



# GooseNews

The Newsletter of WWT's Goose Monitoring Programme

Issue no. 2 Autumn 2003

## How secure are Britain's wintering geese?

Surveys carried out through WWT's Goose Monitoring Programme show that many goose populations wintering in Britain and Ireland continue to thrive. Greenland/Iceland Pink-footed Geese and both Greenland and Svalbard Barnacle Geese are three such populations where recent counts have been greater than in previous surveys. Whilst these increases are welcomed by conservationists, as they place these often small populations on a more secure footing, they are unlikely to be such good news for those making a living in the agricultural sector, particularly in the core parts of the wintering ranges for these birds.

Such increases and the potential for greater conflict with agriculture that they bring may, to some, provide greater justification for larger harvests, or increased levels of licensed shooting. In fact, recommendations to this effect were made by the National Goose Forum (NGF) for two of the above populations in its Policy Report, published in 2000.

Yet although most migratory goose populations wintering in Britain are currently healthy, some are not, and even those that are face a variety of potential new threats, the likely outcomes of which are currently unknown and difficult to forecast. An assumption that goose populations will remain healthy should be guarded against. Most climate change predictions indicate that changes in Arctic habitats are highly likely, with worst-case scenarios suggesting a change from tundra to forest over 85% of the breeding range of some species. At the other end of the flyway, the changes in agricultural practice in Britain, and other parts of Europe, may reduce winter feeding resources. Furthermore, a number of goose populations, such as Greenland Barnacle Geese (see page 5) and Icelandic Greylag Geese, are becoming increasingly concentrated on their wintering grounds, making them

more vulnerable to so-called catastrophic events, such as an outbreak of disease.

Some declines are already being observed. Recent counts of Greenland White-fronted Geese indicate a continued decline and, whilst the reasons for this are not fully understood, it is believed that increasing competition with Canada Geese and a less favourable climate on the breeding grounds are the primary causes. This sudden turnaround highlights the ease with which the fortunes of a small but thriving goose population can change, even with considerable and sustained conservation effort. Dark-bellied Brent Geese have also declined, by 17% since 1995, after a series of poor breeding seasons, and uncertainty over the status of Icelandic Greylag Geese continues to give cause for concern.

These potential threats and observed declines emphasise the need to ensure that future decisions concerning the management of migratory geese are carefully considered and based upon sound data, such as that collected by contributors to the GMP. There remain, however, important gaps in our understanding of the dynamics of many of these populations. Perhaps the most important are estimates of survival and of harvest rates for quarry species.

It has been shown that the lack of a concrete system to monitor annual harvests is a considerable impediment to the sound management of quarry species. The importance of good quality

harvest data is recognised by the African-Eurasian Waterbird Agreement (AEWA), to which the UK is party, and by the proviso in the NGF recommendation that an increase in harvest of Pink-footed Goose would only be acceptable with the implementation of monitoring of hunting mortality. Although such a

continued on page 2



## Contents

- 2 Survey dates for 2003/04
- 3 Flyway-wide monitoring of geese: the International Waterbird Census
- 5 Progress reports
- 8 Important changes to the way Greylag Geese are surveyed
- 9 Conservation and research news

system is not going to be introduced overnight, WWT remains optimistic that the UK Government will ensure sufficient resources are available for this fundamental aspect of biodiversity conservation. In this respect, WWT applauds the recent efforts in this area by the Scottish Executive and DEFRA.

Ringling is also recognised as an essential component of all long-term avian monitoring programmes yet, despite the requirements under AEWA to develop co-ordinated ringing programmes, it is currently under-resourced and somewhat *ad hoc* for many of Britain's wintering goose populations. Furthermore, in spite of the recommendation by the NGF that further Population Viability Analyses should be conducted for migratory geese in order to inform future management decisions, ringing programmes have not been enhanced since the first PVAs were

conducted and therefore remain unable to provide much of the data needed for such analyses.

With this in mind, it is difficult to see how a greater harvest of increasing goose populations can currently be justified. Consequently, decision-makers should be aware of the limitations of some existing datasets to provide rigorous population models and should use particular caution in future management recommendations where doubt exists over the conservation status of a population.

For example, the status of Icelandic Greylag Geese is currently unclear and until measures such as those being developed through the GMP - including additional counts and enhanced colour-marking - provide sufficient data to give more certainty, cautious management prescriptions are needed for this population, including efforts to reduce the harvest in both Iceland and Britain.

Despite these gaps, the UK's existing demographic monitoring of goose populations is among the best in the world, and everyone that has contributed to the GMP has helped to ensure that management recommendations for these wonderful winter visitors are based on the soundest data possible. WWT will continue to seek ways of improving current monitoring protocols, and any such changes will include a prior consultation with relevant sections of the GMP network in order to ensure they are achievable. Maintaining and enhancing the GMP in this way is vital as geese potentially face a period when their future is less secure than in recent decades, and so your continued contribution is very much appreciated by WWT.

**Richard Hearn**

## Survey dates for 2003/04

### Goose Age Assessments

Age assessments will continue during 2003/04 as usual. The survey periods vary between species and are shown below.

Population	Period	Notes
Icelandic Greylag Goose	Oct - mid Nov	Care needed with age identification
UK Greylag Goose	Aug - Sep	
Pink-footed Goose	mid Sep - mid Nov	
Bean Goose	Oct - Nov	
E White-fronted Goose	Oct - Jan	
G 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

### Colour-mark Reading

All sightings of colour-marked wildfowl, not just geese, can be sent either direct to the relevant project co-ordinator or to 'Colour-marked Wildfowl' at WWT Slimbridge, or by email to [colourmarkedwildfowl@wwt.org.uk](mailto:colourmarkedwildfowl@wwt.org.uk)

Further details of other colour-marking projects can be found on the EURING colour-marking website: <http://www.cr-birding.be>

### Icelandic-breeding Goose Census

Count forms for the 2003/04 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 Richard Hearn. The priority dates for this year are:

**18/19 October and 15/16 November**

If you are unable to count on these dates, please let either your Local Organiser or the National Organiser know so that we may try to arrange for cover of your site by another counter. Note also that all counters are encouraged to carry out a count during September (see page 8 for further details).

