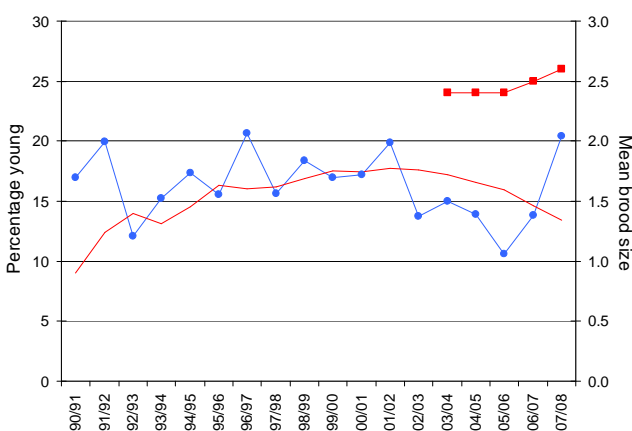


Figure 10. The annual mean percentage of young Whooper Swans in Britain, 1990/91 - 2007/08 (blue circles), with the rolling five-year mean (red line), and mean brood size (red squares). Five-year mean values were calculated for the five years preceding the year in question.

Regional variation in brood size was also evident, ranging from an average of 2.3 young per family for flocks wintering in North and Central Scotland to 3.6 young per family in Southwest Scotland (Table 2).

The percentage of young for Whooper Swans wintering in Britain was above average during 2007/08 and was most probably influenced by the warm and dry conditions encountered across Iceland in May, June and July (Icelandic Meteorological Office <http://en.vedur.is/>, accessed 17 June 2008). The distribution between regions of families was more variable than in the three preceding winters, with higher proportions of young recorded in North and Central Scotland than in other regions. This may reflect the likely preference of Whooper Swan families in selecting sites closest to their Icelandic breeding grounds, however, breeding success in East central England was higher than in Southwest Scotland. Such regional variation confirms the need for comprehensive collection of age data across the wintering range in order to provide an accurate estimate of the population's breeding success. Reasons for the regional variation in mean brood size have yet to be determined, but may be due to the larger more dominant family groups displacing pairs with fewer young and non/failed breeders from areas closer to the breeding range.

Julia Newth & Eileen Rees

Table 2. The proportion of young and mean brood size of Whooper Swan flocks during the 2007/08 winter.

Region	Total aged (No. of young)	% young	No. of broods (No. of young)	Mean brood size
Northwest England	1,300 (275)	21.2	109 (275)	2.5
East central England	1,456 (302)	20.7	119 (302)	2.5
Southwest Scotland	235 (33)	14.0	17 (62)	3.6
North and Central Scotland	147 (38)	25.9	15 (35)	2.3
Total	3,138 (648)	20.7	260 (674)	2.6

The Icelandic-breeding Goose Census 2007

The 48th consecutive census of Greenland/Iceland Pink-footed Geese and Iceland Greylag Geese took place during autumn and early winter 2007. Many thanks go to everyone in the IGC network for their continued support. In addition to the two usual counts undertaken in October and November, a third count in December (introduced in 2005) was also conducted as part of a three year trial to re-assess the most suitable time for a complete census of Iceland Greylag Goose. This was necessary due to recent data indicating that departure from the breeding grounds is occurring later. Some sites in the UK were also counted during late August and September in order to estimate the numbers of UK-breeding Greylag Geese from the Northwest Scotland and Re-established populations present at sites prior to the arrival of Icelandic migrants. Coverage in Britain was good, with the majority of the key sites counted. Count data were also received from Norway, the Faroes, Ireland and Iceland, the latter involving an aerial survey of the south, together with coordinated ground counts conducted throughout the rest of the country in November 2007. Weather conditions were generally considered favourable during the counts.

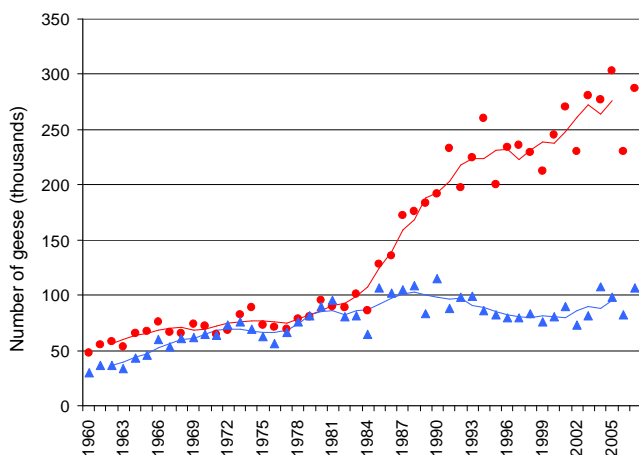


Figure 11. Population estimates for Pink-footed Geese (red circles) and Greylag Geese (blue triangles), 1960 to 2007. The 5-year running means (e.g. mean for 2005 is from population estimates for 2003-07) are shown as lines.

Maxima of 282,948 Pink-footed Geese and 112,141 Greylag Geese were counted in October 2007 and November 2007, respectively. These totals were adjusted to account for major sites that were not counted and for the number of Greylag Geese from the Re-established and Northwest Scotland populations counted prior to this census, resulting in population estimates of 287,563 Pink-footed Geese and 107,137 Greylag Geese (Figure 11). Both estimates are higher than those in 2006, representing increases of 25.0% for Pink-footed Goose and 30.1% for Greylag Goose.

Particularly high numbers of Pink-footed Geese were recorded at South Lancashire Mosses, with 16% of the October population estimate. The count of over 46,000 is the largest number ever recorded in this area. Higher than recent average numbers were also recorded at Loch of Strathbeg (Banff & Buchan), Montrose Basin (Angus) and Carsebreck & Rhind

Lochs (Perth & Kinross). Orkney held 51% of the Greylag Goose population during November, and in December, 67,540 Greylag Geese were counted there, this being the highest ever recorded on the islands and continues the marked shift in the distribution of Greylag Geese to these northern isles.



Greylag Goose (Nicholas Cottrell)

The Pink-footed Goose population estimate appears reasonable since coverage, particularly of the main sites, was good. Despite recent fluctuations in numbers, partly caused by fluctuations in coverage, notably so in 1995 and 2006, the long term population trend is one of continued increase. Breeding success remains fairly stable at c. 15-20% and is, presumably, more than compensating for annual deaths. Bag statistics from Iceland for autumn 2007 are not yet available, but it is not expected that these were significantly greater than other recent years (c. 10,000-15,000 geese). Unfortunately, meaningful bag statistics remain unavailable from Britain and Ireland, making interpretation of changes in population dynamics all the more complicated.

The count of Greylag Geese was comprehensive with sites being covered in most of the winter range. It was particularly good to get coverage in Ireland, the Faroes Isles and southwest Norway. The increasing concentration of the population on Orkney continues with a record count of 67,540 in December 2007. The November counts in Iceland, which have only recently been initiated, remain somewhat crude, with a mixture of dedicated aerial survey, together with patchy coverage elsewhere and anecdotal evidence (rather than accurate counts) informing the estimate of the number present from a number of areas. Peak counts have occurred in November in each of the three years 2005-2007.

Despite the annual harvest of c. 30,000-40,000 birds annually in Iceland and an unknown number shot in other parts of the winter range, breeding success at over 20% in seven out of the last eight years (Figure 12) appears to be maintaining numbers at c. 80,000 to c. 100,000 individuals. However, there is an increasing number of summering Greylag Geese in Scotland, recently estimated at around 25,000. A dedicated summer survey in 2008 is being undertaken to better understand the abundance and distribution of these birds, and will help enormously in understanding where summering Greylag Geese

Progress reports

are and where they overlap with the winter distribution of Iceland birds.

