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Half a century and going strong...50 years of IGC counting

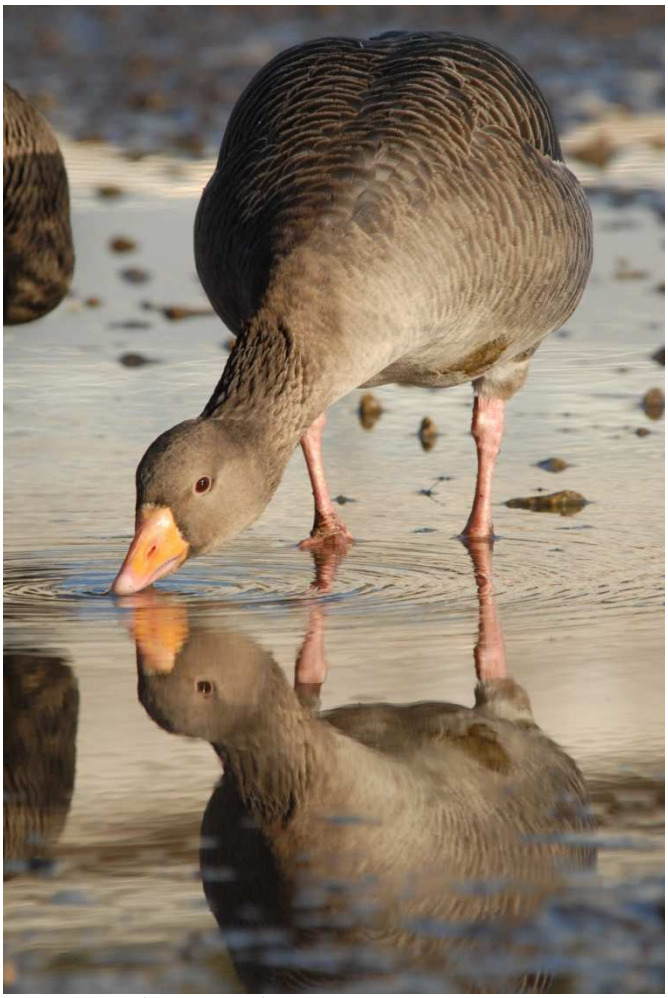
Autumn 2009, saw the 50th complete census of Pink-footed and Greylag Goose populations in Britain. The history of the census provides a revealing story.

In the 1930s in North America, there was considerable concern at real declines in the numbers of geese reported and, in Europe, a dramatic decline in Brent Geese had been observed. In Britain and Ireland, the status of goose populations was based largely on local knowledge with little coordination. There were, for example, records that Bean Geese were formerly very common, and that Pink-footed Geese were uncommon, but the true status of these populations in the 1930s was poorly known. In *The status and distribution of wild geese and duck in Scotland* by John Berry (1939), perhaps the first attempt to establish the status of wildfowl in that country, the author documented the then known status and distribution of geese. Through necessity, this was largely based on anecdotal records, although some counts were included, as systematic counting had yet to be established.

The Wildfowl Count network, established in 1947 by the International Wildfowl Enquiry Committee, aimed to cover as many waterbodies (or wetlands) as possible once in each winter month (September to March) and, in 1954, WWT took over responsibility for its organisation. In order to provide a basis for conservation planning following the 1954 Protection of Birds Act, the results of the first 14 years of counts were published in *Wildfowl in Great Britain* by George Atkinson-Willes; this proved to be the most comprehensive survey of wildfowl habitats, stocks and prospects.

However, because of their nature and habits, the Wildfowl Counts picked up only a fraction of the total number of geese using a waterbody or wetland. Except for Brent Geese, which could be adequately monitored on estuaries, counting of the other geese wintering in Britain needed a different approach.

Hugh Boyd, Peter Scott and others pioneered goose monitoring and, by the end of the 1950s, attempts at monitoring the distribution and abundance of almost all of the goose populations wintering in Britain were well underway. Some



Greylag Goose (James Lees)

involved aerial survey (*e.g.* Greenland Barnacle Geese) and, due to the costs involved, would only be carried out once every five years. Other populations, restricted in geographical range (Barnacle Geese on the Solway Firth, for example) were counted annually with relatively few counters involved. But a challenge lay in the more numerous and widespread populations.

The first attempts at coordinated counting of Greylag and Pink-footed Geese, based largely on roost counts, began in the early 1950s – to compliment WWT's interest in the population dynamics of the latter population. Geese generally fly from estuaries or inland water roosts to their feeding grounds at first light and return at the end of the day, and counters needed to be in position before dawn or dusk. The count dates needed to avoid periods of full moon when geese can feed at night.

continued on page 2

Contents

Equally important was count coordination; the counters in different parts of the country needed to be active on the same weekend in order to avoid double counting as flocks moved between roosts.

In December 1960, Hugh published the first report on *A census of Greylag and Pink-footed Geese in Great Britain, 12–13 November*, 1960. In it, he stated that this was the most thorough attempt yet to find out how many Greylags and Pinkfeet were in Britain. The census was carried out by volunteers from the National Wildfowl Counts, wildfowlers, and six dedicated mobile observers to cover areas with low volunteer coverage, including two observers in a light aircraft. The totals found were 30,000 Greylag and 48,000 Pink-footed Geese, and breeding success that autumn was high with an estimated 45% and 31% young, respectively. The highest count of Greylag Geese was from Perthshire (9,140), none were recorded in Caithness or Orkney and 140 were found as far south as Lancashire. The highest counts of Pink-footed Geese were from Dumfries (7,000), Perthshire (6,730), Lincolnshire (5,900) and Yorkshire (5,340). None were recorded in Norfolk and 110 were counted at Slimbridge in Gloucestershire. These make for interesting comparisons with the situation today (see page 11). Counters involved with the first census, included Malcolm Ogilvie, Bobby Smith (Dumfries) and Adam Watson – all still very much active in ornithology in Scotland today.

Pink-footed Goose (Graham Catley)

The census was a success and plans were made to repeat the counts the following autumn. Counts continued on an annual basis and continue to this day. By 1969, sufficient data had been collected for a review of Pink-footed Goose numbers to be published in *Wildfowl* by Hugh and Malcolm, followed by a similar publication of Greylag Goose numbers in 1972. These important publications were updated in 2004, in the WWT/JNCC Waterbird Review Series which documented changes in the number of birds at most of the roosts in Britain from 1960 until 2000.

In 1969, a rather young Bernie Zonfrillo made his first counts of Iceland Greylag Geese at Gadloch near Glasgow (see page 7), seemingly arriving at the site before dawn on his bicycle. He's continued to count the site since and is, as far as we know, the current longest serving volunteer counter (unless you know differently).

Goose counting can often involve arriving at a roost an hour before dawn; no mean feat when this involves negotiating winter roads to a remote Scottish hill loch. Some independent goose groups have become established (*e.g.* the Central Scotland Goose Group) and their local detailed monitoring is invaluable in assessing counts and movements at a finer scale than the national monitoring can achieve. Local Area Organisers took on the role of coordinating local volunteers, ensuring coverage of the most important sites. As nature reserves became established, especially after the designation of Sites of Special Scientific Interest from the 1980s, so the monitoring of geese became a requirement of assessing the condition of designated areas – thus, goose counts became part of the routine for some staff and volunteers from the Royal Society for the Protection of Birds and other organisations. Several goose monitoring schemes in other parts of Europe have followed the example set by the Greylag and Pink-footed Goose scheme. The counts have also provided the basis for site safeguard of Pink-footed and Greylag Goose roosts in Britain with many sites, for example, being designated Special Protection Areas (SPAs) – a considerable conservation success story and a lasting legacy of the count scheme.

Our understanding of the status and distribution of both Greylag and Pink-footed Geese is much the better for the efforts of volunteer goose counters and Local Area Organisers. There has been an eleven-fold increase in Pink-footed Goose numbers from just over 30,000 birds in the early 1960s to *c.*364,000 birds in 2009. There have been changes in the winter distribution too, with Norfolk now supporting a greater proportion in mid-winter than in former years. The fortunes of Greylag Geese have followed a different trajectory. Their accessibility to hunters, particularly in Iceland, has led to over 30,000 being shot annually and, during the 1990s, that level of hunting was probably unsustainable; the annual censuses indicated that the population was decreasing. However, the recent shift in winter distribution, which now sees 50–60% of the entire population wintering on Orkney, has probably reduced the number being shot during the winter and the population appears to have recovered (see page 11).

WWT are fortunate and have benefited considerably from the efforts of large number of dedicated volunteer goose counters. The population estimates derived from monitoring over the last 50 years have largely been gathered by these volunteer counters and their efforts have been rewarded with a far better understanding of the distribution and abundance of geese in Britain. So, in this, the fiftieth year of the WWT Greylag and Pink-footed Goose counts (now IGC – Icelandic-breeding Goose Census) a hearty thanks to all volunteer goose counters!

Carl Mitchell

Survey dates for 2010/11

Icelandic–breeding Goose Census

Count forms for the 2010/11 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 Species Monitoring Unit at WWT Slimbridge. The coordinated dates for this year are:

9/10 October, 6/7 November and 4/5 December

Following a review of count periods (see page 4 of *GooseNews* 7), 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 the above 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).

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 2010/11 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

GSMP website

Much of the information on the Goose & Swan Monitoring Programme can be found on WWT's website at www.wwt.org.uk/research/monitoring. This includes more detailed information on the results of surveys for all goose and migratory swan populations, and various resources for GSMP fieldworkers, such as recording forms. *GooseNews*, including past editions, is also available to download from the site.

White-fronted and Canada Geese in west Greenland, spring 2010

The Greenland White-fronted Goose is currently experiencing a worrying decline in numbers, thought to be driven largely by reduced reproductive output. A number of different hypotheses have been suggested to explain this, ranging from climate change and weather factors, to competition with an expanding west Greenland breeding population of Canada Goose (sub-species *interior*), elevated predation rates or disease and parasites.

None of these factors seem to explain convincingly the reduction in breeding success and, in truth, little is known about the current situation in west Greenland during the early part of the breeding season. Although well monitored and subject to conservation actions and research programmes on the wintering and staging grounds, factors regulating reproductive success in nesting areas are poorly understood. At a flyway management planning workshop in Islay, Scotland in February 2009, this was recognised as a serious knowledge gap. Because there has been little research undertaken in the breeding grounds since the first studies of expeditions in 1979 and 1984, it was agreed that some study of breeding biology was necessary to seek support or otherwise for the different hypotheses.

With this in mind, the Wildfowl & Wetlands Trust (WWT) and the Greenland White-fronted Goose Study (GWGS) mounted a reconnaissance expedition to west Greenland during April to June 2010. Because Whitefronts are dispersed over large areas and virtually nothing is known about their ecology on arrival and during pre-breeding in spring, this was a pilot project to establish the feasibility of further in-depth study to be undertaken in future years. This could include a PhD project, with one currently being planned, potentially to be funded by WWT and others.

The initial emphasis of the pilot work was to examine interactions with Canada Geese. Other factors are more complicated to investigate and would require substantially more resources over the longer term. The team went to Greenland to look at spring arrival, the degree of overlap between the two species and especially to see how they interact in space and time. The timing of arrival of Canada Geese (from the eastern North American flyway) was completely unknown, and knowledge of arrival dates of Whitefronts from Iceland was many years out of date. Given the substantial phenological changes shown by many species in recent decades, probably linked to climate change, it was clearly long overdue to gather data on arrival patterns for both species.

We arrived in Kangerlussuaq, west Greenland on 26 April. This airport provides a convenient entry point to the southern end of the Whitefront breeding range, and the area in the immediate vicinity holds many breeding Canada Geese. By this date, much winter snow cover had disappeared and the thaw was well underway – conditions were already potentially suitable in some lowland areas for geese to find feeding (and nesting) sites. However, no geese were present. The first Whitefronts appeared on 1 and 2 May – just a few advanced breeding pairs, presumably the fittest individuals. There was little more activity until 6–8 May, when more began to arrive, again apparently composed predominantly of breeding pairs, with larger groups of over 20 only evident from 8 May. This arrival timing is interesting, as it is essentially the same as arrival dates in 1979 and 1984. We had expected that birds might have arrived earlier, since departures from Britain and Ireland have advanced 10–14 days in the last 25 years. This implies that birds are staying longer on their Icelandic staging grounds rather than arriving earlier in breeding areas.