Please also remember that, if possible, all sites should be covered during both the October and November counts as, although some may only support one species, in some years early arrivals of Greylag Geese or late arrivals of Pink-footed Geese mean that the best month for counting them may not be the usual one (normally November for Greylag Geese and October for Pink-footed Geese).

## Flyway-wide monitoring of geese: the International Waterbird Census

Many of the goose populations that winter in Britain and Ireland do so almost exclusively, although there are some notable exceptions from the east such as European White-fronted Geese and Dark-bellied Brent Geese. Elsewhere in the Western Palearctic, and beyond, wintering goose populations typically span many countries. As a consequence, nationally co-ordinated censuses alone do not provide an estimate of population size. The International Waterbird Census (IWC) overcomes this problem and provides population estimates for most waterbirds, including many geese. WWT's GMP contributes directly to the IWC and the process of generating waterbird population estimates. Lieuwe Haanstra, Wetlands International's Goose Database Manager, explains the background to the IWC and how the census has assisted waterbird conservation...

### Introduction

The sensation of Greylag Geese flying just ten metres over my head to land in the marshes of the freshly reclaimed Dutch Flevopolders in 1960 was the start of my interest in geese. At that time I was overwhelmed to see hundreds of Greylag Geese, not knowing that their number would increase dramatically in the following decades.

As long ago as 1967 the International Waterfowl Research Bureau, now Wetlands International, started to co-ordinate the International Waterbird Census (IWC, then called the International Waterfowl Census). The IWC is a long-term monitoring scheme for waterbirds in the non-breeding season and today is one of the longest running and geographically most extensive biodiversity monitoring schemes in the world. The goal of the IWC is to contribute significantly to international efforts to conserve waterbirds and their wetland habitats. To achieve this, it uses information collected over the long term to:

- monitor the numerical size of waterbird populations;
- describe changes in numbers and distribution of these populations;
- identify wetlands of international importance for waterbirds at all seasons;

- provide information to assist in the protection and management of waterbird populations through international conventions, national legislation and other means.

Implementing the IWC achieves more than just the collection of data, however. It also:

- increases awareness of waterbirds and wetland habitats;
- builds capacity of local and national governments, NGOs and individuals in the collection of information on waterbirds and wetlands.

The rationale behind the census was summarised eloquently by Professor Geoffrey Matthews at the time when international co-ordination of waterbird counting was beginning: '...while man is recklessly unleashing new insults on his environment, background monitoring of populations is essential to detect the threats as they develop and before they become catastrophes apparent to all'.

IWC data are collected by an enormous number of enthusiastic, often voluntary, birdwatchers with professional co-ordination at the national level. Every year in Europe a vast legion of around 10,000 observers counts waterbirds on the same weekend, around the 15th of January. Their data are sent to national co-ordinators for validation, before being sent to Wetlands International for inclusion into the IWC database. All these people are essential to the IWC data and without them it would be impossible to carry out this work. Figure 1 shows how the IWC has grown steadily since its inception (although note that the collation of data for 2000 is not yet complete!).

### History

During the 1970s and 1980s, the speed with which the IWC dataset accumulated overtook the capacity of computers. This was one reason for the decision to decentralise the database at that time, resulting in the Goose and Seaduck databases moving to the National Environmental Research Institute in Denmark and the Wader database to RIN, a predecessor of Alterra, in the Netherlands. One of the consequences of decentralising databases for different taxa in this way is that they developed in

slightly different ways, as each had its own specific requirements.

At the same time, waterbird censuses were developed in other parts of the world. The original IWC expanded strongly in Africa, with the start of the African Waterbird Census in 1991, the Asian Waterbird Census started in 1987 and in South America the late Pablo Canevari started the Neotropical Waterbird Census in 1991. In 1998, the management of censuses in Africa and also therefore the database was moved to the Wetlands International office in Dakar.

By 1997, it was clear that a reorganisation of all IWC databases was necessary; the database system used was now outdated and there was an increasing need to integrate data and to develop transparent and standardised extraction methods. In 1998 the Goose database moved from NERI to Alterra and I, together with Wetlands International staff, began to develop a new database closely linked to the structure of the Wetlands International Specialist Groups – this needed to keep the structure of the decentralised databases intact, share the same basic structure as other databases held by Wetlands International, and be as user-friendly as possible. The reorganisation of the database structures and the construction of the toolkit to manage the database are now complete and the implementation of the new database for all Wetlands International's waterbird data management will take place as soon as bugs in the routines have been killed!

### Structure and functionality of the database

The IWC is a site-based counting scheme and therefore it is logical that the heart of the database is a table, called, not surprisingly, 'SITE', containing all sites where birds have been counted. This table holds data such as the site name and its location (co-ordinates). Each time a site is visited, whether there were birds present or not, a record is added to a table called 'VISIT' that holds data such as date, the conditions and the way the site was counted. The actual count data are located in 18 count tables named after taxonomic groups such as GOOSE for species studied by the Goose

Specialist Group, WADER for the Wader Study Group, and so on. The contribution of these different taxonomic groups to the IWC dataset is illustrated in Figure 2. These essential tables (SITE, VISIT and count tables) are the core of the IWC database. A number of other tables store additional data and improve the functionality of the whole database.