The breeding success of Pink-footed Geese was slightly above average for the previous decade at 20.0% young (mean proportion of young 1997-2006: $18.6\% \pm 0.5$ s.e.) (Figure 12). The mean brood size of successful pairs was 2.27 goslings, which was similar to the mean recorded during the preceding ten years (mean brood size 1997-2006: 2.2 ± 0.06 s.e.). The breeding success of Iceland Greylag Geese was slightly higher than average, with flocks containing 21.7% young (mean 1997-2006: $19.5\% \pm 1.4$ s.e.). The mean brood size of 2.61 goslings per successful pair was similar to that of the recent ten year mean (mean 1997-2006: 2.6 ± 0.06 s.e.).

The full report of the 2007 Icelandic-breeding Goose Census can be downloaded at www.wwt.org.uk/research/monitoring/reports.asp.

Carl Mitchell

Taiga Bean Geese in Britain, 2007/08

During 2007/08, counts were undertaken at the two key sites for Taiga Bean Goose in Britain, the Slamannan Plateau and the Yare Valley. A peak count of 300 birds was recorded at the Slamannan Plateau, an increase of 45 from the previous year and equalling the record count made in 2005/06 (Figure 13). The peak of 136 at the Yare Valley is an increase of 26 on the previous year (Figure 14). However, this is still one of the lowest peak counts recorded there since 1977/78.

There were no major changes in the phenological patterns at the Slamannan Plateau during 2007/08. The arrival was typical, with a rapid build-up during October, and stable numbers between October and February. Migration back to the breeding grounds began during the last week of February.

At the Yare Valley, the arrival of Bean Geese was earlier than average. October numbers were the highest since 2002 and the November count was considerably above the previous five years mean. The peak count was also recorded in November, compared to December or January in previous years. As usual the majority of the flock had migrated by March, although a small number of birds were still present. No counts were made during February.

At the Slamannan Plateau, 103 Bean Geese were aged and six broods were recorded during mid October. The proportion of young was thus estimated at 25.2%, the highest percentage recorded since breeding success was first estimated in 2004. Mean brood size was $2.2 (\pm 0.16$ s.e.) young per successful pair. No data were again collected at the Yare Valley as too few birds had arrived within the period when it is possible to confidently identify first-winter geese.

Jacqueline Reed

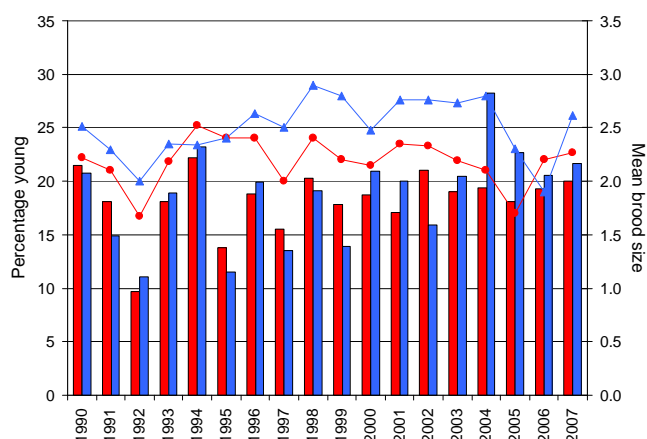


Figure 12. The percentage of young (columns: red = Pink-footed Goose, blue = Greylag Goose) and mean brood sizes (lines: red circles = Pink-footed Goose, blue triangles = Greylag Goose) of Iceland-breeding geese in Britain, 1990-2007.

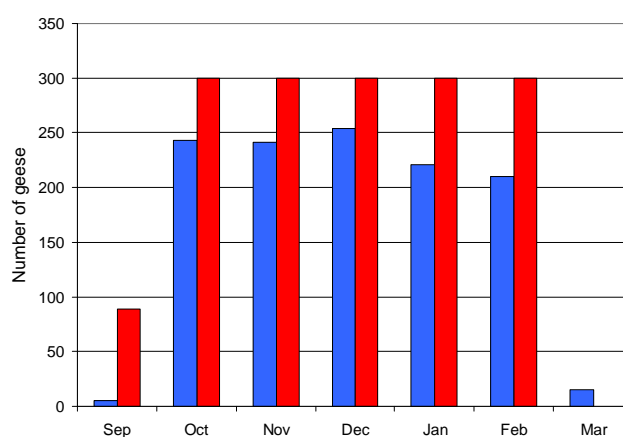


Figure 13. Peak monthly counts of Bean Geese at the Slamannan Plateau (blue columns represent the mean of 2002/03-2006/07; red columns 2007/08).

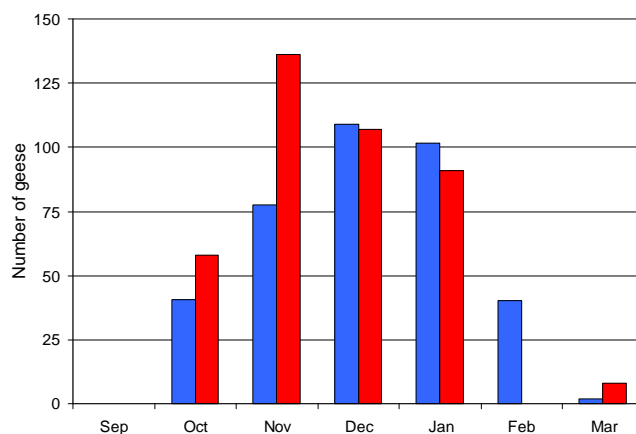


Figure 14. Peak monthly counts of Bean Geese at the Yare Valley (blue columns represent the mean of 2002/03-2006/07; red columns 2007/08). No data were collected in February 2008.

Latest monitoring of Northwest Scotland Greylag Geese

Annual monitoring of Northwest Scotland Greylag Geese continued on the Uists and Tìree in 2007/08. Counts in late August 2007 showed that the number of birds in these two locations continued to increase. A total of 6,440 Greylag Geese was counted on the Uists, an increase of 55% on the August count in 2006, although counts in late summer 2005 and 2006 were considered underestimates. On Tìree, an island-wide census produced a count of 3,694 birds, including goslings. This represents a decrease of 7.7% on the August census in 2006, although the long term trend is one of increase (Figure 15).

Productivity data were collected from the Uists in August 2007. A total of 769 birds in 26 flocks was aged between 17 and 31 August, with an overall proportion of young of 26.8%. The mean brood size was 2.69 goslings per successful pair from a sample of 26 broods. A total of 2,726 Greylag Geese was aged on Tìree on 27/28 August 2007, and brood sizes were collected for 305 broods. The percentage of young birds was 30.4%, above the average for the previous five years (mean 2002-2006: 24.9 ± 2.80 s.e.). The mean brood size was also just above average for the previous five years at 2.67 goslings per successful pair (mean brood size 2002-2006: 2.58 ± 0.14 s.e.).

At the time of writing (June 2008) plans are well underway for a whole Scotland survey of summering Greylag Geese. The extent of the survey covers the range of both the Northwest Scotland and Re-established populations. Preliminary results should be available by the end of 2008, and will feature in

GooseNews 8. Special thanks go to John Bowler (Tìree) and Roderick McDonald (the Uists) for the provision of data reported here.

Carl Mitchell

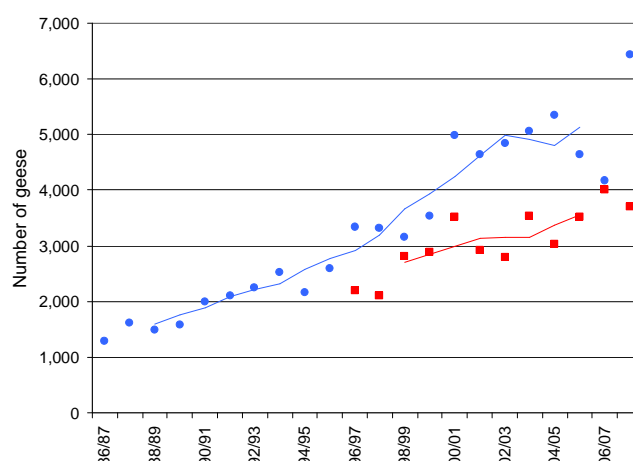


Figure 15. Peak counts of Northwest Scotland Greylag Geese recorded in late August/early September on the Uists, Outer Hebrides (blue circles) and Tìree, Inner Hebrides (red squares) 1986/87 to 2007/08. The five year running mean (e.g. mean for August 2002 is from counts for August 2000-2004) are shown as lines.