Typical Greenland White-fronted Goose and Canada Goose breeding habitat in west Greenland (Huw Thomas)

On arrival in 1979 in Eqalummiut Nunaat, White-fronted Geese immediately settled on marshes along the glacial melt rivers that were the very first to thaw. These held below ground bulbs of the marsh arrow grass *Triglochin palustris* and the saltmarsh grass *Puccinellia phryganodes* which is eaten by arriving geese around much of the polar north. In 2010, the geese fed first in small groups in low-altitude marshes and were probably exploiting cottongrass *Eriophorum* species and mare's-tail *Hippuris vulgaris* in pools; such wetland features had been very important in 1979 and 1984 in Eqalummiut Nunaat, 50 km further north, but were exploited a little after the glacial melt river wetlands. These resources had thawed earlier in May 2010 than had been the case in 1979, almost certainly allowing arriving females to accumulate nutrient stores for investment in clutches. Typically, the males stood guard, highly attentively, while females fed, in widely separated pairs. We witnessed exploratory flights by pairs and small groups to higher altitude areas. These were presumably birds checking potential breeding and foraging areas near to traditional nest sites.

During the initial two weeks, we spent much time checking suitable marshes and watching for arriving geese (as 'visible migration'). We also expected a later wave of non-breeders to arrive, at some unknown stage. Although some skeins of moving birds were seen, they were usually small, and few large groups of presumed non-breeders had arrived by 9 May. Goose movement was in a range of directions, including frequently directly north-south. These may have been birds reorienting themselves after having crossed the ice cap. By 9 May, we had counted an estimated 450 birds, within an effective survey range of 10–15 km. Two geese tagged with satellite transmitters earlier in the winter at Loch Ken, Scotland (by WWT) crossed the icecap on 8 May and one of those marked at Wexford, Ireland (by Susan Schaeffer of the Livingston Ripley Waterfowl

Conservancy) crossed the ice cap between 22.00h on 8 May arriving at Svartenhuk in west Greenland by 20.00h next day.

Canada Geese also arrived relatively late. On 2 May, three collared birds from Isunngua were still known to be present in Quebec, Canada. One lone Canada Goose was seen on 6 May but the main arrival did not occur until the middle of May. During the rest of May to mid-June, we began to survey lochs in areas where Whitefronts are known to breed. From 20 May, the more obvious migratory movements of Canada Geese had mainly ceased with some small skeins flying higher overhead from south to north. More often, smaller groups or pairs were moving west to east up the valleys of the study area presumably searching for new feeding sites as the thaw continued apace. With temperatures as high as the low twenties (centigrade) the near complete ice cover on nearly all of the study lakes receded to zero from mid- to late May, with ice only remaining on the more substantial water bodies. A few aggressive interactions were seen between pairs of Canada Geese establishing territories and nest sites on the lake shores on peninsulas, spits or islands mostly many hundreds of metres apart.

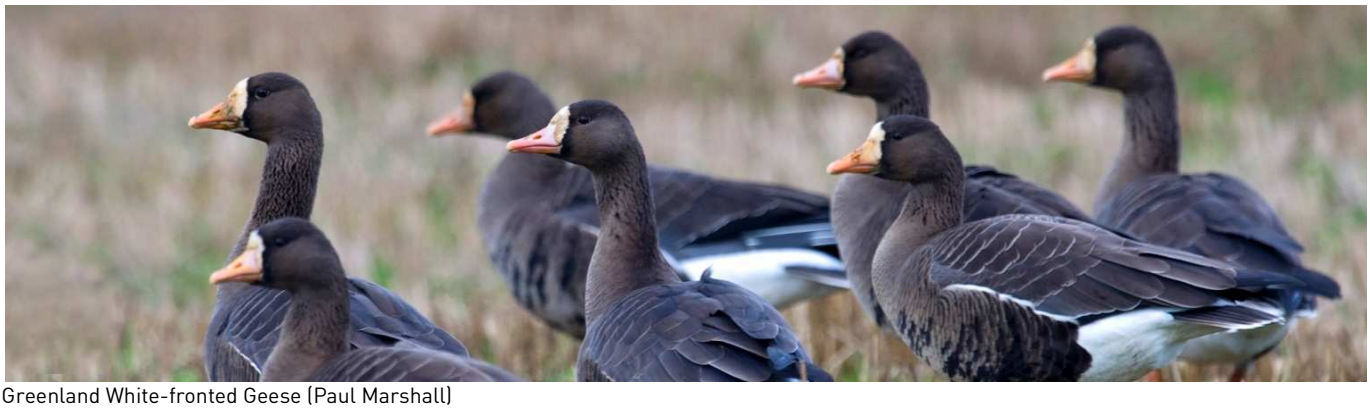
During 10–23 May, Whitefront observations were largely of pairs or small groups (less than five individuals) in flight. Only on four occasions during this period were we able to observe Whitefront pairs. It appeared as if most Whitefronts were searching for suitable foraging and/or rest areas. The geese seemed anxious and were present for less than two hours at any given time, often flying after just ten minutes on the ground.

The first active Canada Goose nest with one egg already present was found on 23 May. At this point, route counts following set transects around the study area covering groups of lakes at which birds have often been caught in previous years, were largely just finding pairs of Canada Geese or small feeding groups, sometimes with occasional Whitefronts. The Whitefronts, however, were highly unpredictable as to whether or not they used a specific feeding area from one day to the next, which made them difficult to locate and observe. One pair that did regularly turn up for a couple of mornings, male bearing the collar J5F and female J3F, appeared to start a nesting attempt on a fairly steep tussocky hillside at the east end of one of the larger lakes in the area (Sanningasoq), about 35 m above the lake, although the nest was never completed. These birds were first ringed at a nearby lake on 14 July 2008 and were seen during the winter at Drumlemble, Kintyre, Scotland in 2008/09 but not in 2009/10. On at least two occasions, single adult Whitefronts were seen with presumed family groups of yearlings, the dark nail and lack of belly bars of the young birds still being visible. On the rare occasions that Whitefronts were found feeding or resting with Canada Geese in a dispersed flock, detailed observations on the behaviour of the birds were collected over many hours. During these periods aggressive encounters were rare; however, these groups were probably mainly non-breeding birds. Judging from the disturbance distances of lone Whitefronts or pairs of Whitefronts, compared to those in mixed flocks it appeared that the Canada Geese made the Whitefronts more tolerant and less flighty. The Whitefronts also appeared to spend more time with their heads down feeding rather than with their heads up alert, although this needs more analysis to control for whether or not the birds were breeders or non-breeders.

By the beginning of June, encounters with Whitefronts in the Isunngua study area were less frequent with only *c.*10–20 birds present. Copulation was seen on one occasion and nest building was again attempted, suggesting that nesting was likely to occur in the area, although no completed Whitefront nests were located. Detailed behavioural observations continued to be undertaken whenever geese were found. Although relatively few mixed flocks were recorded, competition for resources appeared negligible with, in most cases, Whitefronts and Canada Geese feeding side by side. Most Canada Geese had, by now, begun to nest with the majority of first eggs being laid on 28 May. Searches found 30 nests with a mean clutch size of 4.6 eggs. Most nests were within 2 m of the shore edge, about 1 m above the water surface and at a median altitude of 362 m. The last observations and counts of geese were undertaken on 11 June.

The pilot year proved both revealing and frustrating. Much new information was gathered about the timing of arrivals of both Greenland White-fronted and Canada Geese, their spatial distribution and behaviour. In the case of the Canada Geese, this is the first time ever the breeding ecology and nesting biology has been studied in West Greenland. However, it is clear the Kangerlussuaq study area offers few Whitefronts for detailed studies and future fieldwork will need to be undertaken in an area with a higher density and numbers of this species.

Ian Francis, Mitch Weegman, Larry Griffin, Huw Thomas, Carl Mitchell and Tony Fox



Greenland White-fronted Geese (Paul Marshall)

Survey of summering Greylag Geese in Scotland, 2008–09

Greylag Geese breed across a wide area to the north and west of the Great Glen, principally on the Outer Hebrides, Inner Hebrides (Coll & Tiree) and, increasingly, in the Northern Isles. From a low point of *c.* 500 birds in the 1930s, the species has increased considerably in Scotland in the last 60 years. This conservation success story was due to a combination of direct conservation measures, favourable changes in agricultural systems and hunting mortality not keeping pace with recruitment. The re-establishment of populations in the south and east of Scotland in the 1930s and 1950–60s started a period of expansion there. However, a comprehensive survey of both of these populations had not been undertaken for more than ten years so in order to better assess the current abundance and distribution of the species, a simultaneous comprehensive survey of summering Greylag Geese throughout Scotland was undertaken in the summers of 2008 and 2009.

Counts of moulting Greylag Geese were undertaken at 53 lochs where moult gatherings were thought to occur, in areas to the south and east of the Great Glen. A random stratified survey of another 246 (out of 754, 33%) lochs greater than 5 ha and 248 (out of 4,636, 5%) lochs less than 5 ha was also carried out. Habitat categories, or strata, used in the stratification process were based on altitude, the proportion of water cover, the proportion of woodlands (both conifer and broadleaf) and the recorded presence/absence of breeding records in each 10 km square. In addition, in 2008 post-moult counts were undertaken in areas to the north and west of the Great Glen, apart from Caithness and Shetland which were counted in 2009.

The population estimate of Greylag Geese summering in Scotland in 2008/09 was 47,405 birds (range 44,059 to 51,763). Overall, breeding success was estimated at 23.1% in 2008 and 13.3% in 2009 (the latter based on a smaller sample size) and the mean brood size was 3.19 goslings per successful pair in both years. The annual rate of increase was estimated at 11.9% in north and west Scotland (1997 to 2008/09) and 9.7% in south and east Scotland (1991 to 2008/09).

The largest concentrations were found on Orkney (*c.*10,000 geese), the Uists (5,948), Shetland (4,133–5,133), Tiree (3,370), Harris & Lewis (1,912) and Islay (*c.*1,500). The figures for post-moult gatherings in late August represent minimum counts. In mainland Scotland, the largest gatherings of moulting Greylag Geese were found at Black/White Lochs combined, Stranraer, (1,395 geese) and Loch Leven, Perth & Kinross (1,014) (Figure 1). The results of the survey are presented in full in Mitchell *et al.* (2010).

In 2000, there was an estimated 24,500 re-established Greylag Geese in Britain (including Scotland) and numbers were

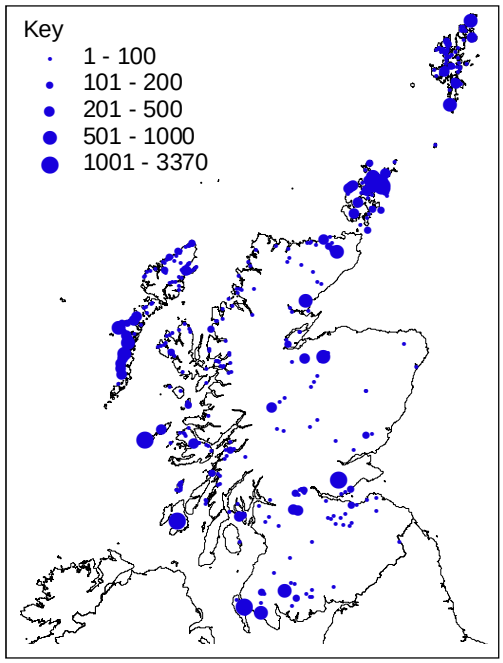


Figure 1. Summary distribution of Greylag Geese encountered during the 2008/09 survey of Scotland.

increasing at an average per annum increase of 9.4% (*Austin et al.* 2007) – similar to the figure calculated for re-established Greylag Geese in the current study. The annual index based on the Wetland Bird Survey shows a period of continued increase in numbers since the 1990s (Austin *et al.* 2008) and assuming a continued rate of annual increase (9.4% per annum) the number of re-established Greylag Geese in Britain is likely to have risen to *c.*50,000 birds by 2008. Combining that estimate with the number of Greylag Geese recorded in north and west Scotland in the current study (*c.*34,000 birds) suggests the total number of Greylag Geese summering in Britain is probably *c.*84,000 birds.

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Carl Mitchell

Counter profile

Bernie Zonfrillo: IGC counter for Gadloch, Clyde

Recollections of an antique goose counter

When Carl Mitchell told me I was probably the longest serving grey goose counter I couldn't believe I have been involved with the goose counts for so long. But it's true. I now feel at one with such creatures as the Galapagos Tortoise and Bristle-cone Pine!

As a youth I remember taking over as counter in 1969 from someone whom I had met and was counting the wildfowl at my local patch, the Gadloch in north Lanarkshire, just north of Glasgow. The previous counter missed a semi-resident Green-winged Teal I had spotted the previous year and failed to notice that one of the Greylags was actually a Bean Goose, so when they asked if I would do the winter counts I agreed. It was no problem, in any event I visited the place almost on a weekly basis all year round, and maybe had better binoculars. A system of perhaps ten or more water bodies are to be found around the north and northeast of Glasgow and they are home to breeding waterfowl in summer and often large numbers of winter migrants. Formerly, shooting had been a problem and for a while the numbers of geese were in decline or had shifted to safer areas. Thankfully, the numbers have built up again since the 1980s and a few thousand now feed around the area in most winters (Figure 2). In 2008, a combine harvester got stuck in the mud in the middle of a wheat field at Gadloch Farm and thanks to slow and inefficient mechanics, the entire wheat crop in the area was un-harvested and battered flat by the wet and windy conditions. This led to a huge influx in geese, feeding on the free grain. So from usually a few hundred to about 2,000 birds, the wintering geese had a proverbial and literal field day.