The new database will facilitate entry, management and extraction of data in a standardised, reproducible and user-friendly way. It will check new data for possible errors, enable a user to change errors before entry, and provide a number of data extraction options, each with its own selection criteria and user defined output. Furthermore, it will generate trend analyses using the program TRIM (TRENDS and INDICES for Monitoring data, <http://zeus.nyf.hu/~szept/trim.htm>). TRIM uses observed (actual) counts to predict missing counts (i.e. estimates for sites where no counts were carried out in some years). From this, it is possible to calculate indices using the imputed data set, i.e. the predicted counts will replace the missing counts, facilitating the generation of more accurate trends.

### Geese in the IWC database

The Goose data take a special position in the general IWC database. Their integration into the general database was a difficult task as the majority of goose censuses are not part of the regular midwinter IWC count. Yet not all goose counts are conducted as part of specific censuses, as most are in the UK. This required particular solutions that have resulted in increased complexity of the new database. The sum of all goose counts in the IWC database is well over 64 million, with the top five countries being the Netherlands (34% of the sum), the UK (19%), Hungary (14%), France (11%), and Germany (5%). Of course these are just numbers and completely meaningless on their own, but they illustrate that whilst it is very easy to produce numbers from a database, it needs understanding and careful interpretation to produce meaningful data. That is one of the reasons why I am reluctant to make the database accessible via the web, as this would make it too easy to draw nonsensical conclusions

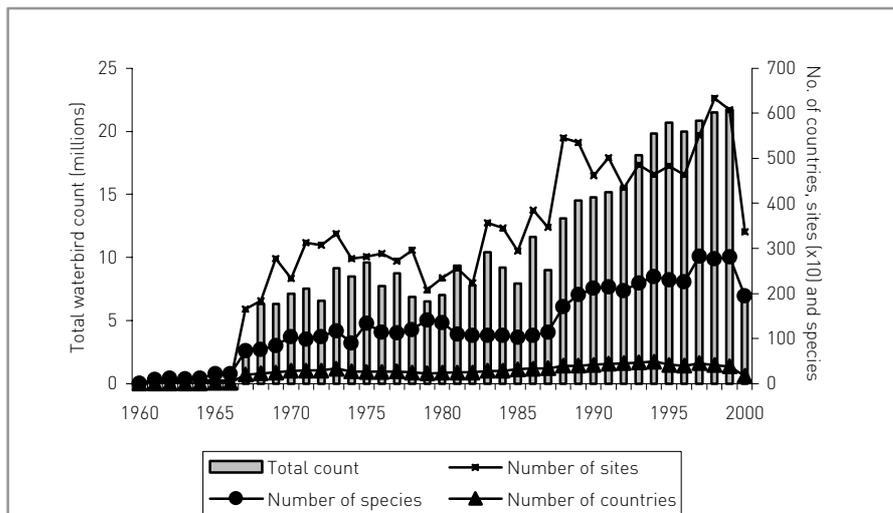


Figure 1. Data for all waterbirds currently held on the central IWC database.

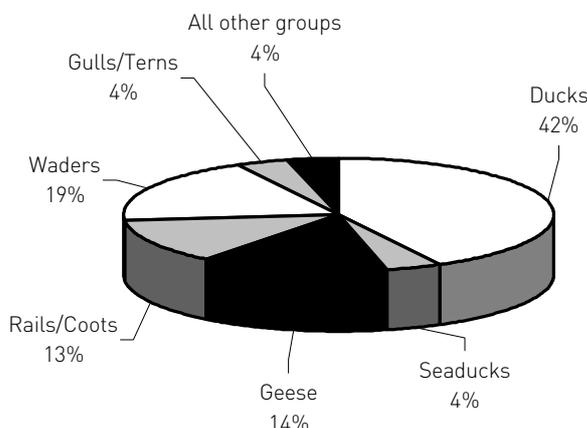


Figure 2: Contribution of different groups of birds to the IWC dataset (as of July 2003).

from carefully and scientifically correctly collected data.

So what is the added value of an international database compared with the sum of the various national databases? Importantly, the IWC serves as a basis for waterbird population estimates and subsequently for the designation of wetlands of international importance under the Ramsar Convention. In addition, scientists and conservationists can put their national data into an international context. A centralised database enables data management without contacting a series of national co-ordinators to get the data each time they are required, reducing considerably the tedious job of chasing a number of busy people. Moreover, the data from each country will be in the same format and verified. In general, the data for

scientific purposes will be usually submitted free of charge or with a modest handling fee. The data are submitted under the condition that they will be used in an international context only. If comparisons to national numbers are made, permission of the national co-ordinator(s) is required.

I hope that I have clearly outlined what the IWC is, how it works and how it is of benefit to the conservation of waterbirds. I would like to thank all those who contribute to GMP censuses in the UK, as these data help to make the IWC dataset as comprehensive as possible.

**Lieuwe Haanstra**

## All-Ireland Light-bellied Brent Goose Census: the 2002/03 season



Since winter 1996/97, the Irish Brent Goose Research Group (IBGRG) has been undertaking annual or biannual censuses of the East Canadian High Arctic Light-bellied Brent Goose, which winters almost exclusively in Ireland, making it a high priority for conservation action. The primary aims of the census include: (a) estimation of the total population size, (b) estimation of annual productivity, and (c) assessment of the importance of individual sites. The autumn census aims to derive the most accurate estimate of the population size and structure given the concentration of birds at relatively few sites. The mid-winter census aims primarily to assess the distribution and importance of individual sites at that time of the year.

The count dates were 26/27 October 2002 and 11/12 January 2003. These dates were mindful of autumn staging

phenology and survey dates for the national waterbird monitoring schemes in Ireland (WeBS and I-WeBS). A total of 20,253 birds was recorded from a survey of 34 sites in late October. Strangford Lough alone held 86% of this total, with smaller though internationally important numbers at a further three sites: Lough Foyle (1,563), Tralee Bay (492) and Dublin Bay (277). Owing to the lack of counts at three other relatively important sites, a further 660 birds may have been missed (based on the averages of previous annual autumn peaks). Significantly, for the first time, aerial and ground-coverage of Icelandic sites was attained over the same weekend. A total of 34 birds was recorded at traditional staging sites in southwest/west Iceland. The total population estimate, including Icelandic counts and those Irish sites not covered, was therefore around 20,900.