Latest Greenland White-fronted Goose census results

Results of the 25th annual census of Greenland White-fronted Geese, undertaken in 2006/07, indicated that numbers in Britain had fallen once again following the slight stabilisation that had occurred the previous year. Total numbers in autumn were the lowest recorded since 1987/88, and in spring since 1988/89; with 12,271 recorded in December 2006, and 12,536 in March 2007 (Figure 16).

In Wexford, Ireland, however, numbers were unusually high for recent years, with spring numbers up on the previous season by 23.1%. As counts from the rest of Ireland are not yet available, it is not possible to provide a global population estimate at this time.

Breeding success was again below the average for the last 15 years, at 10% young in a sample of 5,319 aged geese, although encouragingly up on the previous year (8.6% in 2005) (Figure 17). Mean brood size was 3.36 young per successful pair, based on 190 families sampled from a restricted number of sites. Although the proportion of young amongst flocks on Islay and in the rest of Britain were higher than the previous year (10.0% compared with 8.9% on Islay; 10.5% compared with 8.2% for the rest of Britain), numbers were still below the 1982-2005 average of 13.3% and 13.0% for Islay and areas away from Islay, respectively. There was also considerable variation in breeding success between wintering sites, ranging from 0-23.6% young, with two flocks at Kintyre, Argyll, holding the highest

proportion of young. Such variation has not been observed amongst flocks before. Although there has been a slight increase in breeding success in recent years, it still remains relatively poor and below the level required to replace annual losses.

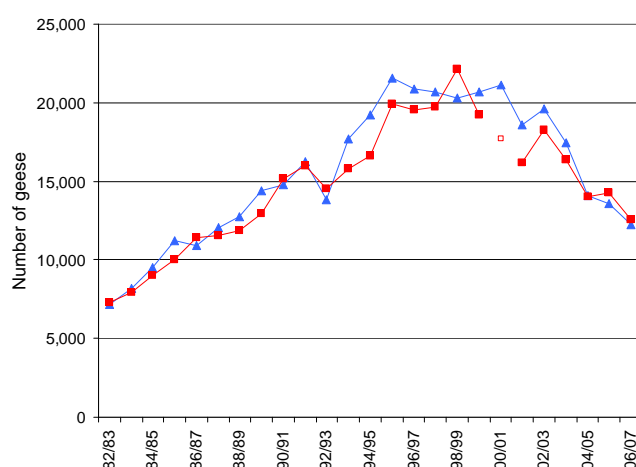


Figure 16. Counts of Greenland White-fronted Geese in Britain, 1982/83-2006/07, showing autumn (blue triangles) and spring (red squares) census results for each season. Note the missing value for spring 2001 (unfilled square) on account of the outbreak of Foot and Mouth Disease that year.

Progress reports

The continued decline in numbers is surprising given that it follows the decision, in August 2006, to ban hunting of Greenland White-fronted Geese in Iceland – this source of mortality accounting for some 3,500 birds per annum. The situation will, of course, continue to be monitored to see the longer-term effects this has on numbers. 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. Adult survival will also continue to be monitored through the resighting of collared individuals to look at the long-term changes there. The Greenland White-fronted Goose Census is organised by the Greenland White-fronted Study in Britain and by the National Parks and Wildlife Service in the Republic of Ireland and Northern Ireland.

Taken from: Fox, AD & I Francis. 2007. *Report of the 2006/2007 National Census of Greenland White-fronted Geese in Britain. Greenland White-fronted Goose Study*. Kalo

The full report can be downloaded from www.wwt.org.uk/research/monitoring/reports.asp.

Breeding success of European White-fronted Geese in 2007

A total of 1,634 European White-fronted Geese was aged at eight localities in Britain between 13 December 2007 and 23 January 2008 (Table 3). Flock sizes varied from 83 to 624 birds. The overall percentage of young present was 24.3% (an increase of 7.6% on 2006/07). Brood size was recorded for a total of 104 families and ranged from 1-4 goslings. The mean brood size per successful pair was 1.9 (± 0.16 s.e.) goslings.

The percentage of young in each flock varied greatly between sites. Particularly high proportions of young were recorded in Norfolk (60% at Holkham NNR), as opposed to Kent where only 3.3% of the flock aged were first winter birds. The degree of variation between flocks stresses the need to continue age assessments at a range of wintering sites to ensure estimates of breeding success are representative of the total British population.

Despite the percentage of young during 2007/08 being greater than 2006/07, it was still lower than both 2005/06 and 2004/05. Prior to 2004/05, estimates of annual breeding

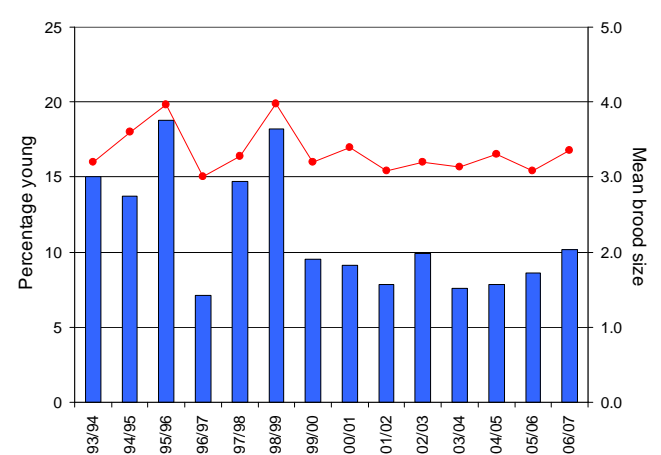


Figure 17. The mean percentage of young (blue columns) and mean brood size (red circles) of Greenland White-fronted Geese in Britain, 1993/94 to 2006/07.

success were only routinely carried out at WWT Slimbridge, Gloucestershire. The proportion of young birds recorded at Slimbridge in 2007/08 was also slightly higher (by 2.2%) than that recorded in 2006/07 but remained below the recent ten year mean (1997-2006: 20.6%, ± 2.4 s.e.). The mean brood size (2.5 goslings per successful pair) was also higher than the preceding year (2.2) and comparable to the recent 10-year mean (1997-2006: 2.55, ± 0.2 s.e.).

One of the main influences on the breeding success of tundra-nesting geese is the cyclic pattern of lemming populations. Breeding success generally decreases in years of low lemming abundance as a result of predators switching from lemmings to birds. During 2007, monitoring stations in the Arctic recorded low numbers of lemmings, although in a few areas lemming abundance was high during June but populations crashed during July and August (see www.arcticbirds.ru). However, for certain parts of the breeding range a low abundance of predators (predominantly Arctic Foxes) was also recorded.

Jacqueline Reed

Table 3. The proportion of young and mean brood size of European White-fronted Geese during winter 2007/08.

Region	No. sites	Total aged	% young	No. broods	Mean brood size
Gloucestershire	1	508	16.9	26	2.5
Kent	1	60	3.3	0	-
Norfolk	4	783	34.5	59	1.8
Suffolk	2	283	14.2	19	1.5
Total	8	1,634	24.3	104	1.9

Svalbard Barnacle Goose monitoring in 2007/08

Between 3 October 2007 (by which time 14,590 Barnacle Geese had arrived on the Solway) and 19 May 2008 (when 7,000 remained), 20 coordinated counts were carried out across the whole of the Inner Solway Estuary. As with last winter, goose arrival on the Solway was fairly typical, with 22,640 recorded on 17 October 2007 and almost the whole population present by the end of the month. The peak count was 29,815 recorded on 7 November. As a precaution against the possibility of some of the birds having been counted twice, this count was averaged against all of those within 10% of the next highest count within the October to March period; two counts in all. This procedure gives an adopted population total for 2007/08 of 29,000. This is an increase of almost 16% on the adopted population estimate of 2006/07 (25,000).