Other changes have been noted recently, for example, Pink-footed Geese have become more regular and numerous. Twenty years ago there might be the odd lost bird among the Greylag Geese but now flocks of up to 300 Pink-footed Geese can sometimes be seen feeding in the stubbles. I sometimes hear them flying over my home at night. Formerly we Glaswegians thought of them as purely east coast birds.

Apart from finding where the geese go when not present on count days, other local mysteries have been almost solved. At nearby Hogganfield Loch, a Local Nature Reserve within the City of Glasgow, around 400 Greylag Geese usually spend most of the winter. They roost there at night and feed in the fields a few miles away between there and Gadloch during the day. In summer, the same number of Greylag Geese appeared over the years and moulted at Hogganfield Loch. But these were two entirely different flocks. The summer flock being from the Forest of Dean, Gloucestershire where some had been darvic-ringed by WWT. Ringing around 50 geese at Hogganfield Loch showed that these were soon back in Gloucestershire once their primaries had grown. One wonders why birds fly that distance, passing several suitable lakes and lochs along the way, to moult in a city park in Glasgow. And we know from sightings of individual geese that this flight can be done in a single day.

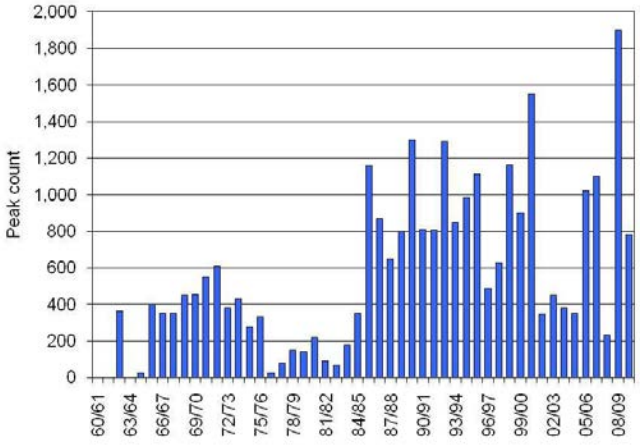

Figure 2. Peak winter counts of Iceland Greylag Geese at Gadloch, Clyde, 1960/61–2009/10.

So where are the winter birds that roost at Hogganfield Loch from? No records from Iceland so far, so probably native birds. Hogganfield Loch has a small wooded island in the middle of it, but few wildfowl nest there, probably because the island has a resident Fox population. Ringing the winter birds by hand-catching has shown a few are shot on the east coast of Scotland and in Perthshire. But where do they breed? Upland areas ten miles away have some breeding numbers, but not hundreds. If these are the Hogganfield Loch winter birds then we don't yet know that for sure. So, despite my four decades of goose counting and watching, there are still some fundamentals to be discovered. Long may it continue…

Breeding success of Bewick's Swans in 2009/10

Bewick's Swan age counts were conducted at three major wintering sites for the species in Britain during winter 2009/10, namely WWT Slimbridge (Southwest England), WWT Martin Mere/Ribble Estuary (Northwest England) and the Ouse Washes (East Central England). A total of 5,561 Bewick's Swans was aged. Data from WWT Martin Mere/Ribble Estuary and the Ouse Washes were collected in January 2010; early arrivals (*i.e.* those present in October and November) tend to be non/failed breeders, whereas age assessments made in January can be taken as being more representative of the population as a whole. Age counts at Slimbridge, where individual swans are identified daily by their natural bill markings, are for all swans recorded there during the winter season (November to March). Brood sizes were recorded for 326 families: 301 on the Ouse Washes, 22 at Slimbridge and three at Martin Mere/Ribble Estuary, with the low brood count at Martin Mere/Ribble Estuary reflecting the relatively few Bewick's Swans now wintering in this part of the country.

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 17 January at Martin Mere/Ribble Estuary (as part of the International Swan Census) and on 20 January on the Ouse Washes. Regional variation in the percentage of juveniles was assessed in order to determine any differences in the geographical distribution of family parties.

Overall, Bewick's Swan flocks contained 9.1% cygnets, and the mean brood size of pairs with young was 1.5 cygnets (Table 1). The percentage young remained lower than the 10-year mean of 11.6% (± 1.5 SE: 1999/2000–2008/09 inclusive), though was a second improvement in breeding success since the exceptionally poor breeding season in 2007 (4.7%, Figure 3).

There was variation in the proportion of cygnets recorded in different parts of Britain, with the percentage of young ranging from 6.1% at Martin Mere/Ribble Estuary to 11.7% at Slimbridge (Table 1 & Figure 4). Regional variation in brood

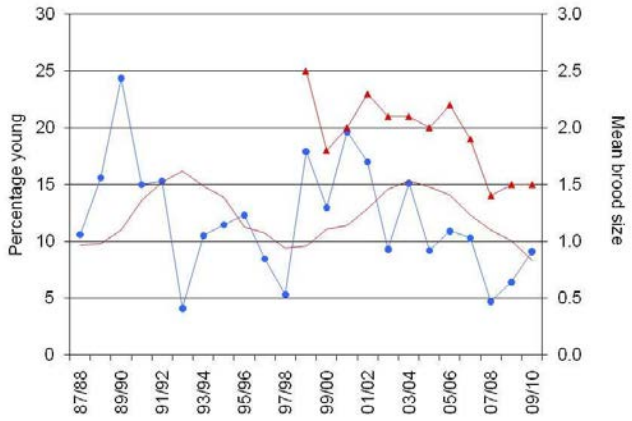

Figure 3. The mean percentage of young (blue circles) and mean brood size (red triangles) of Bewick's Swans recorded in Britain (at WWT Slimbridge, the Ouse Washes and WWT Martin Mere/Ribble Estuary) each winter, with the rolling five-year mean (of % young) (red line), 1987/88–2009/10. Five-year mean values were calculated for the five years preceding the year in question.

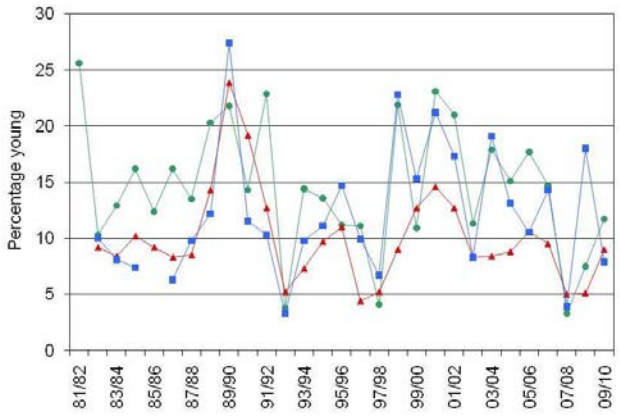

Figure 4. The annual percentage of Bewick's Swan cygnets recorded in WWT Slimbridge (green circles), Ouse Washes (red triangles) and WWT Martin Mere/Ribble Estuary (blue squares), 1981/82–2009/10.

Table 1. The proportion of young and mean brood size for Bewick's Swans at three British sites during winter 2009/10.

Region	Total aged (no. of young)	% young	No. of broods (no. of young)	Mean brood size
WWT Martin Mere/Ribble Estuary	98 (6)	6.1	3 (6)	Limited data
Ouse Washes*	5,077 (455)	9.0	301 (449)	1.5
WWT Slimbridge	386 (45)	11.7	22 (45)	2.0
Overall	5,561 (506)	9.1	326 (500)	1.5

* Brood sizes were not recorded for all flocks aged. The total number of cygnets used for the % young and the mean brood size estimates therefore differ.

size could not be assessed accurately in 2009/10 because very few broods were recorded at Martin Mere/Ribble Estuary. However, the overall mean brood size for all regions (1.5 cygnets per family) fell marginally below the mean recorded for the previous five years (1.8 cygnets ± 0.15 SE).

These data indicate that Bewick's Swans continued to experience relatively poor breeding success in 2009. Although annual breeding success has gradually improved since the particularly poor 2007 breeding season, this is the sixth consecutive year that breeding success has been below the 10-year mean and follows successive poor breeding seasons since 2002 since when the percentage of young in Britain wintering flocks has remained less than 19.0%.

Poor breeding success was also found on the continent, with only 6.5% young (from a sample of 4,614 birds) in The Netherlands, Germany and Denmark in November. A coordinated age count of 7,472 birds at sites in Britain and on the continent between 8 and 13 December 2009 found 7.0% young, thus confirming that 2009 was a poor breeding year for the Northwest European population (W. Tijsen pers. comm.). Given that Europe suffered its coldest winter for 50 years, it seems likely that age counts conducted in Britain, the Netherlands and Germany would have provided a fair representation of breeding success for the population as a whole, with families less likely to short-stop further east than in previous milder winters.

Bewick's Swans (James Lees)

Conditions on the breeding grounds are important in determining the population's breeding success; in particular, weather conditions during the short Arctic breeding season. A late spring thaw (16 June) reported in the Pechora Delta region of the Russian arctic in 2009 (A. Glotov pers. comm.) is likely to have impacted on the breeding season of swans at least in that part of the breeding range.

Special thanks to S. Dunstan, A. Bedford and C. Liggett for information from the Ribble Estuary, W. Tijsen for reports from the Netherlands, and WWT staff and volunteers at Welney, Martin Mere and Slimbridge.

Julia Newth

Breeding success of Iceland Whooper Swans in 2009/10

Whooper Swan age counts were conducted in six regions across Britain and Ireland during the 2009/10 winter. A total of 17,618 was aged in England (7,331 birds), Scotland (349 birds), Northern Ireland (1,563 birds) and the Republic of Ireland (8,375 birds) between 11 and 28 January 2010. Age counts for all regions, with the exception of North and East Scotland and East Central England, were mostly derived from observations made during the International Swan Census in January 2010. Brood size was recorded for 729 families (Table 2).

For East Central England, Northwest England and Southwest Scotland, the percentage of young and mean brood size were derived from age counts conducted within four days of each other. Age counts were conducted on 17 January in Northwest England and on 20 January in East Central England and Southwest Scotland. This was to avoid any bias that would arise from repeated observations of the same families at certain sites. In Scotland, breeding success was determined from data collected across three days (17 January in Fife, 23 January in Borders and 28 January in Aberdeenshire). Counts were conducted between 13–22 January in Northern Ireland and between 11–27 January in the Republic of Ireland.

Overall, the percentage of young found in Whooper Swan flocks wintering in Britain and Ireland was 15.4% which was lower than that recorded during the 2005 International Whooper Swan census (19.2%). Mean brood size of pairs with young was 2.0 cygnets (Table 2).

Table 2. The proportion of young and mean brood size of Whooper Swan flocks during winter 2009/10.

Region	Total aged (no. of young)	% young	No. of broods (no. of young)	Mean brood size
Northwest England	1,738 (337)	19.4	133 (249)	1.9
East Central England	5,593 (603)	10.8	307 (584)	1.9
Southwest Scotland	260 (47)	18.1	20 (47)	2.4
North and East Scotland	89 (26)	29.2	4 (8)	Limited data
Northern Ireland	1,563 (315)	20.2	160 (315)	2.0
Republic of Ireland	8,375 (1,391)	16.6	105 (262)	2.5
Overall	17,618 (2,719)	15.4	729 (1,465)	2.0

The mean percentage of young (13.0%) at WWT Martin Mere/Ribble Estuary, Ouse Washes and WWT Caerlaverock, from where data are collected annually, was just below the previous five-year mean (2004/05–2008/09: 14.7% ± 1.6 SE) and continued the overall decline in breeding success since 2007/08 (Figure 5). Similarly, the mean brood size for those three areas (1.9 cygnets per family) fell below the previous five-year mean (2004/05–2008/09: 2.4 cygnets ± 0.08 SE).

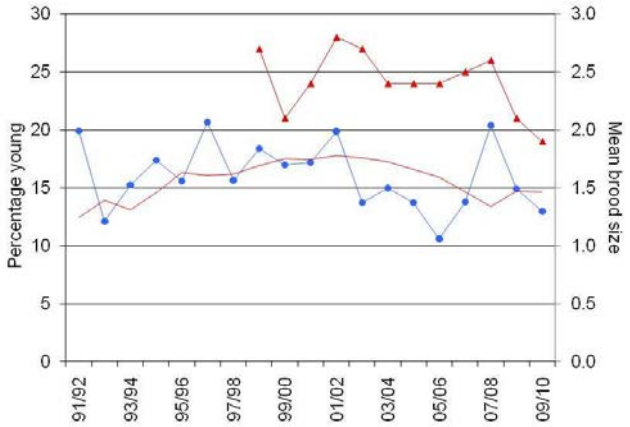

Figure 5. The mean percentage of young (blue circles) and mean brood size (red triagles) of Whooper Swans in Ouse Washes, WWT Caerlaverock, WWT Martin Mere/Ribble Estuary, with the rolling five-year mean (of % young) (red line), 1991/92–2009/10. Five-year mean values were calculated for the five years preceding the year in question.