Breeding success in 2003 was low. Productivity, measured as the proportion of first-winter birds in wintering flocks, was estimated at 1.8% (and mean brood size as 2.2), based on an aged sample of 11,082 birds.

During January, counts were made at 30 sites supporting a total of 10,852 birds. Ten sites held internationally important numbers (based on a threshold of 200) and the peak count was of over 2,500 in Dublin Bay. Further data from census returns and I-WeBS count data will inevitably revise this count upward.

Very many thanks to all who participated in the census. If you wish to participate in counts, please contact the IBGRG census co-ordinator Kendrew Colhoun.

**Kendrew Colhoun & James Robinson**

## International census of Greenland Barnacle Geese

A total of 15 hrs flying between 26 and 30 March 2003 was undertaken in order to survey 210 islands along the west and north coast of Scotland for Barnacle Geese. Large counts encountered during the census included those at Boreray, Sound of Harris (706) Eilean Hoan, Sutherland (669), Colonsay/Oronsay (510), and Island of Danna, Argyll (400). The total number of geese located by aerial census was 4,939, representing a 26% decrease compared with 1999, the time of the last complete census.

In addition, separate ground counts were undertaken on large, inhabited islands. Adding the major concentrations recorded on Islay (36,478, representing a 4% increase compared with 1999), Coll & Tiree (3,601, a 55% increase) and Orkney (1,200, a 20% increase), the total number counted in Scotland was 46,218 geese (a 2% increase).

An early interpretation of the results from 2003, suggests a further reduction in the use of smaller offshore islands in favour of larger, inhabited islands with managed grassland.

With a further 9,100 recorded in Ireland over the same weekend (Oscar Merne pers. comm.), the population of Greenland Barnacle Geese in 2003 is estimated at 55,318, a 3% increase since the last complete census in 1999.

**Carl Mitchell & Peter Cranswick**

## Svalbard Barnacle Geese continue to increase

Of the 21 Solway-wide counts conducted between October 2002 and March 2003, eight were greater than 25,000 birds and three were greater than 27,000. The average percentage of first-winter birds was 10.4% and average family size was 1.96 goslings. The African-Eurasian Waterbird Agreement category under which this population is currently classified (B2) has an upper threshold of 25,000. These counts therefore demonstrate the continued success of the suite of conservation measures introduced along the flyway of this population. With the continued increase in abundance, areas formerly used sporadically now appear to have increased in importance.

**Larry Griffin**

## The 2001 Icelandic-breeding Goose Census

The 42nd consecutive census of Pink-footed Geese and Icelandic Greylag Geese took place during autumn and early winter 2001. Two discrete counts, in October and November, were undertaken and coverage of sites was good. Counts were not available from Ireland for the first time since 1997 and some other sites in Britain were not counted due to problems with access as a result of Foot and Mouth Disease. Coverage was extended beyond Britain and Ireland for the first time, however, to include other countries within the wintering range of Icelandic Greylag Geese, namely Iceland, the Faeroe Islands and Norway. This was a key recommendation of the workshop held at Hvanneyri, Iceland in September 2001, and considerably enhances this census.

Maxima of 265,817 Pink-footed Geese and 88,009 Greylag Geese were recorded in October and November, respectively. These figures were adjusted to account for major sites that were not counted and for the number of UK Greylag Geese (from the Re-established and NW Scotland populations) counted prior to this census, resulting in population estimates of 270,921 Pink-footed Geese and 89,628 Greylag Geese (Figure 3).

Both estimates were larger than those calculated in 2000: the Pink-footed Goose estimate represents an increase of 10.4% and is the largest for this population since monitoring began in 1960; the Greylag Goose estimate increased by 11.6% on the previous year. Pink-footed Geese

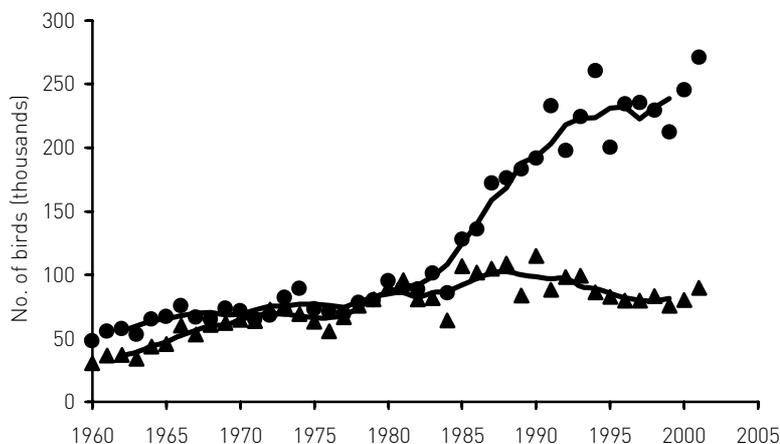


Figure 3. Population estimates of Pink-footed Goose (dots) and Icelandic Greylag Goose (triangles), 1960 to 2001. The 5-year running means (i.e. mean for 1999 is from population estimates for 1997-2001) are shown as lines.

had a typical breeding season in 2001: autumn flocks contained 17.1% young and mean brood size was 2.4 goslings per successful pair. Greylag Geese were more successful than average and autumn flocks contained 20.0% young and mean brood size was 2.8 goslings per successful pair.

