

**WWT/JNCC/SNH Goose & Swan Monitoring Programme**  
**survey results 2012/13**  
**Iceland Greylag Goose *Anser anser***

## 1. Abundance

The 53rd consecutive Icelandic-breeding Goose Census (IGC) took place during autumn and winter 2012/13, providing information on the abundance and distribution of Iceland Greylag Geese.

Counts were conducted by a network of volunteer observers and professional conservation staff over the weekends of 10/11 November and 8/9 December 2012. Coverage in Britain in November was similar to the preceding year, with 120 sites checked in November and 113 covered in December. Outside Britain, counts were made at several sites in Ireland, southwest Norway (no counts of Greylag Geese were made in southwest Norway during any of the census periods, however, 385 birds, the number counted there in January 2013, was used as an estimated count for the November and December census periods) and Iceland.

Total counts of 128,250 and 109,146 Greylag Geese were made in November and December, respectively (Table 1). Following adjustments for the presence of British Greylag Geese (which is significant in some areas) and the addition of estimated counts (for definitions and methods see full report, Mitchell 2013), a population estimate of 104,632 was derived from the November total, and represented a decrease of 6.2% compared to 2011/12 (Figure 1), when a revised population size of 111,558 individuals was estimated.

There was an early migration from Iceland in autumn 2012 and by November, 80.8% of the population was present in north Scotland, with most of the remainder in Iceland (10.0%). Distribution was similar in December although most Greylag Geese had left Iceland by this month.

Table 1. Regional distribution of Iceland Greylag Geese during November and December 2012 (nc = not counted).

<b>Region</b>	<b>November</b>	<b>December</b>
Iceland	15,250	3,944
Southwest Norway	nc	nc
Ireland	3,474	nc
North Scotland	103,302	97,837
Northeast Scotland	589	499
East Central Scotland	3,276	3,282
Southeast Scotland/northeast England	1,187	2,048
Southwest Scotland/northwest England	1,172	1,536
<i>Total Counted</i>	128,250	109,146
<i>Adjusted counts</i>	-24,003	-24,594
<i>Estimated counts</i>	385	2,909
<i>Adjusted total</i>	104,632	87,461
<b>Population estimate</b>	<b>104,632</b>	

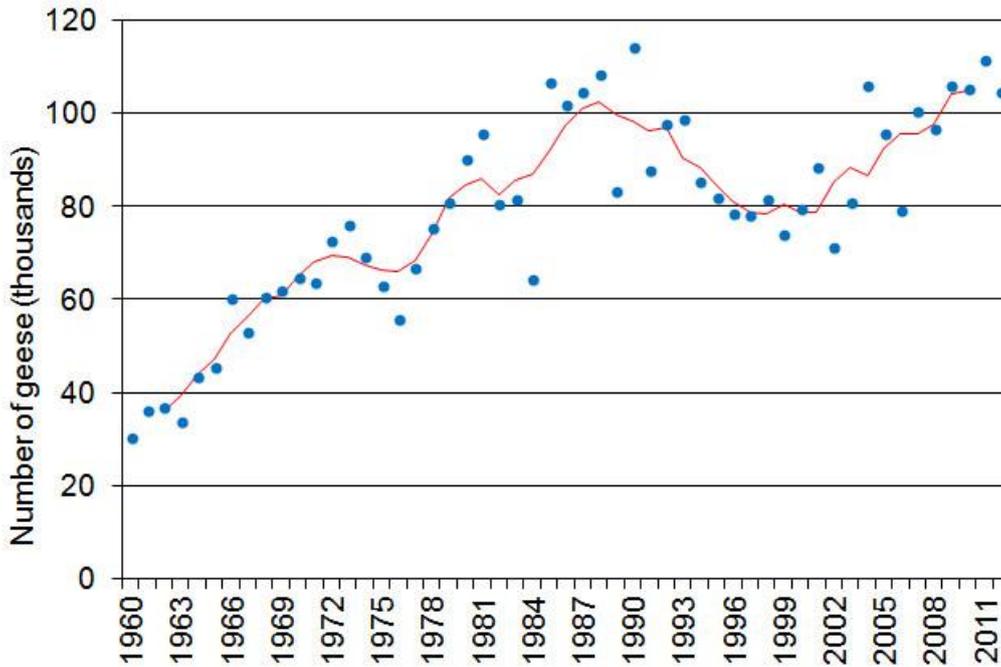


Figure 1. Annual census-derived estimates of Iceland Greylag Goose population size, 1960 – 2012. Five-year running mean shown as red line (e.g. mean for 2009 is from population estimates for 2007 – 2011).