There was evidence of variation in the distribution of families between regions (Table 2 & Figure 6), with the poorest breeding success found for birds in East Central England (10.8%) and the highest found in North and East Scotland (29.2%). Regional variation in brood size was also evident, ranging from 1.9 cygnets per family in Northwest and East Central England to 2.5 cygnets per family in the Republic of Ireland (Table 2). This variation may reflect a preference for Whooper Swan families in selecting sites closest to their Icelandic breeding grounds, with non-breeding birds travelling further south. Research has also shown that smaller flocks comprise higher proportions of young than do larger flocks, which may partly explain the higher percentage of young recorded in North and East Scotland (where the mean flock size was 30 birds) compared to that recorded in East Central England (140 birds). These differences also relate to annually monitored regions, which are predominantly to the south and east of the range, and regions elsewhere that are generally only monitored during international censuses every five years. In 2009/10, the proportion of young was 13.0% in the annually monitored regions and 17.3% in the others, suggesting that there may be a bias in the overall estimate in years when an international census is not carried out.

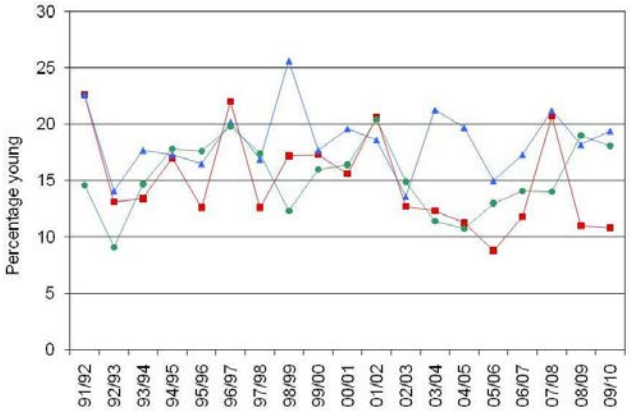

Figure 6. The mean percentage of young Whooper Swans recorded in East Central England (red squares), Northwest England (blue triangles), and Southwest Scotland (green circles), 1991/92–2009/10.

Overall breeding success in summer 2009 was most probably influenced by the warm and dry conditions encountered across Iceland in June and the first half of July, where temperatures were above average throughout the country (Icelandic Meteorological Office). A brief cold snap at the end of July did not appear to impact significantly on the swans' breeding success.

Special thanks to all observers in the Republic of Ireland and Northern Ireland, especially to Graham McElwaine and Olivia Crowe, and for counts made by WWT staff and volunteers throughout Britain.

Julia Newth

Whooper Swan (Juha Soininen)

The Icelandic-breeding Goose Census 2009

The 50th consecutive census of Greenland/Iceland Pink-footed Geese and Iceland Greylag Geese took place during autumn and early winter 2009. Sites holding Pink-footed Geese were primarily checked in October and November, whilst those holding Greylag Geese were checked primarily in November and December. The staggering of counts has become necessary due to later departures of Greylag Geese from their breeding grounds. Some sites in Britain were also counted during late August in order to estimate the numbers of Greylag Geese from the Northwest Scotland and Re-established (British) populations present prior to the arrival of Icelandic migrants. Coverage in Britain was good, with the majority of the key sites covered. Count data were received from Norway, the Faroe Islands, Ireland and Iceland, the latter based on ground counts only. Weather conditions were generally considered favourable during the counts with very few sites reporting underestimates.

Maxima of 358,177 Pink-footed Geese were counted in October 2009 and 120,971 Greylag Geese in November. These figures were adjusted to account for major sites that were not counted and for the number of British Greylag Geese counted prior to this census, resulting in population estimates of 364,212 Pink-footed Geese and 109,496 Greylag Geese (Figure 7). The 2009 figures represent an increase of 3.7% in Pink-footed Goose numbers and an increase of 11.4% in Greylag Goose numbers.

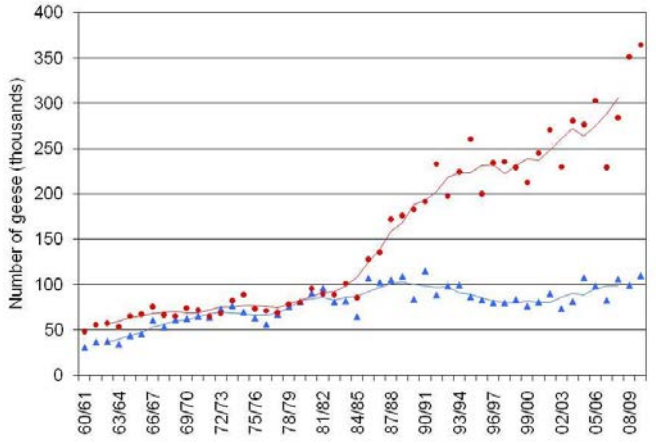

Figure 7. Population estimates for Pink-footed Goose (red circles) and Iceland Greylag Goose (blue triangles), 1960–2009. The 5-year running means (*e.g.* mean for 2007 is from population estimates for 2005–09) are shown as lines.

The breeding success of Pink-footed Geese was below the mean for the previous decade at 17.3% young (mean percent young 1999–2008: 19.3% ± 0.53 SE) (Figure 8). The mean brood size of successful pairs was 1.87 goslings, which was also smaller than the mean of the preceding ten years (2.16 ± 0.05 SE). The breeding success of Iceland Greylag Geese was similar to the 10-year mean, with flocks containing 21.9% young (mean 1999–2008: 20.9% ± 1.29 SE), and a mean brood size of 2.26 goslings per successful pair, slightly lower than the 10-year mean (2.54 ± 0.09 SE).

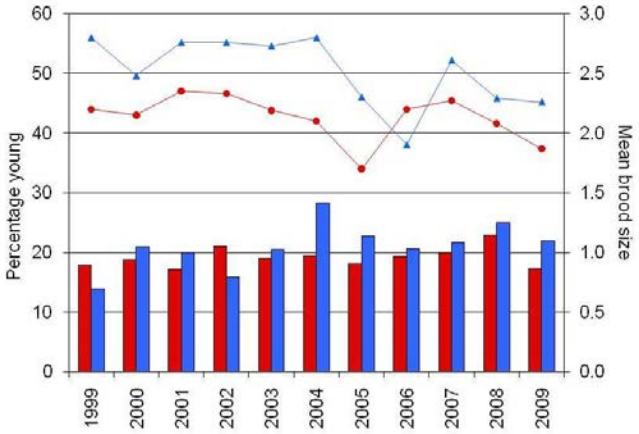

Figure 8. The percentage young (columns: red = Pink-footed Goose, blue = Greylag Goose) and mean brood sizes (lines: red circles = Pink-footed Goose, blue triangles = Greylag Goose) of Icelandic-breeding geese in Britain, 1999–2009.

Pink-footed Geese were reasonably early in reaching Britain in autumn 2009, with large numbers recorded at several important sites, notably in East Scotland; Loch of Strathbeg held 60,626 on 23 September and Montrose Basin held 51,000 on 7 October, the highest count ever recorded at that site. During the October census, combined counts from the 17 sites holding more than 1% of the total population estimate (3,642 birds) accounted for 84.8% of the total, while the top five sites alone accounted for 48.7% of the total. Arnór Sigfússon reported that very few Pink-footed Geese were recorded in central Iceland in October, however, the species can occasionally remain dispersed in inaccessible areas in that country at this time.

The increasing concentration of Greylag Geese in Orkney continued, with a record count of 80,538 birds in December 2009. A survey of the summering population in Orkney, carried out in summer 2008, estimated 10,000 birds, thus approximately 70,500 of these birds were thought to be Icelandic – around 64% of the entire population estimate. A ringing programme of summering birds has recently been initiated by Alan Leitch and Orkney Ringing Group and early indications are that most of these birds remain on the islands during the winter (see *GooseNews* 8, page 22).

Carl Mitchell

Taiga Bean Geese in Britain 2009/2010

During 2009/10, counts of Taiga Bean Geese were undertaken at the two key wintering sites in Britain, Slamannan Plateau and the Yare Valley. Numbers at Slamannan Plateau remained below the mean for the previous five years (276 ± 9.8 SE), with a peak of 260 in October (Figure 9). The Yare Valley held the lowest number of birds since the winter of 1973/74; the peak count of 81 birds was almost half that of previous winter's peak count and 36% lower than the previous five-year mean (141 ± 10.0 SE). Arrival at Slamannan Plateau was earlier than usual, with the first birds observed in the beginning of October. Numbers then rapidly increased throughout the month. However, few birds remained in the area during December and January, and it is possible that the birds were more widely dispersed, searching for suitable grazing fields during the unusually harsh winter (A. Maciver pers. comm.). Numbers remained low until the last week of February when migration back to the breeding grounds began.

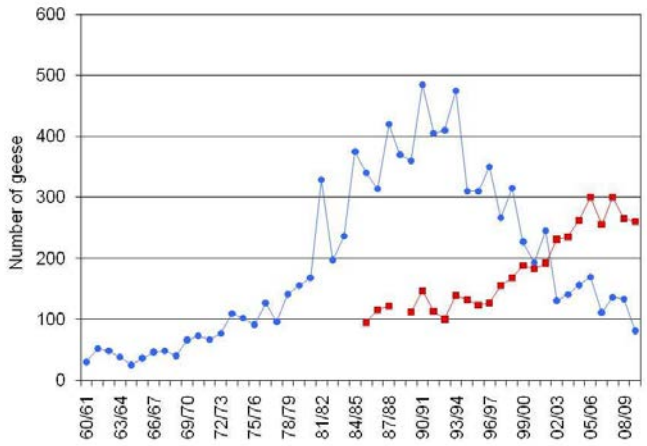

Figure 9. Peak counts of Bean Geese at Yare Valley (blue circles) and Slamannan Plateau (red squares), 1960/61–2009/10. No data are available for the Slamannan Plateau in 1988/89.

At the Yare Valley, birds arrived unusually late and in low numbers during November. The peak counts were recorded in December and February with 80 and 81 birds, respectively. Usually, peak counts in previous years have occurred during December or January, with only one other in February, in 2006. Numbers were similar throughout January, but by March only nine geese remained at the site.

The breeding success of Taiga Bean Geese in 2009 was one of the lowest since monitoring began in 2004 (Figure 10). A flock of 183 birds was aged at Slamannan Plateau, of which 14.8% were young birds. The mean brood size was 1.47 young per successful pair, from a sample of 19 families. The percentage of young and mean brood size were low compared to recent years, however, because this was the biggest sample aged at the site to date it is possible that these results are more accurate than in previous years when sample sizes have tended to be small.

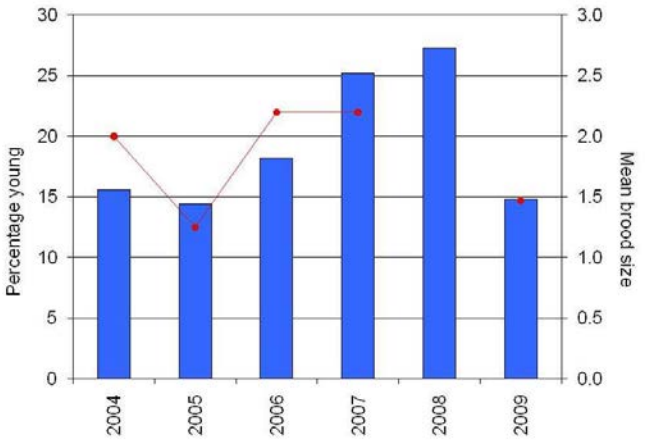

Figure 10. The percentage young (blue columns) and mean brood size (red circles) of Taiga Bean Geese at the Slamannan Plateau, 2004–2009. No brood size data were collected in 2008. Note; the sample size in 2008 was very small hence these data are unlikely to be representative of the population.

Many thanks to Angus Maciver (Slamannan/Bean Goose Action Group) and Tim Strudwick and Alasdair Fraser (RSPB, Yare Valley) for information presented in this article.