The full report can be downloaded from <http://www.wwt.org.uk/publications/>

**Richard Hearn**

## Recent successes with capture and marking

A number of ringers have been actively marking geese over the past 12 months. Catches of Icelandic Greylag Geese resumed at Loch Eye in November 2002, with Highland Ringing Group capturing a total of 120 birds. In addition, Raymond Duncan and others from Grampian RG caught another valuable sample of 48 in Aberdeenshire in March 2003.

Catching also continued at Nosterfield, Yorkshire, where 24 birds were marked in March 2003. Although the origin of individuals at this site is not known for certain at the point of capture, as both Re-established and Icelandic birds occur there in late winter, at least one Icelandic bird was among this catch, as it was observed in northern Iceland in mid-April.

Catches of Re-established Greylag Geese have also been fruitful. At Sevenoaks, Dartford RG continued their long-running colour-marking study with an excellent catch of 131 flightless birds in June 2003. A summary of this catch is shown in the following table.

	Adults	Goslings	Totals
New birds	45	23	68
Retraps	63		63
Totals	108	23	131

Smaller catches of Re-established Greylags were also made for the first time in Northumberland by Jon Coleman and others and in the Forest of Dean, Gloucestershire, by Jerry Lewis.

Les Hatton and others from Tay RG made a small catch of Pink-footed Geese at Loch of Lintrathen in November 2002, the first at this site.

European White-fronted Geese were again caught at Slimbridge in winter 2002/03 - 25 were marked with neck collars in January. This use of neck collars has already provided new insights into the timing of onward movements from Slimbridge in the spring and the level of site fidelity among these birds.

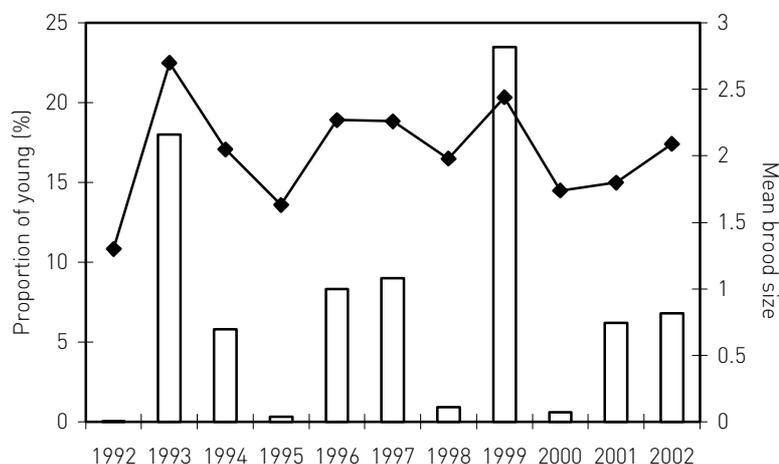
At Caerlaverock, cannon-net catches by the North Solway RG and staff from WWT Caerlaverock produced a total of 124 Svalbard Barnacle Geese over the 2002/03 winter.

## Breeding success of Dark-bellied Brent Geese in 2002

For the eighteenth consecutive year, experienced observers assessed the breeding performance of Dark-bellied Brent Geese wintering in the UK. A total of 121,845 birds was aged at 21 estuaries and coastal areas between September 2002 and March 2003. The overall proportion of first-winter birds was 6.8%, varying between 0% in September and 13.3% in March. The mean brood size per successful pair was 2.09 young.

The proportion of young and mean brood size recorded since 1992 is shown in Figure 4. According to the three-year cycle of good, poor and variable breeding success, 2002 was expected to be a good year, following the year of peak lemming abundance in 1999. The proportion of young recorded was, however, only marginally higher than winter 2001/02 (6.2%), and below that expected of a good breeding year. This is the second of the past four predicted good years in which productivity has been lower than the estimated rate of mortality (15%) and over the past 11 years, productivity has exceeded 15% in only two years (1993 and 1999). The findings of this census concur with reports from breeding areas on the Taimyr Peninsula, which indicate that lemming abundance was lower than expected with the majority of

Figure 4. The proportion of young (bars) and mean brood size (dots) of Dark-bellied Brent Geese recorded in Britain, 1992-2002.



monitoring stations reporting average/moderate abundance and relatively few young Brent Geese fledging (see <http://www.arcticbirds.ru/>).

The full report can be downloaded from <http://www.wwt.org.uk/publications/>

**Jenny Worden & Richard Hearn**



### Aerial survey of East Canadian High Arctic Light-bellied Brent Geese in Iceland during autumn 2002

To improve coverage during the 'all-Ireland' census, Gudmundur A. Gudmundsson (Icelandic Institute for Natural History) undertook aerial and land-based surveys of the key staging areas in western Iceland in late October 2002. The survey found 34 Light-bellied Brent Geese, with small flocks of 4, 10, 10, 7 and 3 birds, as well as a variety of other waterbirds. These data indicate that the vast majority of East Canadian High Arctic Light-bellied Brent Geese were in Ireland during the 'all-Ireland' census, giving more confidence that the census result was an accurate assessment of the actual population size. This study was funded by WWT under grants from the Environment and Heritage Service and Dúchas.

## Important changes to the way Greylag Geese are surveyed

For the past two years, WWT has been developing annual monitoring of UK-breeding Greylag Geese. The principal means of achieving this has been to encourage participants in the IGC to carry out counts at their site(s) during the summer months and, particularly, September, prior to the arrival of Icelandic migrants. The main reason for doing this is to generate data that can be used to adjust November counts of Greylag Geese from the Icelandic-breeding Goose Census (IGC) in order to estimate more accurately the number of Icelandic birds.

Initially, it was thought that the development of such counts would also provide a means of monitoring breeding success in UK Greylags. Therefore, a form was designed that allowed data on age ratios and brood sizes to be submitted, as well as straightforward counts. The emphasis was still placed on the need for a September count, however, with productivity data identified as a desirable secondary benefit.