Between 26 September 2007 and 31 March 2008, a total of 27,544 Barnacle Geese was aged by four observers at WWT Caerlaverock and at other sites around the Solway, indicating that 2007 was a good breeding season. A total of 35 flocks was sampled, varying in size from 41 to 4,500 birds. Sample size ranged from 41 to 2,500. The overall percentage of young present in these flocks was 12.8%, ranging from 7.0% to 70.7% within individual flocks. As with the 2006/07 season, this value is well above the current 10-year mean (8.5%, ± 1.6 s.e.). Brood size was recorded for a total of 102 families, and the mean brood size per successful pair was 2.4 goslings, with brood sizes ranging from 1-5 goslings, up slightly on the previous year. The mean for the most recent ten year period (1998-2007) is 1.9 (± 0.1 s.e.) goslings per successful pair.

Larry Griffin

Breeding success of Dark-bellied Brent Geese in 2007

Results from age assessments made at wintering sites in the UK indicate that the breeding success of Dark-bellied Brent Geese in 2007 was higher than the previous year and above 10.0% for the fourth time in five years (Figure 18). A total of 84,361 geese was aged at 22 estuaries or coastal areas on the English east and south coasts, from the north Lincolnshire coast to Devon. The highest numbers were aged at Langstone Harbour, the Thames Estuary and the North Norfolk Coast.

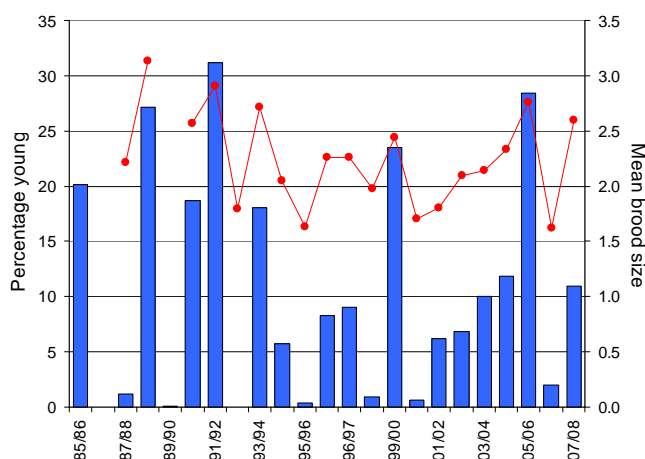


Figure 18. The percentage of young (blue columns) and mean brood size (red circles) of Dark-bellied Brent Geese recorded in the UK, 1985/86-2007/08.

The overall proportion of young was 11.0%, increasing from a low of 8.7% in October to a peak of 13.6% in November. It then fluctuated throughout the winter, rising to 13.1% in April, though the sample of aged birds was notably smaller in later months. Grass habitats supported the highest proportion of young (14.3%) followed by cereal fields (11.3%), while other

habitats saw a similar percentage of young amongst flocks. The mean brood size per successful pair was 2.57 (± 0.04 s.e.). Of the 341 flocks assessed, the majority contained between 5-15% young (39.6%, $n = 135$) and less than 5% young (29.3%, $n = 100$).

Breeding success of Dark-bellied Brent Geese has previously been shown to follow a three-yearly cycle of good, poor and variable success, and is greatly influenced by interactions with lemming abundance and other factors such as predator pressure. Between the mid 1990s and 2005, the pattern shifted away from the predictable cycle and there were fewer than expected good breeding seasons. This suggests that the connection between rodent abundance and breeding success no longer functioned in the same way, or that rodent abundance was no longer following a predictable pattern. Over the most recent three years, however, breeding success has been good in 2005 (28.4%), poor in 2006 (2.0%) and, if compared with other years, variable in 2007. This follows a similar pattern to that of lemming abundance at the breeding grounds, which saw exceptionally high numbers in 2005, a crash in 2006 and a variable year in 2007. These results suggest that breeding success may be returning to the more predictable three-yearly cycle; it will, however, take a few years of further monitoring to establish whether this is the case.

As always our thanks go to the network of experienced fieldworkers who undertook these age assessments for the twenty-third consecutive winter. We are extremely grateful for their help, advice and continuing support.

The full report can be downloaded from <http://www.wwt.org.uk/research/monitoring/reports.asp>.

Colette Hall

Progress reports

International Dark-bellied Brent Goose Census

A coordinated census of Dark-bellied Brent Geese takes place each year in late April/early May in the Netherlands, Germany and Denmark. At this time of year the majority of the population is gathered in localised areas, mainly around the Wadden Sea (the main spring staging area), making it easier to undertake a more accurate assessment of numbers than when the geese are more widely distributed throughout their wintering range. Although only a small number of Dark-bellied Brent Geese remain in Britain in spring, it is important to include these birds when undertaking an assessment of population size in order to gain a better understanding of overall numbers and distribution. WWT has, therefore, for the last four years, organised a spring census of Dark-bellied Brent Geese in Britain, the results of which will be fed into the International Census.

Totals from the May counts in Britain, including data collected for WeBS, were 10,345 in 2005, 13,912 in 2006 and 7,007 in 2007. At the time of writing, data for 2008 had only been received for a few sites, where a total of 683 geese were recorded. Birds have been observed in May at various sites along the British coast, from the Severn Estuary to the Humber Estuary. The majority are, however, recorded at the Stour Estuary (813 in 2005; 1,488 in 2006; 1,608 in 2007), the North Norfolk Coast (2,067 in 2005; 3,172 in 2006; 2,365 in 2007) and The Wash (7,307 in 2005; 8,921 in 2006; 2,697 in 2007).

The recent censuses, together with past totals from WeBS, show that Britain regularly holds a significant proportion of the whole population (Figure 19), with the 2006 total representing

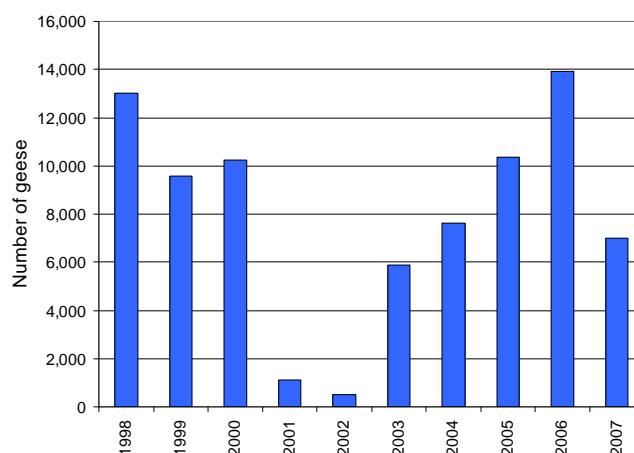


Figure 19. Total number of Dark-bellied Brent Geese counted in Britain, May 1998-2007 (WWT data; WeBS data).

7% of the current estimate for Dark-bellied Brent Goose (200,000). This highlights the importance of including Britain in the International Census, and the need for coordinated counts in spring to continue so that as complete a picture as possible is gained of the spring distribution and abundance of the population.

We would like to take this opportunity to thank all those who contributed to the censuses.

Colette Hall

Canadian Light-bellied Brent Geese in 2007/08 – the highest count so far...