Dora Querido

Latest monitoring of Northwest Scotland Greylag Geese

Greylag Geese summering in Scotland were monitored in detail during 2008 and 2009 and has resulted in a much better understanding of the abundance and distribution of these birds (see article on page 6). Annual monitoring of all Northwest Scotland Greylag Geese is not possible due to the remoteness of much of the range. However, annual counts and productivity estimates are conducted in two key areas, namely the Uists (Outer Hebrides) and on Tiree (Inner Hebrides).

The number of birds at these two locations has steadily increased since the 1980s (Figure 11). A total of 6,098 Greylag Geese was counted on the Uists in late August 2009, an increase of 2.5% on the August count in the previous year. During February 2010, however, a count of 4,321 was made, representing a decrease of 7.3% on the count in February 2009.

North Uist held the largest percentage of birds in both August 2009 (48.0%) and February 2010 (66.3%), whilst South Uist held 40.7% and 28.7%, respectively. Smaller numbers were counted on Benbecula. On Tiree, an island-wide census in late August 2009 produced a count of 2,848 birds, a decrease of 15.5% on the count in August 2008. However, this is considered an underestimate since shooting of the geese throughout August had dispersed them more widely than usual and made them harder to count (J. Bowler pers. comm.). Nevertheless, numbers on Tiree are thought to have declined after reaching a high point in 2006 (4,005 birds), presumably reflecting the increase in the number of birds shot under licence.

Productivity data were collected from the Uists, with a total of 502 birds in 14 flocks aged between 22 and 23 August 2009, and brood sizes collected for 32 families. The percentage of young birds in the post-breeding August count was 30.3% - similar to the mean for the three previous years (mean 2006-2008: 28.9% ± 1.97 SE). The mean brood size was higher than that recorded in the two previous years at 3.26 goslings per successful pair (mean brood size 2007–2008: 2.66 ± 0.04 SE). On Tiree, 1,921 Greylag Geese were aged on 24/25 August 2009, and brood sizes were collected for 279 families. The percentage of young birds in this post-breeding August count was 36.4% - similar to the mean for the previous five years (mean 2004–2008: 38.3% ± 3.47 SE). The mean brood size was similar to that recorded in the previous five years at 2.51 goslings per successful pair (mean brood size 2004–2008: 2.66 ± 0.14 SE).

Special thanks go to John Bowler (Tiree), Ben Jones (Coll), David Mackay, Andrew Stevenson (both Uists) and Martin Scott for the provision of data presented here.

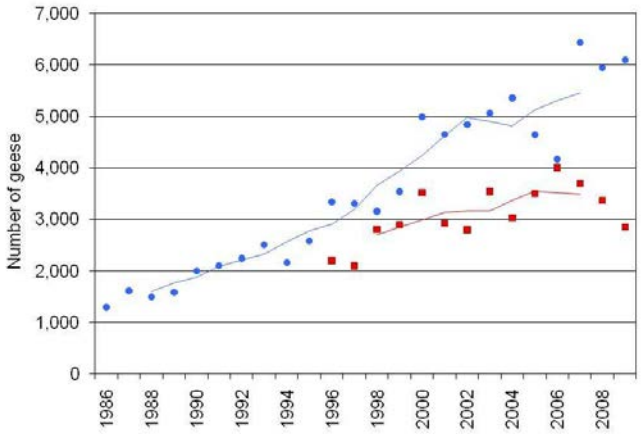

Figure 11. Counts of Northwest Scotland Greylag Geese recorded in late August on the Uists, Outer Hebrides (blue circles) and Tiree, Inner Hebrides (red squares), 1986–2009. The five-year running means (*e.g.* mean for August 2007 is from counts for August 2005–2009) are shown as lines. Counts on the Uists in late summer 2005 and 2006 and on Tiree in August 2009, were considered underestimates.

Carl Mitchell

Greenland White-fronted Geese in 2008/09

Total coverage of Britain and Ireland was achieved during the 2008/09 census of Greenland White-fronted Geese, producing the fourth complete population estimate since 2000. Combining the spring 2009 counts, the overall population estimate is just over 23,100, only marginally lower than the previous year but still well below those from spring 2006 (24,895), 2002 (26,412) and 1999 (35,573).

British totals were similar to the previous year, with 12,159 and 12,506 geese recorded in autumn 2008 and spring 2009, respectively (Figure 12).

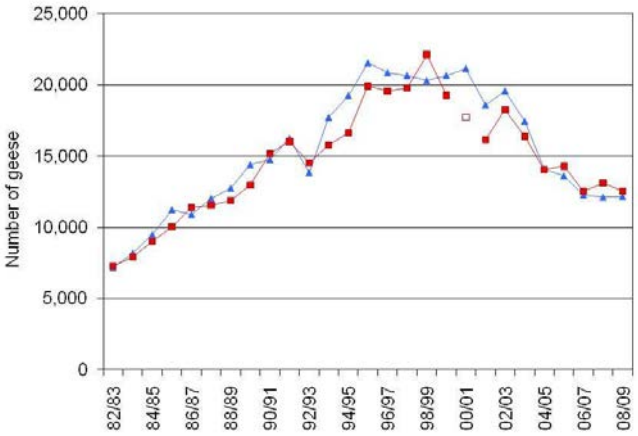

Figure 12. Counts of Greenland White-fronted Geese in Britain, 1982/83–2008/09, showing autumn (blue triangles) and spring (red squares) census results. Note the missing value for spring 2001 (unfilled square) on account of the outbreak of Foot and Mouth Disease that year.

Greenland White-fronted Goose (Alyn Walsh)

Over 50% of the birds were seen on Islay, whilst sites in South Argyll held more than 25% and the Lochaber/North Argyll region saw 9–13% of the total. Numbers in Ireland were also similar to 2008, with a total of 10,657 recorded in spring 2009. The largest concentration was observed in Wexford, where numbers were slightly higher than the previous spring.

Breeding success, though only slightly above the previous year, was the highest recorded in Britain since 1998/99 and only the second time in the most recent ten years to be over 10% (Figure 13). A total of 6,795 geese was aged and brood sizes

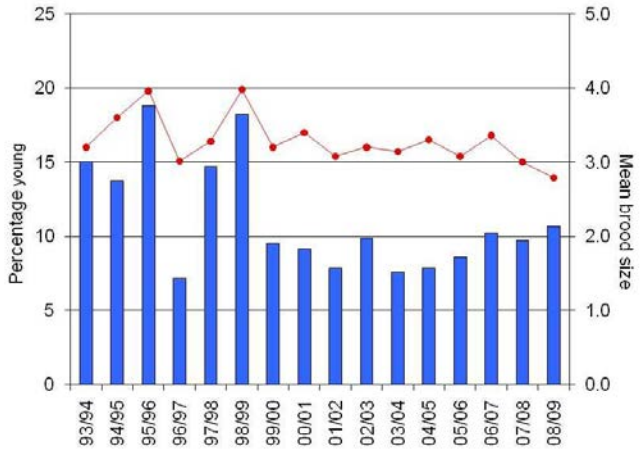

Figure 13. The mean percentage of young (blue columns) and mean brood size (red circles) of Greenland White-fronted Geese in Britain, 1993/94–2008/09.

were recorded for 164 families. The overall percentage young was 10.7% and the mean brood size was 2.79 young per successful pair. In Ireland, 5,201 individuals were aged and the overall proportion of young was 10.2%. Of the 125 families assessed, mean brood size was 3.27 young per successful pair.

Taken from Fox, AD, I Francis & A Walsh. 2009. *Report of the 2008/09 International Census of Greenland White-fronted Geese.* Greenland White Fronted Goose Study, Kalø.

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

Colette Hall

Breeding success of European White-fronted Geese in 2010

In 2009/10, European White-fronted Geese were aged at two sites, WWT Slimbridge, Gloucestershire, and North Warren, Suffolk. A total of 684 birds was aged in January 2010, though no brood size data were collected. Overall, the percentage of young present in the winter flocks was 26.2%, which represents an increase of 12.9% when compared with 2008/09 and is the third highest since 2004/05; 34.5% was recorded in 2005/06 and 27.5% in 2004/05. The percentage of young varied between the two sites. The highest proportion of young was recorded in Suffolk (36.1%), while in Gloucestershire only 18.9% of the flock aged were first winter birds.

Prior to 2004/05, estimates of annual breeding success were only routinely carried out at WWT Slimbridge, and therefore it is only possible to assess breeding trends for this site (Figure 14). During the previous 10-year period (1999/2000–2008/09) the mean proportion of young birds recorded there was 20.6% (± 2.4 SE) and the mean brood size was 2.4 (± 0.16 SE) goslings per successful pair. The proportion of young birds recorded at Slimbridge in 2009/10 was 5.6% higher than in 2008/09 but remained below the recent 10-year mean.

The breeding success of tundra-nesting geese is affected by the typically cyclic pattern of lemming populations. In years of low lemming abundance breeding success generally decreases as a result of predators switching from lemmings to birds. During summer 2008 numbers of lemmings dropped dramatically and Arctic Foxes were common in some breeding areas, and this may therefore explain the lowest proportion of young reported in the last six years (13.2%) in winter 2008/09. In summer 2009, lemming abundance was more variable at monitored sites

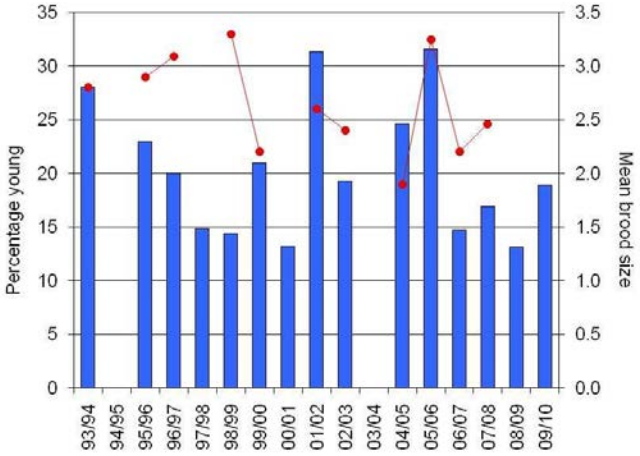

Figure 14. The mean percentage of young (blue columns) and mean brood size (red circles) of European White-fronted Geese at WWT Slimbridge, Gloucestershire, 1993/94–2009/10 (no data were collected in 1994/95 and 2003/04, and brood size data were not available for 1997/98, 2000/01, 2008/09 and 2009/10).

in the Arctic region, but overall bird breeding success was reported as average at most sites (see www.arcticbirds.net), which may explain the more average percentage of young recorded in the UK during winter 2009/10. However, this is a small sample at the population scale, as so few European White-fronted Geese now winter in the UK, and contrasts with, for example, Dark-bellied Brent Geese, which experienced a poor breeding season (see page 18).

Dora Querido

Greenland Barnacle Goose counts 2009/10

Several key sites in Scotland hold the majority of wintering Greenland Barnacle Geese and during 2009/10 counts were undertaken at five of the most important: Islay, Coll, Tiree, Uists and South Walls, Orkney. The highest numbers are regularly seen on Islay, where the peak count of 40,727 in December 2009 was 9% lower than the previous winter and over 25% lower than the highest count recorded thus far on the island (54,620 in 2006/07) (Figure 15). Similarly, the peak count of 880 observed on Coll was just under 31% lower than the previous year and 61% lower than the highest ever count for the island (2,264 in 2006/07). Conversely, the winter peak count of 3,729 observed on Tiree was nearly 11% higher than in 2008/09 and the highest recorded there thus far. A total of 2,392 geese was recorded on the Uists in February 2009, this being nearly 29% lower than the peak count from the previous winter and just over half of the highest count (4,659), recorded in winter 2005/06. At South Walls, the peak count of 1,600 in January was 11% below the previous winter and a third lower than the highest count to date; 2,390 birds in winter 2004/05.

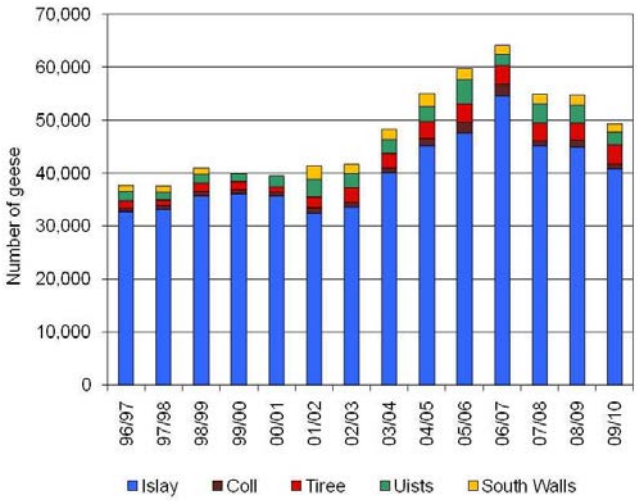

Figure 15. Winter peaks at five of the key wintering sites for Greenland Barnacle Geese in Scotland, 1996/97–2009/10.