Based on the experiences of the past two summers, it would seem that whilst a reasonable proportion of IGC counters are able to carry out a September count at their site, considerably fewer are able to undertake monitoring during the breeding season. This is possibly, of course, a reflection of the emphasis placed on a September visit, rather than true counter preference, but feedback from the questionnaire sent to counters in 2001, and from recent discussions with Local Organisers, also suggests that a September count will attract more counter interest than monitoring of breeding success.



Therefore, in order to clarify the purpose of the September count, and encourage further uptake, from 2003 it will form part of the IGC. It does not, however, need to be co-ordinated to the same degree as the October and November counts, although in some areas, local co-ordination may be necessary. It is recommended, therefore, that counts be made as close as possible to the end of the third week of September, although any counts made during that month will be of value.

Counts are sought from all sites currently monitored as part of the IGC, although those in Lancashire and Norfolk are a lower priority as Icelandic Greylag Geese do not occur in these regions (as far as we are aware!). September counts should be submitted on pink Supplementary Count Forms, along with the October and November IGC counts, after the last IGC count has been made. Counts made after the November IGC date can be submitted on another form at the end of the winter.

The monitoring of breeding Greylag Geese will therefore remain as the only component of the UK-breeding Greylag Goose Survey (UKGGS, see GooseNews 1 page 7). WWT remains keen to encourage counters to participate in this survey, and the existing blue form will continue to be available for those wishing to do so.

I hope that the reasons for these alterations are clear, and that all IGC counters will consider making a count at their site in September. If anyone who has not previously participated in the IGC would be interested in conducting counts in September (or any other month), please contact me. Similarly, if you have any questions or concerns regarding these new methodologies, or the justification for them, I would be very pleased to hear from you.

Many thanks in advance to all those able to carry out this additional count. Each count will be a great help towards improving our understanding of trends in this population, and our ability to conserve it effectively.

**Richard Hearn**

### Training the counters of the future

A common observation by all survey organisers is the need for new counters, whilst the increasing age of the counter network, and reliance on a small number of extremely dedicated individuals are also frequently mentioned. One limitation on the uptake of new counters may be a lack of experience or confidence among potential new counters. Therefore, in order to ensure that bird monitoring in Britain is made as secure as possible for the future, WWT would like to hear from any experienced counters or observers that would be willing to provide potential new recruits with some valuable fieldwork experience, by allowing them to accompany them when they are carrying out a count, age assessment or going ring-reading. If anyone would be willing to offer their help in this way, please contact Richard Hearn at WWT to register your interest.

## Fragility of Arctic Goose habitat: Impacts of Land use, conservation and Elevated temperatures (FRAGILE)

The environmental consequences of global climate change are predicted to have their greatest effect at high latitudes, particularly on fragile tundra ecosystems. The Arctic tundra is a vast biodiversity resource, and provides breeding areas for many goose species. Importantly, it also currently acts as a global carbon 'sink', buffering carbon emissions from human activities. In January 2003, a three year project was implemented to understand and model the interrelationships between goose population dynamics, conservation, European land use/agriculture and climate change. A range of potential future climate and land use scenarios will then be applied to

the models. These data will be combined with information from grazing and climate change field experiments on the tundra in Svalbard, and used to investigate potential future impacts on tundra ecosystems. FRAGILE is a collaboration between WWT and 12 other research groups across Europe. The project will benefit greatly from the ringing and re-sighting databases managed by several of the FRAGILE partners. This demonstrates (yet again) the value of these long-term research programmes, and the importance of volunteer-based monitoring of goose populations. The two key populations that will be investigated are the Svalbard Barnacle Goose and the Svalbard Pink-footed Goose. More information can be found on the FRAGILE website: <http://www.fragile-eu.net>

**Mark O'Connell**

## Effects of Foot and Mouth Disease (FMD) on farming practice on the Solway Firth in 2001, and consequences for the Svalbard Barnacle Goose population in winter 2001/02

Following the outbreak of FMD in February 2001, WWT and the RSPB undertook a study of changes in summer farming regimes around the Solway Firth in 2001 and investigated the consequences of this for the Svalbard Barnacle Goose population over-wintering in this area. Earlier studies have shown that the geese generally select short, well-fertilised pastures and grazed merge. It was anticipated that the marked reduction in livestock grazing following FMD would render some of the traditional feeding sites less attractive to the birds, resulting in a shift in wintering distribution. This had implications for the Goose Management Scheme for the Solway in the 2001/02 and 2002/03 winters and, if a change in farming practice persisted, in the medium to longer term.

Questionnaire interviews with farmers affected by FMD revealed that they reduced their level of fertiliser application in 2001, and switched grassland management from grazing to mowing. There was no significant change in the proportion of land tilled or put to arable crops in comparison with earlier years. Detailed monthly habitat measurements (sward length, biomass and protein content), showed that sward length on FMD-affected farms (which lost both cattle and sheep) was longer than on FMD-unaffected farms (which lost sheep only) in October, but not from December onwards, and that the sward at WWT Caerlaverock (FMD-affected) was taller than in previous autumns (1997 to 2000 inclusive). However, there was little variation in live biomass, the live:dead biomass ratio (a measure of forage quality) or protein content of the sward between FMD-affected and unaffected sites.

Analysis of the weekly total population counts showed no evidence of a major shift in goose distribution between the English and Scottish sides of the Solway, nor a major movement to feeding sites outside the traditional wintering area. Additionally, there was no evidence that field use changed more between 2000/01 and 2001/02 than between

any other consecutive pair of years. There was some indication that individual flock size declined, and that the number of fields used in 2001/02 increased in comparison with earlier years; whether this continued into 2002/03 is still under review.