Results from the 2007/08 census of East Canadian High Arctic (ECHA) Light-bellied Brent Geese indicate that numbers are at an all time high (Figure 20). For the sixth consecutive year, all major sites in Ireland, Iceland and the UK that support this population were surveyed in October. Counts were received from 15 sites in Ireland, including Strangford Lough, the main autumn site, which held 29,417 geese, Loch Foyle (1,720) and Castlemaine Harbour/Tralee Bay (1,296). An aerial survey in Iceland located 4,241 geese. With data for some sites still outstanding, the minimum total count was 38,852, but it is likely that once all counts are received the population estimate will be c. 39,000. This represents a 30% increase on the previous year, and the highest estimate to date.

Breeding success was particularly good in 2007, with the proportion of young being the highest recorded since 2000/01 (29.5%) (Figure 21). An increase in overall abundance is, therefore, not surprising. From a total of 10,070 geese aged, 25.0% were juveniles, and of the 162 families recorded the mean brood size was 2.71 young per successful pair.

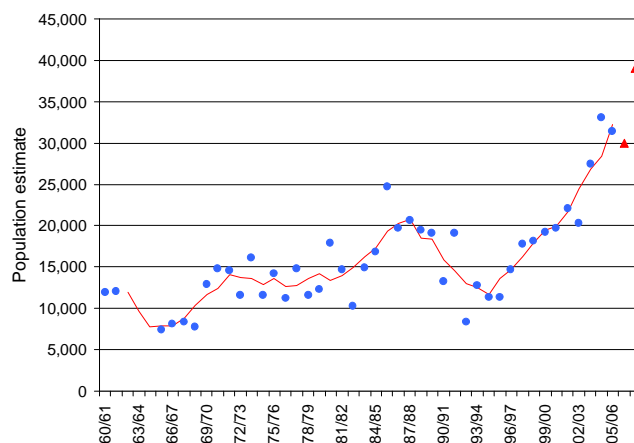


Figure 20. Population estimates of ECHA Light-bellied Brent Goose, 1960/61 – 2007/08. The five-year running mean (e.g. mean for 2002 is from population estimates for 2000-04) is shown as a red line. The red triangles indicate provisional estimates for 2006/07 and 2007/08.

Numbers of Light-bellied Brent Geese have been gradually increasing since the first complete census in Ireland in 1960/61. Though there was a decline in the early 1990s, numbers rose again fairly rapidly and have now reached an all time high. Whilst the increase can partly be attributed to an improvement in coverage and survey methodology, particularly since 2002/03 when the census also included counts from Iceland for the first time, results from more comprehensive surveys in recent years suggest there has been a genuine growth in the population.

Colette Hall & Kendrew Colhoun

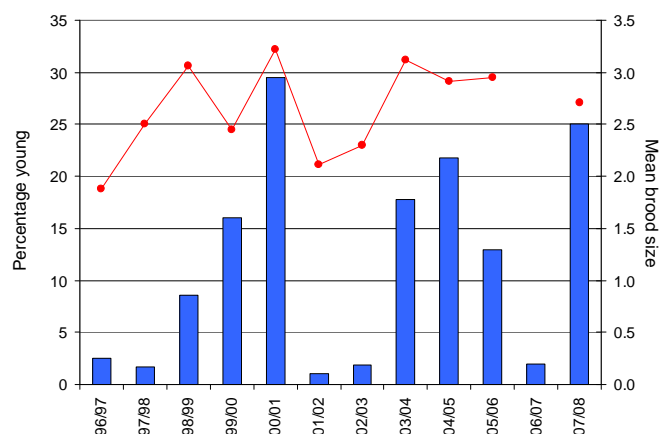


Figure 21. The mean percentage of young (blue columns) and mean brood size (red circles) of ECHA Light-bellied Brent Geese, 1996/97 – 2007/08. No brood size data are available for 2006/07.

East Atlantic Light-bellied Brent Geese monitoring in 2007/08

Lindisfarne, Northumberland, is the only site in the UK where East Atlantic Light-bellied Brent Geese can be observed in any number. In 2007/08, breeding success was assessed at the site in November, when a total of 1,533 birds were aged, of which 13.6% were young (Figure 22), and 93 broods were recorded, with a mean brood size of 2.24 (± 0.10 s.e.) young per successful pair.

The proportion of young in 2007/08 was 11% higher than the previous winter and the highest recorded since 1996/97 (21.0%). Mean brood size was slightly lower than in 2006 (2.50, ± 0.56 s.e.). Many thanks go to Steve Percival for carrying out the age assessments at Lindisfarne.

Colette Hall

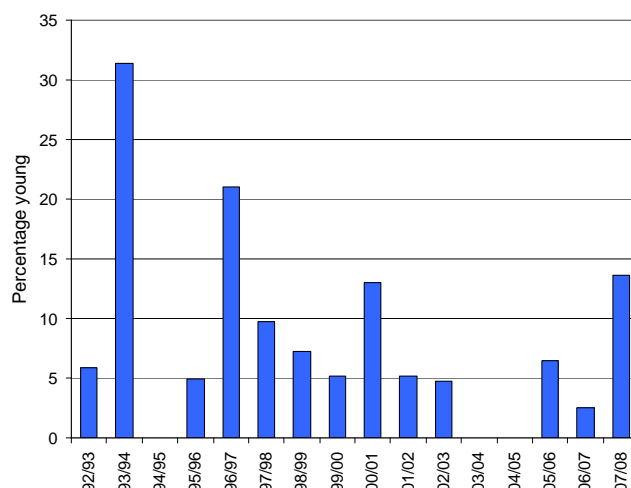


Figure 22. Proportion of young in flocks of East Atlantic Light-bellied Brent Geese at Lindisfarne, 1992/93 – 2007/08.

Recent successes with capture and marking

Winter 2007/08 saw a total of 400 Whooper Swans caught at WWT centres; 128 at Caerlaverock, 175 at Martin Mere and 97 at Welney. This was the first time catches took place at WWT Welney. Twenty-five Whooper Swans were also caught at Lough Neagh/Beg, Northern Ireland, thanks to Kerry Mackie carrying out the first cannon net catch of this species in the province. The number of wintering Bewick's Swans caught remained low, with only 12 caught at WWT Slimbridge.

The winter catches followed on from a successful summer catching swans on their breeding grounds. In August 2007, a team from WWT travelled to the Nenetskiy State Nature Reserve, Pechora Gulf, Russia, where 99 Bewick's Swans and 4 Whooper Swans were captured. In Iceland, WWT teamed up with the Icelandic Institute of Natural History, Sverrir Thorstensen and Oli Einarsson and caught 381 Whooper Swans at various locations. Seven of these birds were fitted with satellite transmitters, which tracked their migration between the

breeding and wintering grounds as part of WWT's *Super Whooper* project.

In summer 2007, Larry Griffin and Brian Morrell of WWT Caerlaverock joined an expedition organised by Jouke Prop, (University of Groningen) to Nordenskiöldkysten, on the west coast of Svalbard, as part of the *IPY BIRDHEALTH* project. Other team members included Arjen Drost, Götz Eichhorn and Eva Wolters. During six successful catches of flightless adults and goslings on the tundra lakes, 375 Barnacle Geese were caught, of which 73 were goslings, along with 52 Pink-footed Geese. It was interesting to catch some of the birds, complete with very faded and broken darvic rings and some with metals only, at these lakes where they were originally caught in 1986.

On the Solway Estuary in the following winter, two catches of Svalbard Barnacle Geese were made. In collaboration with the

Progress reports

North Solway Ringing Group, 90 were caught and ringed in November 2007 at the Nether Locharwoods holding of the WWT Caerlaverock reserve; a new site for goose catching. Six were already marked and, in confirmation of the observations which suggested 2007 was a very productive breeding season, 46 were juveniles. Two solar GPS satellite tags were fitted to two of the largest males, later named Thor and Duff by local schools. A further 44 Barnacle Geese were caught on the Eastpark fields at the Caerlaverock reserve in March 2008. This included five marked birds and seven juveniles. Two GPS tags were again deployed on 'Donald' and 'Lynvingen', both championed by Longyearbyen School in Svalbard.