Results from age counts show that 2009/10 was, once again, a poor breeding season. A total of 10,478 geese was aged on Islay and Tiree and brood size was assessed for 278 families (Table 3). The overall proportion of young was 3.9% and the mean brood size 1.76 young per successful pair; both lower than their respective means for the previous ten years, 8.8% (± 1.1 SE) and 1.92 young (± 0.1 SE), respectively (Figure 16).

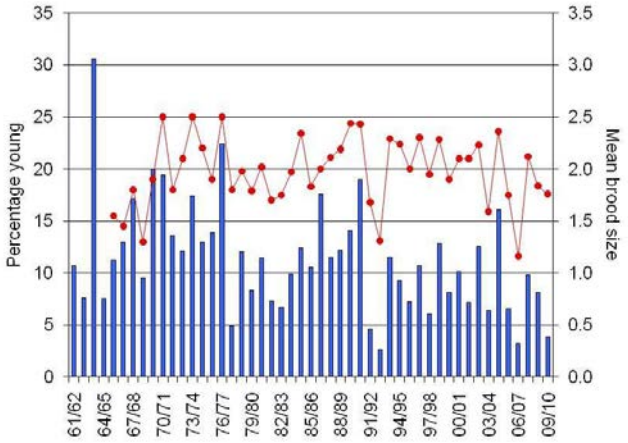

Figure 16.The mean percentage of young (bars) and mean brood size (dots) of Greenland Barnacle Geese, 1961/62–2009/10.

Following a steady increase in numbers up to 2006/07, combined counts from key sites indicate an apparent decrease in the size of the Scottish wintering population compared to the peak year. Breeding success has been low in the last ten years, which is undoubtedly important in terms of overall abundance. In addition, *c.*1,500–2,000 Greenland Barnacle Geese are shot in Iceland each year and licences to shoot *c.*1,000 on Islay have been issued by the Scottish Government in recent years. Mortality, through hunting and control, and low breeding success appear to have halted the long term increase. The next international census is due in spring 2013 and will give the opportunity to determine whether this trend is representative of the entire population.

Table 3. The proportion of young and mean brood size of Greenland Barnacle Geese during winter 2009/10.

	Total aged	% young	No. of broods	Mean brood size
Islay	9,878	4.0%	263	1.80
Tiree	600	2.5%	15	1.00
Total	10,478	3.9%	278	1.76

Carl Mitchell

Svalbard Barnacle Goose monitoring in 2009/10

The first Svalbard Barnacle Geese recorded on the Solway were 36 birds on 16 September 2009 on the estuary off the WWT Caerlaverock reserve. Coordinated census counts of the geese were carried out from October 2009 to May 2010 on both the north (from Cummertrees to Wigtown) and south (Rockliffe to Grune) sides of the Solway on 24 occasions. These counts were weekly in October, to monitor arrival, and weekly in April and May, to monitor departure with fortnightly counts mid-winter. Total counts rose rapidly on the Inner Solway from 1,787 on 30 September 2009 to 29,170 one week later. The numbers recorded then fluctuated, as in previous years, mainly in relation to count visibility and goose dispersal. The last birds recorded on the saltmarsh at WWT Caerlaverock, a flock of 16, were on 28 April (although a single, probably injured, bird remained for at least a week thereafter), and the last birds at RSPB Mersehead were a flock of 32 on the evening of 4 May. As in previous years, by the beginning of May up to half the population was residing on Rockcliffe Marsh, Cumbria, prior to departure, where they remained until mid-May. Just under 15,000 were recorded on 12 May followed by mass departures that evening and over the following couple of days, with 2,250 remaining until 19 May and 16 recorded on 31 May.

Due to count variation, with possibly inaccuracies and increased chances of double-counting in some circumstances, an adopted total for the population is usually derived by averaging those counts within 10% of the maximum recorded during the winter. In 2009/10, the counts of 31,685 on 28 October and 34,070 (the maximum count recorded) on 16 December, fulfil this criterion and are thus averaged to produce an adopted population total of 32,800 barnacle geese (rounded down to the nearest 100; compared to 29,900 in 2008/09), an increase of nearly 3,000 birds on last winter's estimate (Figure 17).

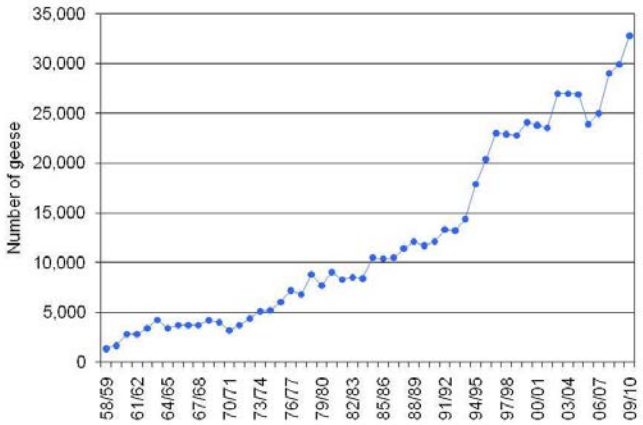

Figure 17. Winter population estimates for Svalbard Barnacle Goose, 1960/61–2009/10 (WWT data).

The juvenile productivity observed in flocks sampled on the Inner Solway from October 2009 to January 2010, from WWT Caerlaverock in the east to RSPB Mersehead in the west, ranged from 1.8% to 11.8%, with a mean of 5.1% young (14,423 geese sampled from 18 flocks). This is slightly lower than the 8.7% recorded in 2008/09. Across the same area, the total number of broods counted was 99, with a mean family size of 1.8 young per family (range 1– 3 young). This is also slightly lower than the previous year (2.0 young per family). During ring reading observation periods, a family with at least four, possibly five, goslings was noted; however, large families with more than three goslings were notable by their absence in winter 2009/10.

Larry Griffin

East Atlantic Light-bellied Brent Geese in 2009/10

Breeding success amongst the East Atlantic Light-bellied Brent Geese at Lindisfarne was only fractionally higher in 2009 compared with the previous year (Figure 18). Of the 1,442 individuals aged in October and November, 2.2% were young birds, and for the 15 families assessed, mean brood size was 1.8 young per successful pair (± 0.26 SE). Breeding success has remained low since records began in 1993/94, only exceeding 10% in four years; 1993, when the highest productivity was recorded (31.4%), 1996, 2000 and 2007.

Our thanks go to Steve Percival and Andrew Craggs (Lindisfarne NNR) for undertaking the counts.

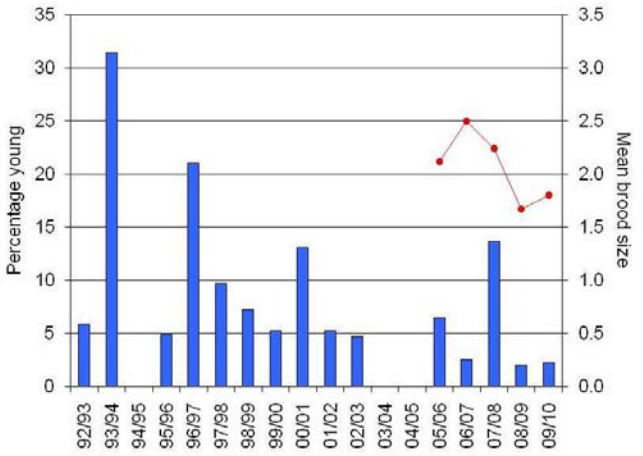

Figure 18. Proportion of young (blue columns) and mean brood size (red circles) in flocks of East Atlantic Light-bellied Brent Geese at Lindisfarne, 1992/93 –2009/10. Note; no data were collected in 2003/04 or 2004/05.

Colette Hall

East Canadian High Arctic Light-bellied Brent Goose monitoring in 2010/11

Mid-October 2010 saw the fourteenth autumn survey of the East Canadian High Arctic (ECHA) Light-bellied Brent Geese around the coastline of Ireland and extending to parts of western Britain and northern France. As has been typical of recent years, the counts at main haunts in NW Europe were carried out synchronous to an aerial survey of the main autumn staging areas in western Iceland.

A total of 37,048 individuals was counted across principal sites in Ireland and Iceland, chiefly over the weekend of 16–18 October. With data outstanding from several sites it seems likely that approximately 38,000 would be a likely conservative assessment of the size of the population in 2009/10 (Figure 19).

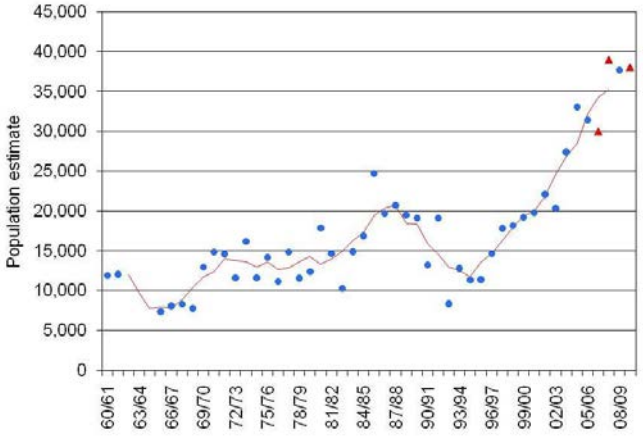

Figure 19. Population estimates of ECHA Light-bellied Brent Goose, 1960/61–2009/10 (no data for 1962/63–1964/65). The five-year running mean (*e.g.* mean for 2002/03 is from population estimates for 2000/00–2004/05) is shown as a red line. The red triangles indicate provisional estimates for 2006/07, 2007/08 and 2009/10.

Peak counts included Strangford (26,041), western Iceland (2,239), Lough Foyle (2,200), Castlemaine Hbr/Tralee Bay (2,067) and Dublin Bay (1,303).

Evidently 2009 was a very poor breeding season indeed. Of an aged sample of over 17,000 individuals only 69 (0.4%) were juveniles (Figure 20) - this being nearly 18% lower than in 2008 and well below the most recent 10-year mean (1999/00–2008/09: 14.6% ± 3.2 SE). No brood size data are yet available.

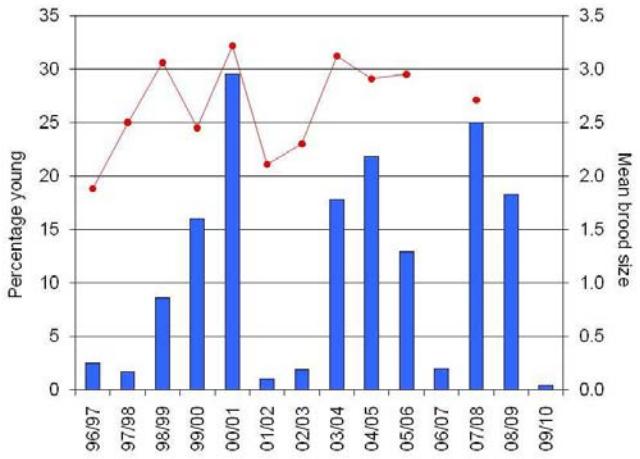

Figure 20. The proportion of young (blue columns) and mean brood size (red circles) of ECHA Light-bellied Brent Geese, 1996/97–2008/09. No brood size data are available for 2006/07, 2008/09 or 2009/10.

Kendrew Colhoun
on behalf of Kerry Mackie & Gudmundur A Gudnundsson

Light-bellied Brent Geese (Richard Taylor-Jones)

Progress reports

Breeding success in Dark-bellied Brent Geese in 2009/10

Age assessments made at UK wintering sites indicate that breeding success for Dark-bellied Brent Geese in 2009 was lower than average, although overall it was slightly higher than the previous year (Figure 21). Over 90,000 geese were aged between October and March at 17 estuaries or coastal areas, from Lindisfarne, Northumberland, to the Exe Estuary, Devon. The highest numbers were aged at the Blackwater and Thames Estuaries, and Langstone Harbour.

The overall proportion of young was 5.3%, increasing from 4.0% in October to 7.6% in January, dipping slightly in February (6.0%) before rising to 8.8% in March, although the sample size was low in the latter month. The mean brood size varied only slightly during this time, peaking at 2.25 (± 0.75 SE) young per successful pair in March (though again the sample size was only small), with an overall mean of 1.83 (± 0.04 SE) amongst the 742 broods recorded. The proportion of young within individual flocks varied from 0–78%, with over half of the 279 flocks recorded containing less than 5% young. The highest proportion of young was recorded amongst flocks of fewer than 100 geese.

Reports from breeding grounds in arctic Russia indicate that lemmings were rare, whilst Arctic Foxes were present in variable numbers. As breeding success of Dark-bellied Brent Geese is greatly influenced by interactions between lemming abundance and predator pressure, it is possible that the low number of rodents may have contributed to the low breeding success in 2009.