Changes in field management between 2000 and 2001 had some effect on goose distribution in the early part of winter 2001/02; fewer geese were recorded in fields in October 2001 where cattle grazing was lower during summer 2001 than the previous year, and fewer geese were recorded in November 2001 where a reduction in sheep grazing had occurred. This supports earlier studies, which indicate that livestock grazing regimes can prepare the optimal sward for geese in autumn. There was little evidence that changes in field management influenced goose usage of fields from December onwards, and similarly there was no consistent evidence to suggest that the presence or absence of flocks was associated with sward characteristics (i.e., sward height, biomass and protein content) in 2001/02, although ongoing analyses have yet to assess the effect of crop type and scaring regimes.

Goose distribution data for the years 1996/97 to 1999/2000 were used to build a model describing goose distribution across fields in each month, taking into account year, month, field area, crop type and scaring regime. Predictions of goose distribution pre-and post-FMD using this model did not differ significantly indicating that FMD did not have a major effect on the use of traditional goose feeding areas on the Solway. Further analyses of body condition, survival and productivity are now underway, to determine whether FMD affected the geese other than through a change in distribution.

This study, funded by the Scottish Executive Environment and Rural Affairs Department, is being undertaken in collaboration with the RSPB and local counters, and includes data kindly provided by SNH that was collected for the Barnacle Goose management scheme on the Solway.

**Larry Griffin, Mark O'Brien & Eileen Rees**

## Site fidelity and home range size of wintering Svalbard Barnacle Geese

In winter 1999/2000, Richard Phillips and colleagues at WWT Caerlaverock and the Institute of Zoology fitted radio-tags to 18 Barnacle Geese at two discrete areas on their wintering grounds on the Solway Firth in order to examine individual variation in site fidelity, the timing and duration of visits to different feeding areas, range size and seasonal changes in habitat use. They also compared these factors between the two cohorts caught at different locations on the Solway and investigated whether certain foraging strategies were common among different individuals. The birds were located every 2-3 days for up to six months, revealing that whilst they generally restrict their movements to relatively few key sites, there is considerable between-site and inter-individual variation in the degree of site-faithfulness. Birds caught in the Caerlaverock area spent almost their entire time at two sites, Rockcliffe and Caerlaverock, whereas those caught in the Southernness area ranged more widely and showed more variable strategies. The results of this study suggested that there is at least partial segregation in this population and that it would be desirable to expand the existing network of reserves for this population.

Source: Bird Study 50: 161 – 169



## New study to identify potential threats to sites of international importance for East Canadian High Arctic Light-bellied Brent Goose in Ireland

WWT and BirdWatch Ireland are undertaking a study to identify the sources and extent of threats at all internationally important sites for Light-bellied Brent Geese in Ireland. Questionnaires have been sent to contacts at these sites, requesting information on the site and the human activities that occur there. BirdWatch Ireland, will also be using the information to help produce a new review of the wetlands of Ireland. It is also hoped that the methods can be used to monitor threats at wetlands elsewhere. This study is being part-funded by the Environment and Heritage Service and Dúchas.

## First ever all-Ireland review of intertidal eelgrass beds

Eelgrasses are marine plants found in shallow coastal areas, typically on sheltered sandy or muddy substrata. Eelgrass beds are an important component of Ireland's biodiversity, supporting internationally important concentrations of Light-bellied Brent Geese, yet they are threatened by natural events and human activities.

Although data are available in unpublished reports and databases, there has been no general synthesis of the status and distribution of this important, yet threatened, habitat in Ireland. Without an analysis of what is already known, it will not be possible to identify gaps in our knowledge and understanding. This is essential to ensure that future surveys of this food resource for Light-bellied Brent Geese and subsequent monitoring are comprehensive and effective.

To begin to understand the status of this resource, WWT, NATURA consultants and Queen's University of Belfast are undertaking a desk-based review of the distribution of eelgrass resources across Ireland, summarising data from various sources. It is envisaged that a gap analysis will inform the design of future surveys and monitoring schemes for this important habitat across Ireland. This study is being part-funded by the Heritage Council.

## International workshop to discuss Flyway Management Plan for East Canadian High Arctic Light-bellied Brent Goose

WWT and Queen's University, Belfast, are organising an International Workshop to discuss the production of a Flyway Management Plan (FMP) for the East Canadian High Arctic Light-bellied Brent Goose. The meeting will take place between 30 September and 3 October 2003 at WWT Castle Espie, on the banks of Strangford Lough where large numbers of these geese will have started to congregate on arrival from Iceland. This meeting will be attended by key experts and policy-makers from across the flyway, and will draw on expertise gained during the production of plans for other populations of Brent Geese. The workshop and the FMP project will be supported by the African-Eurasian Waterbird Agreement, under the auspices of the Convention of Migratory Species. This study is being part-funded by the Environment and Heritage Service and Dúchas. For more information, contact James Robinson at WWT Slimbridge.

### Forthcoming meeting of the Goose Specialist Group

The 8<sup>th</sup> Annual Meeting of the Wetlands International/IUCN Goose Specialist Group will be held in Odessa, Ukraine, in March 2004. At the time of going to press, no further details were available, but these will be posted on the GSG website in due course (see <http://www.wetlands.org/networks/Goose/Goose.htm>).

## Identifying spring staging areas of Greenland Whitefronts using aerial surveys and satellite telemetry

Based on information generated from 10 Greenland White-fronted Geese fitted with satellite transmitters at their wintering grounds in Wexford, Ireland, Christian Glahder, Tony Fox and Alyn Walsh were able to identify new spring staging areas in west Greenland, and delimit the staging periods. Eleven different areas were used in 1998 and 1999, eight of which had not been identified prior to this research as places used by staging Whitefronts. The average staging period in 1998 was 7.2 days, compared to 13.3 days in 1999. The difference may be related to a 4°C higher mean May temperature in 1998. An aerial survey in 2000 counted 3,177 Whitefronts at 28 of 34 known staging areas. More than 50% of these birds were found at just three locations, and the top six locations supported around three-quarters of these birds. Only two of these top six sites are designated as Ramsar sites.