On 5 April 2008, 17 Greenland Barnacle Geese were cannon netted on the Inishkea Islands, Co. Mayo, Ireland. They were caught by Alyn Walsh of the NP&WS as part of the long term population dynamics study being carried out by David Cabot. The five largest males were fitted with satellite transmitters by Larry Griffin and Richard Hesketh of WWT Caerlaverock. A further three birds were mist netted during winter 2007/08. Progress of the satellite tagged birds can be viewed at www.wwt.org.uk/research/tracking/maps2.asp by selecting Greenland Barnacle Goose.

During winter 2007/08, as part of a joint project with local partners at the National Trust for Scotland, Scottish Environment Protection Agency and RSPB, a catch of Greenland White-fronted Geese was attempted in a bid to increase knowledge of their feeding and roosting sites at Loch Ken. Through the efforts of the North Solway Ringing Group and WWT's Larry Griffin, this was eventually successful on 26 February 2008 when five male birds were caught. The birds were fitted with orange collars and white leg rings and four were also fitted with GPS tags. So far, detailed information has been provided not only from the wintering grounds, but also on staging sites in Iceland and sites used on the west coast of Greenland.

The season for catching East Canadian High Arctic (ECHA) Light-bellied Brent Geese in 2007/08 extended from early August 2007 through to late May 2008. Helicopter round-ups on Axel Heiberg at Bathurst Islands, Canada, in early August saw 196 birds captured. Catches in Ireland took place at Strangford Lough, Co. Down, in October, Dundrum Inner Bay, Co. Down, in January (total 141 individuals) and Co. Sligo in February. In Iceland in May 2008, eight catches were made at three areas, including Sudarbaer, Grundafjordur, the furthest north Brent Geese have been caught to date in Iceland. Thanks to Gudmundur Gudmundsson, Kerry Mackie and Alyn Walsh, a total of 247 individuals were caught, the majority of which were newly marked birds. The resightings of ECHA Light-bellied Brent Geese continued well during the 2007/08 season. Between July 2007 and May 2008, over 8,000 observations were made of 1,564 individuals. For the second year running, records were received from Jersey: six observations of two individuals. Sightings of 11 individuals were also received from observers in Canada.

The 2007/08 season has also brought some interesting resightings of feral Barnacle Geese ringed by Ivel Ringing

Group at Roxton, Bedfordshire. Most noteworthy was the travels of an individual marked with red darvic H/B. During the past winter this bird has been seen at WWT Slimbridge, Gloucestershire, Scotney Pit, Kent, and in spring 2008 at Parc du Marquenterre, Baie de Somme, France, before returning to Rutland Water, Leicestershire at the end of April. This is the first foreign movement and the furthest distance so far travelled by any of the birds ringed at Roxton.

Pink-footed Goose catching was again successful over the 2007/08 winter. Tay Ringing Group (TRG) and Alan Lauder had a successful catch of 171 Pinkfeet at Loch of Lintrathen, Angus, on 16 December 2007. This success was down to the hard work and skill of Clive McKay (TRG) in setting up this catch. Grampian Ringing Group also caught 21 Pinkfeet at Loch of Skene, Aberdeenshire, in February 2008. Both catches were important in maintaining the number of marked individuals in the population.



Greylag Geese (Pauline Wilson)

No catches of Iceland Greylag Geese were made during 2007/08 as access to the key site, Loch Eye, Ross-shire, where Highland Ringing Group have caught birds since the early 1990s, is no longer possible, and in any case far fewer birds are now present there due to the redistribution northwards to Orkney. The development of catches in Orkney is therefore going to be essential for the continued monitoring of survival in this population, so the catches of breeding Greylags made in July 2008 were an important first step towards this, and several other goals such as improving our knowledge of the winter distribution of Orkney breeding birds. Thanks to Alan Leitch, Colin Corse, and others from Orkney Ringing Group, 112 Greylag Geese, adults and goslings, were colour-marked in early July – sightings of these will provide valuable information with which to appraise the way in which counts of Greylags in Orkney are analysed. Another successful catch of breeding Greylag Geese was also carried out at Sevenoaks by Dartford Ringing Group on 15 June 2008. Roger Taylor reported a total of 165 birds, comprising 87 adults (of which 46 were retraps) and 78 goslings.

As ever, sightings of all these colour-marked geese and swans are vital to our understanding of the movements, population dynamics and life histories of individuals within populations and may be reported to colourmarkedwildfowl@wwt.org.uk.

Jacqueline Reed

Conservation and research news

News from the Goose Specialist Group

Latest Goose Specialist Group meeting

The 11th meeting of the Wetlands International/IUCN-SSC Goose Specialist Group (GSG) took place in Leh, Ladakh, India, from 22-25 May 2008. Despite the difficulties in organising a meeting in a place as remote as the high mountains of Ladakh, in an area where the borders between India, China and Pakistan have not been settled, 34 delegates from 12 different countries managed to attend this meeting. Goose researchers from Belgium, Bulgaria, England, Estonia, France, Germany, India, the Netherlands, Russia, Sweden, Switzerland, and Ukraine gathered at an altitude of 3,500 metres (11,500 feet)! According to GSG tradition, we gathered at a time of the year when geese are present near the meeting venue – this time the focus was on Bar-headed Geese, of which Ladakh holds approximately 500 pairs. This meeting was the second in Asia (the 4th was held in 1999 in Matsushima, Japan), and the third scientific meeting on geese ever held in Asia, following the very first Asian goose meeting organised by Aleksandr Andreev in Magadan, Russia, in September 1990.

As many of the geese wintering in Europe also nest in or perform special moult migrations into Asia (Red-breasted, Dark-bellied Brent, Greater White-fronted, and Bean Geese), the importance of Asia for geese stretches well into Europe. Simon Delany (Wetlands International) presented an overview of the current knowledge on numbers of geese wintering in Asia. The meeting attracted several people – Herbert Prins, Blaise Humbert-Droz, Tsewang Namgyal, and Pankaj Chandan (WWF) – who had many years of experience about nature conservation on the high plains of Ladakh. They informed us about the problems that birds nesting in this area face, such as increased numbers of livestock (goats and sheep), increased eco-tourism, and increased number of stray and feral dogs, but also about solutions to reconcile nature conservation issues with the local economic interests.

Bar-headed Geese also featured prominently, with five oral presentations and one poster presentation about this species. Joost van der Ven presented a tentative overview of the knowledge of both the winter and nesting distribution of Bar-headed Geese. Thomas Heinicke presented an overview of the current knowledge of the distribution in the past and present of the different subspecies of Bean Goose that occur in Asia. Herbert Prins gave an excellent overview of the problems migratory birds face when they have to cross the Himalayas. All of these presentations will appear in print (either as full papers, or as abstracts) in the journal *Wildfowl*.

First meeting of IUCN-SSC chairs in Abu Dhabi

The GSG Chairman (Bart Ebbing) recently attended the first meeting of Chairs of IUCN-SSC Specialist Groups, held in Al Ain, Abu Dhabi, from 11-14 February 2008. For this meeting all Chairs produced a poster about the key activities of each group. At this meeting several other wetland-focused Specialist Groups that also are part of Wetlands International were represented (Seaduck SG, Stefan Pihl; Flamingo SG, Brooks Childress; Heron SG, Jim Kushlan; Diver/Loon SG, Joe Kerekes; and Freshwater Fish SG, Gordon Reid), and together

with Holly Dublin, Chair of IUCN-SSC, and others discussed the way forward for Wetlands International Specialist Groups. During this very stimulating meeting, Bart Ebbing also agreed to lead the Goose Specialist Group for another full term of four years.