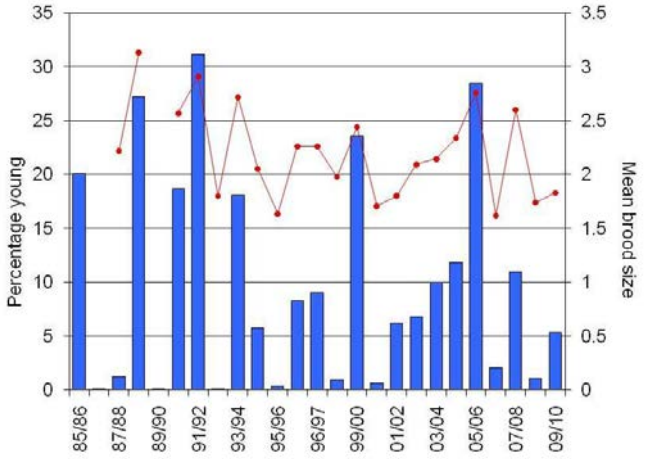

Figure 21. The percentage young (blue columns) and mean brood size (red circles) of Dark-bellied Brent Geese recorded in the UK, 1985/86–2009/10. No brood size data are available for 1985/86, 1986/87 or 1989/90.

A more detailed account of the results is available on our website at wwt.org.uk/research/monitoring/species/dark_brent.asp

Colette Hall

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. *GooseNews* is also available to download from the WWT website at www.wwt.org.uk/research/monitoring/reports.asp.

If you would prefer to receive *GooseNews* in an alternative format, please contact the Species Monitoring Unit at monitoring@wwt.org.uk.

Recent success with capture and marking

WWT swan catches continued throughout 2009/10 with a total of 350 birds being caught at Caerlaverock, Martin Mere, Slimbridge and Welney. During three catches at Martin Mere, a total of 124 new birds was ringed and 54 recaptured. Three catches were also made at Welney, although smaller numbers of Whooper Swans (16 recaptures and 15 new birds) were caught. Two catches were undertaken at Caerlaverock, where a total of 87 Whooper Swans was caught – 60 new birds and 27 recaptures. Bewick's Swans wintering at WWT Slimbridge were captured in February 2010, and included 13 new birds and four recaptures. In all, a total of 199 new Whooper Swans were colour-marked with yellow leg rings and 13 Bewick's Swans were fitted with white (adults) and yellow (juveniles) leg rings with alphanumerical codes. In 2010/11, the colours used by these projects will be changing due to the limited code combinations left for both species; green rings with white characters will be used on Bewick's Swans, and Whooper Swans will be marked with red rings with white characters.

On 9 March 2010, WWT and the North Solway Ringing Group carried out a Barnacle Goose catch on the Solway Firth, Scotland. As a result, 39 adult geese (including five controls) were fitted with orange leg rings in the series FAA-FAZ and FBA-FBZ and five large males were deployed with solar ARGOS GPS satellite tags. The progress of these and previous satellite marked birds can be followed at: www.wwt.org.uk/research/tracking/maps.asp. This project generated approximately 6,000 sightings of marked birds in winter 2009/10, with information collected on pairing status, family size and body condition.

Greenland White-fronted Geese were successfully caught at Loch Ken in Dumfries & Galloway, Scotland on 31 March 2010. A total of seven birds were caught and fitted with orange collars and white rings (V9C, V0C and V1D-V5D). The catch included two goslings (V3D, V4D) which later observations revealed to be part of a family unit with parents V9C and an unringed female. Also, three of the larger adult males were fitted with solar ARGOS GPS satellite tags.

In June 2010, the annual round up of breeding geese undertaken by the Dartford Ringing Group at Sevenoaks Wildlife Park, Kent caught a total 168 birds – 122 Greylag Geese (of which 34 were retraps and 48 juveniles) and 46 Canada Geese (including nine juveniles and 15 retraps). Although the total number of birds caught was slightly lower than in 2009, the number of recaptures is the highest since the project started in 2000. As usual, all Greylag Geese were marked with white engraved rings.

In July 2009, Orkney Ringing Group caught 191 Greylag Geese at Loch of Hundland. Five of these birds were retraps and the other 186 were fitted with orange neck collars. Then in March 2010, 20 Greylags (most probably Icelandic birds) were caught and marked at a cannon net catch at Binscarth, Finstown, Orkney.

Greylag Geese being released at Binscarth, Orkney (Alan Leitch)

Between October 2009 and May 2010, 12 successful catches of Light-bellied Brent Geese were made in Iceland and Ireland. A total of 488 birds were captured, 463 being new birds. Such success is only possible due to the great support, as ever, from Kerry Mackie, Alan Lauder, Kendrew Colhoun, Stuart Bearhop, Alyn Walsh, Gudmundur Gudmundsson, Stephen Foster, and Brian Etheridge. As in recent years, catches focussed on a range of widely distributed sites around the Irish coastline. A catch was carried out for the first time at Baldoyle Bay, Dublin; 194 birds (185 new birds and nine retraps) in total. Not only was this the most successful catch of the year, it is also a record for the project! Equally relevant was one of the recaptures at Wexford Harbour – a bird that had been caught by Alyn Walsh at the very start of the project in 2001. In Iceland, a total of 188 birds was caught during three successful attempts at two sites along the west coast staging areas in May 2010.

Thank you to everyone who has contributed to these projects over the past year. Sightings of colour-marked wildfowl can be reported to colourmarkedwildfowl@wwt.org.uk.

Dora Querido

Conservation and research news

What causes shifts in wintering sites amongst Greenland White-fronted Geese?

Between 25% and 40% of the world wintering population of Greenland White-fronted Geese have wintered at Wexford Slobs, southeast Ireland, since the 1950s and we know from individuals captured and marked with collars that 85% of geese seen in successive years return to the same wintering site. Wintering numbers there have declined since 1999, reflecting the overall trend in total population size. These geese are restricted to feeding on relatively few (<100) large fields at Wexford, and can be rather aggressive towards each other, with large family parties dominating access to the best food patches. Therefore, it would be expected that, if food availability in the fields remained the same, the population would approach a level where food could potentially be limiting the potential carrying capacity of the site as numbers increase. As this limit is approached, the food intake and, therefore, condition of individuals would be affected, especially those birds that are low in the dominance hierarchy, the 'pecking order'. Such individuals may consider staying at Wexford in increasingly crowded conditions, or potentially balance this with the risks and benefits of shifting site to winter elsewhere. This argument suggests that we would expect to see more individuals emigrating from Wexford as numbers (and therefore goose density) increased at this wintering site. Certainly from looking at the rate at which birds marked at Wexford appeared at other wintering sites, it seems like emigration was more frequent when the population was higher in former times; indeed, because of the interest they stimulate, many local observers bemoan the fact that they no longer see marked birds turning up in their flock in recent years compared to formerly!

However, there is no evidence that such a theoretical carrying capacity was ever reached at Wexford – indeed, despite increasing numbers there up until 1999, Greenland White-fronted Geese accumulated fat stores earlier each winter (assessed in the field through the use of abdominal profile scores). The marking studies show that geese shift winter site most frequently when they pair (normally at age 2–3 years). Pairing takes place away from the wintering grounds, so therefore involves individuals that may winter at different sites. In recent years, the proportion of young geese wintering at Wexford has declined, perhaps linked to weather conditions on the summering grounds affecting breeding success, so emigration rates potentially simply reflect the relative numbers of young geese pairing and changing to the wintering site of their partner rather than any density-dependent effect.

For this reason, a group of students examined the resighting histories of Greenland White-fronted Geese marked at Wexford to test if either (1) winter dispersal rate amongst the Wexford population was density-dependent (*i.e.* geese move away with increasing overall numbers) or (2) winter dispersal rate simply reflected the recruitment of young (*i.e.* geese move away in proportion to the number of young produced). In the case of (1), we predicted that annual winter dispersal rate would be positively correlated with overall numbers at Wexford and for (2) we predicted that the emigration rate from Wexford would simply be positively correlated with the annual numbers of young at this site.

The results showed that emigration varied significantly between years, but this variation was not linked to winter numbers at all, that is, geese were not simply moving because of the increase in overall numbers causing some type of 'crowding' effect that made movement to other wintering sites more attractive (see Marchi *et al.* 2010 for full details). Rather, it was evident that the probability of a bird emigrating was correlated with the numbers of young at Wexford in the winter following its hatch. We think that this is because geese permanently shift wintering site most when they pair, when one or other of the pair may have to change wintering site to accommodate that of its new mate. We found a strong effect of age on emigration rate, with highest emigration rates in the first three years after capture when pairing is most frequent, whereas adults generally showed very low probabilities of moving winter sites between years. The reductions in emigration rates recorded in very recent years can therefore be explained by the concurrent dramatic fall in the production of young. It was always thought that the two numerically most important sites for this population (Islay in southwest Scotland and Wexford Slobs) have provided a source of recruits dispersing to other winter quarters. These two sites tend to host geese with higher reproductive success than do sites elsewhere and wintering sites with the lowest proportion of young have shown the greatest rates of decline. Hence, at least in the 1980s, when emigration rates were much higher than now, Wexford (and perhaps Islay as well) may have functioned as 'sources' for other 'sink' wintering flocks to bolster their numbers and show increases above those supported by their intrinsic rate of increase from recruits of young birds alone. Unfortunately, we lack marked birds from other winter flocks to confirm true exchange rates, but if this is the case, clearly the reduced emigration rates from Wexford in recent years is yet another population consequence of current low reproductive output in the Greenland White-fronted Goose as a whole and may contribute to declines at other wintering sites.

Tony Fox

Reference

Marchi, C, IF Sanz, E Blot, J Hansen, AJ Walsh, M Frederiksen & AD Fox. 2010. Between-winter emigration rates linked to reproductive output in site-faithful Greenland White-fronted Geese. *Ibis* 152: 410–413.

2010 Review of National Policy Framework for Goose Management in Scotland

Scotland has an important obligation to conserve and support a range of unique and internationally important migratory populations of geese. Current policy seeks to facilitate adoption of adaptive management techniques as a means to deliver social and economic sustainability of land management businesses in areas frequented by important goose populations, while also ensuring compliance with legal obligations under the EU Birds Directive.

The National Goose Management Review Group (NGMRG) oversees the implementation of local goose management schemes in Scotland in accordance with the National Policy

Framework originally set out in the policy report and recommendations of the National Goose Forum in 2000. Policy requires that a multi-disciplinary policy review be carried out every five years. The second review is now underway and is timed to report to ministers in November 2010.

The purpose of this review is to examine future strategies for goose management in Scotland in terms of their probable efficacy and cost effectiveness. It is intended that the review will provide recommendations which will enable the Scottish Government to take forward a robust and sustainable goose management policy framework from 2010. As such, the review will cover all aspects of national goose policy including the overall effectiveness of current national policy; the cost effectiveness of existing local goose management schemes; recent changes in numbers and in distribution of goose species; current and future funding options and wider considerations relating to sustainable goose management.

As well as considering the fundamental principles of policy, the review will look at how Local Goose Management schemes are operating on the ground and to what extent they are achieving the overall objectives of the three broad policy principles, which are to:

1) Meet the UK's nature conservation obligations for geese, within the context of wider biodiversity objectives;
2) Minimise economic losses experienced by farmers and crofters as a result of the presence of geese;
3) Maximise the value for money of public expenditure.

The review will assess whether the existing policy remains appropriate or whether there are other management options (*e.g.* examples from abroad) or policy mechanisms (*e.g.* Scottish Rural Development Programme) that might now be more appropriate for addressing the interactions between geese, biodiversity and agriculture.

WWT, along with other stakeholders, have been closely involved with the review through involvement with the NGMRG, the Goose Scientific Advisory Group, providing demographic data on the populations wintering and breeding in Scotland and providing a written response to the review. A more detailed account of the review will appear in next years' *GooseNews*.

Barbara Bremner

Spring migration of Taiga Bean Geese through Sweden

Taiga Bean Geese wintering in northwest Europe follow three major routes to their breeding grounds. Those breeding in Russia, around 30,000 birds, pass to the south and east of the Baltic Sea, whilst the *c.*50,000 breeding in Finland and westernmost Russia cross the Gulf of Bothnia from Sweden and fly over Finland. A third, much smaller, group, numbering *c.*5,000–6,000 birds, that breeds in northern Norway and Sweden moves north to the west of the Baltic Sea and Gulf of Bothnia and, in particular, stops over at Ume River Delta.

Ulf Skyllberg and co-authors (*Ornis Svecica* 19: 199–214) have studied in detail the spring migration of Taiga Bean Geese using the westernmost route, examining the timing of movements and the numbers involved. These birds are poorly known compared to other Taiga Bean Geese, but it is most likely that all the birds wintering in the UK are part of this sub-population; a strong link was established in the late 1980s when 22 birds, from a sample of just 36 marked in northern Sweden, were observed during winter at the Yare Valley, Norfolk.