Source: Wildfowl 53: 35-52

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## Estimating the hunting bag of Icelandic Greylag and Pink-footed Geese in Britain

Using bag statistics from Iceland, recoveries of geese shot in Iceland and Britain and population models, Morten Frederiksen derived indirect estimates of the size of the British bag of Icelandic Greylag and Pink-footed Geese. The estimates indicated that around 20,000-25,000 Greylags and 25,000 Pinkfeet are shot each winter in Britain. These estimates are towards the upper end of those derived from earlier sample surveys of members of the British Association for Shooting and Conservation in the mid 1990s and indicate that hunting exerts a strong influence on the population dynamics of both of these migratory geese. In order to manage these populations effectively, a bag monitoring system is urgently needed in Britain and the current lack of such a system is a serious impediment to such sound management.

Source: Wildfowl 53: 27-34

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## Waterbird Harvest Specialist Group re-launched

The Wetlands International/IUCN Waterbird Harvest Specialist Group has been recently re-launched and the coordinator, Gilles Deplanque, has recently compiled the first newsletter of the re-launched group. This is now available from the groups' website ([http://www.wetlands.org/networks/Harvest/Waterbird\\_Harvest.htm](http://www.wetlands.org/networks/Harvest/Waterbird_Harvest.htm)).

## Family cohesion in Greylag Geese

After catches of Greylag Geese at two sites on Coll and Tiree, Argyll, in 2002, John Bowler monitored the cohesion of nine known broods. Relocation of these birds over the subsequent eight weeks after capture and marking revealed that eight of the nine broods contained the same number of goslings as prior to capture. Although it was impossible to be certain that these were the same individual goslings, no obvious size differences existed between members of the same brood, whereas such differences were apparent between different broods. One brood contained one less gosling when relocated. This decline in brood size was not significant, however, when compared to the decline in brood size during 2001, a year when no ringing took place. This result indicates that the capture of flightless goose flocks did not cause subsequent fragmentation of family groups.

Source: Ringing & Migration 21: 181-182

## Waterbirds Around the World

In April 2004, a Global Flyways Conference will take place in Edinburgh. Organised by Wetlands International, Waterbirds Around the World will focus on all major themes and developments related to the global conservation of waterbird flyways during their full annual cycle: breeding areas, stop-over sites and wintering areas, harvest of waterbirds, site networks, flyway monitoring, flyway management plans, climate change and flyways, nomadic migration and many more. It will address achievements of the last 40 years and formulate gaps and needs for initiatives to stimulate future conservation of the world's flyways and the species and habitats involved. More information about this important gathering can be found at <http://www.wetlands.org/GFC/Default.htm>

## Tracking Pink-footed Geese to Svalbard

As part of the FRAGILE project (see page 9), seven Pink-footed Geese from the Svalbard population that winters in Belgium, the Netherlands and Denmark were equipped with satellite transmitters at Vest Stadil Fjord, Western Denmark on 26 March 2003. The aim of the project is to track the migration of Svalbard Pink-footed Geese in detail and, in particular, to locate the pre-nesting sites used in Svalbard. Other work will focus on the geese at one of the major nesting grounds in order to study their arrival, breeding ecology and behaviour. For more information on this project contact: Christian M. Glahder at [cmg@dmu.dk](mailto:cmg@dmu.dk) or see [http://www.dmu.dk/1\\_Om\\_DMU/2\\_afdelinger/3\\_am/4\\_expertise/5\\_Research/6\\_satellite\\_tracking/kortnaebbet\\_gaas\\_en.asp](http://www.dmu.dk/1_Om_DMU/2_afdelinger/3_am/4_expertise/5_Research/6_satellite_tracking/kortnaebbet_gaas_en.asp)

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## Many thanks for all your help

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

The GMP is a partnership between WWT and the Joint Nature Conservation Committee.

GooseNews is the newsletter of WWT's Goose Monitoring Programme. It is sent to participants each autumn and is available either as a printed copy or a pdf file. It is available to download from <http://www.wwt.org.uk/publications/>.

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The Wildfowl & Wetlands Trust

## Two major publications from Wetlands International

The latest results from the International Waterbird Census were recently published. *Numbers and distribution of wintering waterbirds in the Western Palearctic and Southwest Asia in 1997, 1998 and 1999* is available to download from the Wetlands International website (<http://www.wetlands.org/>) or a hard copy can be obtained from the Natural History Book Service (<http://www.nhbs.com/>).

Also, the new, third edition of *Waterbird Population Estimates* (WPE3) was launched at the 8th Ramsar Conference in Valencia, Spain, in November 2002. WPE3 presents information for 33 families of waterbirds and provides answers to two of the most fundamental questions relevant to conserving waterbird populations: how many are there and where are they? In doing so it identifies Wetlands of International Importance for waterbirds, supports the Ramsar, Bonn & Biodiversity Conventions, EU Birds Directive, and other policy frameworks at international and national level, identifies priorities for waterbird conservation and research, and identifies gaps in knowledge.

This edition identifies 2,271 biogeographical populations of 868 species, provides estimates of the numerical abundance of 76% of these populations, estimates population trends for 50% of these populations, and sets 1% levels for identification of wetlands of international importance under the Ramsar Convention on Wetlands. It also includes distribution maps generously provided by Lynx Edicions, publisher of *Handbook of the Birds of the World*, making it easier for users to identify which populations occur within their country, region or site. The usefulness of the publication is further enhanced by the inclusion of English names for species, and by a Notes column providing (among other things) information on the derivation of the estimates.

The publication is available to download from Wetlands International's website: <http://www.wetlands.org/>, or it can be ordered from the NHBS <http://www.nhbs.com/>.