Goose Specialist Group organising committee

Following on from discussions at the 10th GSG meeting in Xanten on how to take forward the GSG, a small strategic working group has now been formed, consisting of Herbert Prins, Leif Nilsson, Jesper Madsen, Thomas Heinicke, Eckhart Kuijken and Nicholas Tubbs (from Wetlands International) that will assist the Chairman to work out a forward plan that will be presented during the 12th meeting of the GSG in October 2009 in Sweden. Key items will be: improved management of the website, the revival of a bulletin (electronic version), more forward planning for the coming meetings so that the members will be informed beforehand about the coming two meetings (12th and 13th), strengthening the ties with the Russian Goose, Swan and Duck Study Group, and fundraising to help less wealthy members covering the costs of attending the meetings.

Resolutions

Four resolutions were adopted by the meeting:

- 1) the reconciliation of increased human activities and nature conservation on the high altitude plains of Ladakh;
- 2) the worrying goose hunting activities in Bulgaria;
- 3) the decreased level of protection that geese wintering and nesting in the Netherlands are exposed to; and
- 4) the worrying low population sizes of geese in East Asia.

Next meeting

Leif Nilsson kindly accepted to host the 12th meeting of the Goose Specialist Group in southern Sweden, near Falsterbo, from 9-14 October 2009. More information will be announced on the Goose Specialist Group website this coming autumn.

Bart Ebbing

Dark-bellied Brent Geese and Snowy Owls

Van Kleef and co-authors from WIWO (Working Group International Waterbird & Wetland Research) have recently presented evidence of competition between adult Brent Geese for nesting sites in close proximity to Snowy Owl nests (*Journal of Avian Biology* 38: 1-6). By mapping both owl and goose nest sites, the authors showed that in the Medusa river catchment on western Taimyr, Russia, Brent Goose nests were aggregated around the nests of Snowy Owls. Their research was instigated by previous studies confirming that the owls vigorously defend areas around their nest against predators, thus offering potential safe havens for nesting geese. Increases in clutch and egg size and decreases in nest failure indicated that females nesting nearer owl nests had better body condition on arrival at the breeding area. The manner in which geese competed for nest sites was not investigated.

Conservation and research news

On the hunting of Pink-footed Goose populations

The hunting of geese has been a subject of debate for many years, yet it has not been until recent years that the effects of shotgun wounding have started to be explored. In 2007, both Henning Noer and co-authors, Jesper Madsen and Frank Rigét, published work on shotgun wounding in Pink-footed Geese.

Following a seven year study Noer *et al.* (*Journal of Applied Ecology* 44: 653–662) published their findings on the effectiveness of a Danish plan to reduce the number of birds wounded by shot. By x-raying geese caught for marking it was established that since the plan was introduced in 1997, the incidence of geese carrying shot had reduced to between 7% and 11% in first year birds and 18% for older geese, compared to 25% and 36% prior to 1997. The authors were also able to demonstrate that the reductions in shot wounding cannot be explained by decreasing harvest rates. The plan encouraged hunters to comply with a 25 m maximum shooting range for geese, increasing the probability of an accurate shot.

In their recent paper (*Journal of Wildlife Management* 71: 1427–1430), Madsen & Rigét published work exploring the effects of shotgun pellets on the body condition of Pink-footed Geese. The study showed that whereas body condition, sex, and year were all significantly related, there was no number significant relationship between body condition and the number of embedded shotgun pellets. Overall, 23.8% of adults had pellets outside the gizzard. The paper concluded that geese hit by shotgun pellets that survived the hunting season, did not suffer detectable chronic injuries.

GWGS expedition to Greenland

A Greenland White-fronted Goose Study expedition to central-west Greenland in July 2008 found that numbers of Canada Geese have continued to increase in a study area that has now been surveyed over a 20 year period. Generally numbers and productivity of Greenland Whitefronts were low in comparison with previous years. Despite this however, a total of 37 Whitefronts were caught and colour-marked with either orange neck-collars (20 adult birds) or engraved leg-rings (17 young of the year). Birds previously ringed in this area have been seen in Scottish Whitefront flocks, especially in Argyll. Any sightings of these birds would be very gratefully received and should be sent to Tony Fox (tfo@dmu.dk). A total of 123 Canada Geese were marked and recoveries of these are anticipated from north-eastern North America. The relative proportions of the two species in the catches is probably a reasonable reflection of the relative abundance of both geese over the wider survey area.

Conservation actions for Greenland Whitefronts are planned to be discussed at an international workshop in Scotland early in 2008. More details available from David.Stroud@jncc.gov.uk.

David Stroud

The significance of female body stores for egg laying and incubation in Dark-bellied Brent Geese

By measuring changes in female body mass throughout the breeding season, Bernard Spaans and co-authors (*Ardea* 95: 3–15) have been able to explore the extent to which Dark-bellied Brent Geese breeding in the Pyasina Delta in Taimyr, Russia, are capital breeders (i.e. how much of the energy used for breeding is acquired from body stores accumulated during migration). The average body mass of females arriving in Russia was 1,464 g. After egg-laying, which occurred a few days after arrival, average body mass declined to 1,269 g and further to 1,066 g by the time the eggs hatched. It would seem that most of the energy expended during clutch completion was acquired prior to arrival, although differences in arrival body mass and estimated pre-laying body mass (1,571 g) suggest females are able, to some extent, to replenish body stores locally. During incubation it was calculated that 52% of the energy needed was taken from body stores and 48% from foraging locally. The heavy reliance on stored body reserves cuts the time females need to forage and thus reduces the risk of egg predation. Breeding success of Taimyr Brent Geese is therefore very much determined by female body condition on departure from spring staging areas.

New SSSI helps protect Bean Geese

A new Site of Special Scientific Interest (SSSI) at the Slamannan Plateau, Falkirk, was notified by Scottish Natural Heritage (SNH) to help protect Scotland's only wintering flock of Bean Geese. The site is also being considered by the Scottish Government for classification as a Special Protection Area (SPA) under the EU Birds Directive.

Local land owners were consulted about the proposed designation in 2006 and given the opportunity to send in written objections. After the objections had been resolved, the site boundaries were agreed and SNH sent land owners and managers written notification of their decision. It is hoped that many of the land managers within the SSSI will join the Bean Goose Natural Care Scheme, run by SNH, which gives payments for positive land management which benefit the geese.

Iain Rennick, SNH's area manager for Forth and Borders, said: "The [SNH] board recognised the important role local land managers play in supporting the geese... This is the only regular wintering population of this species in Scotland, and only one of two in the UK, the other being in the Yare Valley in Norfolk, England. The Scottish population is now the larger of the two, with an average of 221 birds or 54% of the UK total, using the Slamannan Plateau over the last five years. The geese breed close to the Arctic Circle in the boreal bog-forests of Sweden, northern Norway, Finland and western Russia but return to Scotland each winter."

Carl Mitchell

The State of the UK's Birds 2007

The most recent edition of *State of the UK's Birds* reports declining trends for five goose or swan populations over the short-term period (1994/95 to 2004/05) (see Table 4). Two of these (European White-fronted Goose and Iceland Greylag Goose) have declined over the long-term too (1979/80 to 2004/05). These are the same populations listed in the previous SUKB report, but four of them have a worse status than last year, i.e. the level of their decline has increased. Only Dark-bellied Brent Goose has an improved status, though it remains in decline. All other goose and swan populations continue to increase, often rapidly. e.g. over the short-term, Greenland Barnacle Goose has increased by 41%, Svalbard Barnacle Goose by 50%, and Whooper Swan by 124%.

A complimentary copy of *State of the UK's Birds 2007* is enclosed for all GSMP fieldworkers with this issue of *GooseNews*. It is also available to download from WWT's website www.wwt.org.uk/research/monitoring/reports.asp.

Table 4. Percentage change in abundance of those goose and swan populations showing a decline in the period 1994/95-2004/05.