Skyllberg *et al.* estimated that during 2003–2008 between 1,660 and 2,910 geese frequented the Ume River Delta during their spring migration, approximately half of this sub-population. The number varied between years due to several factors, including the conditions at other stop over sites further inland, where the likelihood of spring snow was greater than at the coastal Ume River Delta. Thus, in years of more snow inland, numbers at the Ume River Delta were greatest. The stop over time at the Ume River Delta also varied annually according to the timing of spring, with geese moving through more rapidly in years when their migration had been held up by unsuitable weather. This demonstrates how well the geese are able to adapt their migration plans according to local conditions experienced. Further differences were found in the timing of departure from wintering areas in southern Sweden between these birds and those migrating to Finland, with the Finnish birds departing 8-15 days earlier, irrespective of local weather conditions.

However, a number of questions about their spring migration remain, such as whether there are other stop over sites further north from the Ume River Delta, and, from a British perspective, how birds from the key site, Slamannan Plateau, use their flyway once they leave Scotland. A greater understanding of this is highly desirable, particularly given that the European population of Taiga Bean Goose is believed to have declined from around 100,000 to 80,000 in a period of just ten years (1995–2005). Further studies from Sweden, integrated with research in Britain, would therefore be extremely valuable in helping to ensure the conservation of this sub-species.

Richard Hearn

Conservation and research news

Bewick's Swan Action Planning Workshop

The conservation status of the Northwest European Bewick's Swan has been of increasing concern in recent years, with a decline in numbers since the mid 1990s evident in UK trend indices (WeBS data), the International Waterbird Census (IWC) trends coordinated by Wetlands International and the January 2005 international Swan census (Rees & Beekman in prep.). A Bewick's Swan Action Planning workshop was therefore held, from 25–28 September 2009, to address the issue. The workshop drew together 30 experts on Bewick's Swans from range states to pool knowledge and data, to identify the key threats to the birds and to develop the monitoring, research and conservation work required to improve the conservation status of the species. The workshop was organised jointly by Wetlands International, the Wetlands International/IUCN-Species Survival Commission Swan Specialist Group and WWT, and was hosted by Lenoble Priroda in St Petersburg.

During the course of the meeting it became evident that there was no single issue that could explain the decline in numbers since the mid-1990s, and that the combination of factors (including weather and habitat changes) affecting the swans' survival and breeding success (*i.e.* the demographic variables underlying trends in numbers) should be examined in further detail. Whilst individual swans do occasionally switch migratory flyways (*e.g.* three Bewick's Swans ringed in Britain have been recovered along the Caspian flyway) it was considered unlikely to have occurred at a sufficiently large scale to account for the diminishing numbers because Bewick's Swans (particularly adult birds) generally show a high level of site fidelity to the wintering range.

A review of the sites of international importance for the species undertaken by national delegates at the workshop found that most of the main wintering sites in western Europe and staging areas in the Baltic countries are legally protected under the European Union's Birds Directive (as Special Protection Areas). Many are also designated as Ramsar Sites. Sites within Russia are also protected as federal or regional reserves under Russian legislation, but it was noted that the swans are particularly vulnerable to changes at the key spring staging site on the White Sea. It was agreed that the conservation of the species depends on the management of all sites used by the birds throughout their migratory range, including about a dozen key staging sites which require improvement in their management programmes and to have their protection status maintained.

Eileen Rees, Geoff Hilton and Julia Newth

Happy Birthday AEWA!

The Agreement on the Conservation of African-Eurasian Migratory Waterbirds recently celebrated its 15th anniversary with a two day symposium at The Hague, where AEWA was concluded in 1995, hosted by the Dutch Government. Participants took the opportunity to review the numerous successes of AEWA since inception, and also examine the future role of the Agreement and the challenges it faces. This culminated in the production of the Hague Action Statement, which outlines the currently crucial international actions necessary for the conservation of migratory waterbirds and their habitats. Among other things, this statement calls on AEWA Parties, other Range States, partner organizations and the corporate sector to increase their activities and contributions, including the further improvement of monitoring and reporting on the status of migratory waterbirds. Further information can be found on the AEWA website at www.unep-aewa.org/meetings/symposium/symposium.htm

Wings Over Wetlands reaches key milestones

The Wings Over Wetlands (WOW) project, the largest international wetland and waterbird conservation initiative ever to take place in the African-Eurasian region, draws to a conclusion at the end of 2010. This partnership of international conservation organisations and national governments has worked since 2006 to improve and conserve healthy and viable populations of African-Eurasian migratory waterbirds. In particular, WOW has focussed upon the conservation of key critical wetland areas required by waterbirds to complete their annual migrations, and the improvement of international cooperation and building local professional capacity.

To these ends two key outputs have recently been completed: the Critical Sites Network (CSN) Tool and the Flyway Training Kit.

The CSN Tool is an innovative web-based resource which combines Wetlands International IWC data (which of course includes your GSMP data!), BirdLife International's IBA data, and Ramsar Sites data, with distribution and population data and site-level maps. These sources are combined in a user-friendly web portal that allows powerful and flexible summaries of waterbird and wetland data at site level, species level, and at the level of geographical detail of your choice.

The Flyway Training Kit is the culmination of the WOW capacity building programme. This training package is designed to provide a flexible common platform to support flyway training programmes across diverse regions. It also provides a basis for the enhanced understanding, application and dissemination of the 'flyway-level' approach for conservation of migratory waterbirds and the critical habitats on which they depend.

For further information see the WOW website www.wingsoverwetlands.org/.

Bird Atlas 2007–11 – the final year

On 1 November 2010 the final year of fieldwork for the 2007–2011 Bird Atlas will commence. Coverage so far has been excellent and the challenge now is to boost species lists in every square. We are very keen to gather Roving Records in order to boost species lists in all under recorded squares. All goose counters can assist with this. The regional species richness maps on the atlas website www.bto.org/birdatlas/latest_results/regionalresultsnav.htm compare the number of species recorded in each 10 km square so far with the number recorded in that square in the last atlas. Squares where more than 50% of species are 'missing' (red and black dots) are under recorded and need more effort. Even those squares coloured yellow and brown (10–49% missing) also require a bit more effort to boost species lists. The 'Any Square Summary' button on the website allows you to print out species lists for any 10 km square. This can be used to work out what species are missing from the square. Please consider adopting a few of your local squares and see if you can help boost their species tally.

A major aim of the atlas project is to map the current breeding range of all species. To achieve this all summer atlas or Bird Track records can be greatly enhanced by adding breeding evidence codes. For most species possible breeding evidence codes like H (= in breeding habitat, such as a Greylag Goose on a marsh in May) are used. The use of codes such as P (= pair in suitable habitat), T (= several territorial birds) or A (= agitated, alarm calling bird) can boost the record up to the probable breeding category. Confirmed breeding codes include NE or NY (= nest with eggs or young) or FL (= recently fledged dependant young). The latter code means that you can confirm breeding without necessarily finding a nest. Please try and add codes at as high a level as applicable. There are a few tricky species with regards to these codes. Herons, gulls and terns away from known colonies should probably be coded as U (= summering), as should late staying wildfowl. You may think your local square has been completed, but in fact there could still be much more work to do in order to gather this breeding evidence.

Bob Swann

Tiree ringed Greylag Goose recorded at WWT Martin Mere

Since 1998, a total of 1,281 Greylag Geese have been individually colour-marked on the Inner Hebridean islands of Tiree and Coll as part of a detailed study examining the movements and population dynamics of these birds (see Bowler *et al.* 2005). Adults have been fitted with grey neck collars bearing a vertical letter and two horizontal numbers in black, whilst goslings have been fitted with engraved yellow legs rings bearing a three-letter code in black. Some 13,000 resightings of these birds (to April 2010) have shown them to be remarkably sedentary, with regular small movements within and between the two islands but very few beyond them. As part of the remnant native (or North West Scottish) Greylag Goose population, such low levels of dispersal are perhaps to be expected, although with the breeding range of Greylag Goose spreading steadily south along much of the Argyll coastline in recent years, it seems likely that the increasing populations on Tiree and Coll may have helped to seed this range expansion.

Up to the middle of March 2010, just 12 of these colour-marked Greylag Geese had been recovered or resighted away from Tiree and Coll. These birds reached as far north as Benbecula in the Outer Hebrides and Achiltibuie in Wester Ross, via records from Barra, South Uist, Rum, Skye and Knoydart. Birds have also headed east to Ardnamurchan, the Treshnish Isles and Mull, whilst two birds reached as far south as Islay, although they subsequently returned to Tiree. It was with great surprise, therefore, that Kane Brides reported a neck-collared Greylag Goose at WWT Martin Mere in Lancashire on 27 March 2010 sporting a Tiree neck collar! A quick check of the database revealed that the bird in question, K82 had been ringed as a first-summer male in a catch of moulting birds at Loch an Eilein, Tiree on 4 July 2009. It had been seen seven times subsequently in West Tiree, most recently on 17 February 2010 at Balinoe. The subsequent long southerly late winter movement of this bird was therefore most surprising. K82 was last seen at Martin Mere on 29 March 2010 and it will be very interesting to see where this bird is next seen.

Greylag Goose with neck collar (K82) ringed on Tiree, Inner Hebrides in July 2009 and seen at WWT Martin Mere, Lancashire in March 2010 (David Walsh)

Many thanks to Kane Brides for reporting this movement and to all observers who have passed on their colour-ringed Greylag sightings records to me, or via Bob Swan, the coordinator of colour-marking of Greylag Geese in Scotland.

John Bowler

Reference

Bowler, J, C Mitchell & AJ Leitch. 2005. Greylag Geese on Tiree and Coll, Scotland: Status, habitat use and movements. *Waterbirds*. 28: 61–70.

Stop Press

K82 has recently been seen at Nosterfield, North Yorkshire on 21 July 2010. Further dispersal or making its way back to Scotland?

Contacts

GSMP Contact

Carl Mitchell
Species Monitoring Unit
WWT, Slimbridge, Glos. GL2 7BT, UK
T 07825 032974
E carl.mitchell@wwt.org.uk

Contributors

John Bowler is the RSPB Tiree Officer
E john.bowler@rpsb.org.uk

Barbara Bremner is a Policy and Advice Officer for Scottish Natural Heritage
E barbara.bremner@snh.gov.uk

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

Tony Fox is Professor of Wetland Ecology, National Environmental Research Institute, Aarhus University, Kalø, Denmark
E tfo@dmu.dk

Ian Francis is an area manager for RSPB in Scotland and also helps coordinate counts for the Greenland White-fronted Goose Study
E ian.francis@rspb.org.uk

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

Colette Hall is a Species Monitoring Officer at WWT Slimbridge
E colette.hall@wwt.org.uk

Richard Hearn is the Head of the Species Monitoring Unit at WWT Slimbridge
E richard.hearn@wwt.org.uk

Geoff Hilton is Head of the Species Research Unit at WWT Slimbridge
E geoff.hilton@wwt.org.uk

Julia Newth is a Wildlife Health Officer at WWT Slimbridge
E julia.newth@wwt.org.uk

Dora Querido is a Species Monitoring Assistant at WWT Slimbridge
E dora.querido@wwt.org.uk

Eileen Rees is Head of the UK Waterbird Conservation Unit at WWT Slimbridge
E eileen.rees@wwt.org.uk

Bob Swann is the Scottish Organiser of the Bird Atlas 2007–11
E bob.swannbto@homecall.co.uk

Huw Thomas is Head of the Protected and Non-native Species Policy Team for Defra
E huw.m.thomas@blueyonder.co.uk

Mitch Weegman is a graduate student at Mississippi State University, USA
E mdw259@msstate.edu

Goose Specialist Group Conference 2009

The 12th meeting of the Wetlands International/IUCN-SSC Goose Specialist Group (GSG) took place in Höllviken, Sweden, from 9–13 October 2009. Ninety-eight delegates from 19 countries, including China and USA, gathered to hear presentations themed around 'Expanding goose populations and their management'. The conference included a workshop focused on Bean Geese and attendees were engaged in discussions on goose databases, goose marking projects, management of goose populations in Europe, and a debate on 'how to continue the GSG'. As well as being an extremely well organised, lively, and enjoyable week, the conference gave rise to a new GSG board and the decision was taken to revive Goose Bulletin, the newsletter of the group, along with a new editorial board.

The next meeting will be jointly held with the Goose, Swan and Duck Study Group of northern Eurasia in Elista, Kalmykia (Russian Federation) from 24–29 March 2011.

For further details about the conference and information on how to receive a copy of *Goose Bulletin* see the GSG website at www.geese.nl/gsg/.

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WWT JNCC Joint Nature Conservation Committee

Goose & Swan Monitoring