Species	Long-term trend (25 year)	Short-term trend (10 year)
Bewick's Swan	+12%	-30%
European White-fronted Goose	-60%	-55%
Greenland White-fronted Goose	n/a	-20%
Iceland Greylag Goose	-1%	-8%
Dark-bellied Brent Goose	+27%	-27%

The non-uniform response of geese to earlier springs

As part of the fifth framework programme covering 'Energy, Environment and Sustainable Development', the European Union funded the FRAGILE project to assess the 'Fragility of Arctic Goose Habitat: Impacts of Land Use, Conservation and Elevated Temperatures'. One of the many outputs from this project has been an examination of the degree to which the timing of spring migration in two Svalbard-breeding goose species, the Barnacle Goose and the Pink-footed Goose has changed in two long-term data series from 1982-2003 and 1990-2003, respectively. The satellite-derived Normalised Difference Vegetation Index (NDVI) was used to express the onset of spring at the wintering and spring staging sites. Pink-footed Geese use several sites during spring migration, ranging from the southernmost wintering areas in Belgium to two spring staging areas in Norway, and distances between sites used along the flyway are relatively short. There was a positive correlation in the onset of spring between neighbouring sites, and the geese migrated earlier in early springs. Barnacle Geese, on the other hand, have a long overseas crossing from their wintering grounds in Britain to spring staging areas in Norway. Although spring advanced in both regions, there was no corresponding correlation in the timing of the onset of spring between their

wintering and spring staging sites, and little evidence for Barnacle Geese migrating earlier over the whole study period. Hence, where geese can use spring conditions at one site as an indicator of the conditions they might encounter at the next, they have responded quickly to the advancement of spring, whereas in a situation where they cannot predict, they have not yet responded, despite the advancement of spring in the spring staging area.

Tombre, IM, KA Høgda, J Madsen, LR Griffin, E Kuijken, P Shimmings, EC Rees & C Verscheure. In press. The onset of spring and timing of migration in two arctic nesting goose populations. *Journal of Avian Biology*.

Larry Griffin

Global climate change and breeding Svalbard Pink-footed Geese

Using species distribution models for Svalbard-nesting Pink-footed Geese to relate occurrence to environmental and climatic variables Jensen and co-authors (*Global Change Biology* 14: 1-10) predicted the distribution of Pink-footed Geese under a warmer climate scenario. The most economical model included mean May temperature and the number of frost-free months to gauge whether geese can physiologically complete the breeding cycle, and the proportion of moist moss-dominated vegetation in the area as an indicator of suitable feeding conditions. In contrast to recent suggestions that global climate change will cause range contractions of high-Arctic species, the results suggest a large northwards and eastwards expansion of the potential breeding range on Svalbard, even at modest temperature increases. The authors predict that warming may lead to further growth in population size of at least some Arctic-breeding geese.

Revised UK BAP priority list

Last year saw the publication of a revised UK Biodiversity Action Plan (BAP) priority species and habitat list. A set of criteria based on international importance, rapid decline and high risk were applied to identify those species and habitats that should be the focus of the UK BAP. The list comprises 65 habitats and 1,149 species, 59 of which are birds – previously only 26 bird species were included. New to the list are Bewick's Swan, Greenland White-fronted Goose and Dark-bellied Brent Goose, designated as being at risk of extinction in Europe, and European White-fronted Goose, which has suffered a severe decline in numbers in the UK. For each species, three priority actions have been identified. These fall into broad categories that include research, additional surveillance & monitoring, wider actions (e.g. climate change issues), site specific action and legal protection. Work is now ongoing to determine the best way to deliver on these conservation actions.

For more information visit the UK BAP website at www.ukbap.org.uk.

Contacts

GSMP contact

Carl Mitchell

Waterbird Monitoring Unit
c/o WWT, Slimbridge, Glos. GL2 7BT, UK
T 07825 032974
E Carl.Mitchell@wwt.org.uk

Contributors

Kendrew Colhoun is a research officer for RSPB Northern Ireland. He coordinates the All-Ireland Light-bellied Brent Goose Census for the Irish Brent Goose Research Group, and WWT's Light-bellied Brent Goose conservation research
E Kendrew.Colhoun@rspb.org.uk

Bart Ebbing is Chairman of the Wetlands International/IUCN-SSC Goose Specialist Group and is based at the Centre for Ecosystem Studies at Alterra in Wageningen (Wageningen University and Research Centre), the Netherlands
E Bart.Ebbing@wur.nl

Larry Griffin is a Senior Research Officer at WWT, coordinating WWTs research and monitoring of Svalbard Barnacle Geese
E Larry.Griffin@wwt.org.uk

Steffen Hahn is a researcher based at the Swiss Ornithological Institute, Sempach, Switzerland
E steffen.hahn@vogelwarte.ch

Colette Hall is a Waterbird Monitoring Officer at WWT Slimbridge
E Colette.Hall@wwt.org.uk

Marcel Klaassen works for the Centre for Limnology, Department Plant-Animal Interaction in Maarssen, the Netherlands
E m.klaassen@nioo.knaw.nl

Helmut Kruckenberg studies goose ecology at Osnabrueck University and has coordinated the European White-fronted Goose Research Group since 1998
E helmut.kruckenberg@blessgans.de

Eric Meek is regional manager for the RSPB on Orkney
E Eric.Meek@rspb.org.uk

Julia Newth is a research officer in WWT's UK Waterbird Conservation Unit, Slimbridge
E Julia.Newth@wwt.org.uk

Jacqueline Reed is a Waterbird Monitoring Assistant at WWT Slimbridge
E Jacqueline.Reed@wwt.org.uk

Eileen Rees is the Programme Manager for UK Waterbird Conservation at WWT Slimbridge
E Eileen.Rees@wwt.org.uk

Chris Tomlinson is the Reserve Manager at WWT Martin Mere
E Chris.Tomlinson@wwt.org.uk

Alyn Walsh is a conservation officer in the Research Branch of the Birds Unit, National Parks and Wildlife Service in Ireland
E alynwalsh@eircom.net

Pat Wisniewski

Former WWT Martin Mere Centre Manager, Pat Wisniewski, who died in May, began work at Martin Mere as Education Officer in 1983, becoming Centre Manager in 1991 and Centre Exhibitions Development Manager in 2006. In this time he delivered hundreds of talks to the general public, wrote over 100 scientific papers and popular articles, and a book *Newts of the British Isle*. He was awarded with West Lancashire Council's *Chairman's Special Award for 2006/07* for his dedication and contribution to the local community throughout his career at Martin Mere.

Pat played a major role in developing Martin Mere into the major success it has become. He helped during the numerous cannon-net catches of Pink-footed Geese in the late 1980s and 1990s, and he opened the 2nd Goose Specialist Group conference, held there in 1992. He had an enviably broad general knowledge and an unrivalled, encyclopaedic knowledge of anything to do with natural history, coupled with what appeared to be a photographic memory! He loved all fauna and flora and specialised in 'weird and wonderful' amphibians, reptiles and invertebrates, and was the proud custodian and breeder of some very rare species.

Pat will be missed tremendously by the world of conservation, as well as his family and friends at Martin Mere.

Chris Tomlinson

Compiled by Carl Mitchell
Designed and typeset by Colette Hall
Printed on Elemental Chlorine Free paper primarily manufactured from 100% de-inked post-consumer waste
Published by WWT, Slimbridge, Glos. GL2 7BT, UK
Wildfowl & Wetlands Trust (WWT) registered charity in England & Wales, no. 1030884, and Scotland, no SC039410
© WWT 2008

Information in *GooseNews* is compiled from a variety of sources and does not necessarily reflect the views of WWT or JNCC.

The Goose & Swan Monitoring Programme is organised by the Wildfowl & Wetlands Trust (WWT) on behalf of WWT and the Joint Nature Conservation Committee.



Goose & Swan Monitoring