## 2. Breeding success

During early November, 2,580 Greylag Geese from 27 flocks were aged at various localities in Orkney and Caithness. The sample, expressed as a proportion of the 2012/13 population estimate, was 2.5%. The brood size of 28 families was also determined during this period.

Breeding success was similar to the recent mean, with flocks containing 21.7% young (mean 2002 – 2011: 21.9%  $\pm$  1.0 SE) (Figure 2). The mean brood size of 2.36 goslings per successful pair was also similar to that of the recent ten year mean (mean 2002 – 2011: 2.37  $\pm$  0.1 SE).

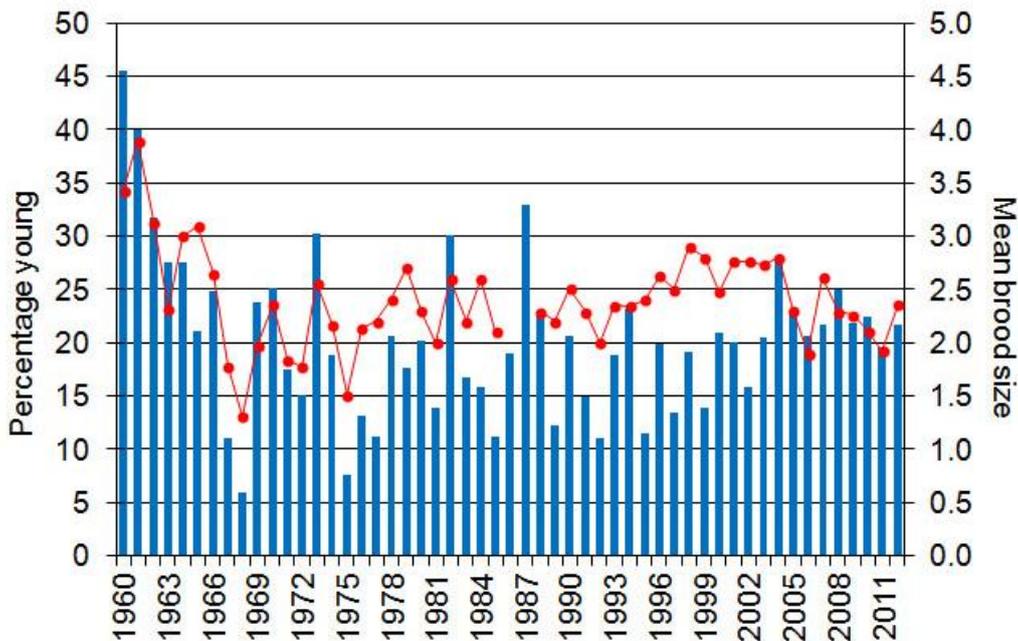


Figure 2. The proportion of young and mean brood size of Iceland Greylag Geese, 1960/61 – 2012/13.

### 3. Discussion

The November 2012 count of Iceland Greylag Geese was thought to be reasonably comprehensive with sites being covered throughout most of the winter range although, once again, no counts were able to be undertaken in the Faeroe Islands. However, the number of birds typically present there is relatively small. Coverage in Ireland was not complete (compared with an extensive survey carried out there in autumn 2007) and it is possible that the number of geese in Ireland, particularly in Northern Ireland, is greater than reported here. Counts in southwest Norway were low compared to recent years. A new update on the number of Greylag Geese summering in Orkney (21,367 counted in August 2012, Mitchell *et al.* 2012) meant that alterations to the Iceland population estimates for 2012 and the previous three years could be made (see below). This reduces the size of the annual census-derived population estimates for these years by up to 7% (in 2011).

The timing of the census of Iceland Greylag Geese is important in confidently assessing their abundance. In some years, the migration of Greylag Geese from Iceland to Scotland and other winter haunts can be staggered; in other years there can be a mass exodus. The timing of the movement can be as early as late October and as late as the second half of November. In autumn 2012, there appeared to have been an early departure from Iceland with around 90,000 birds counted in Britain and Ireland mid month. In comparison, in mid-November 2011, *c.* 43,000 were still in Iceland.

Orkney continues to hold the bulk of the winter stock. After deducting the number of British Greylag Geese thought to be resident on the archipelago (based on a summer survey carried out in August 2012), and taking account of those shot under a pilot management programme, an estimate of 57,686 Iceland birds were thought to be present in December. Caithness had unusually high counts in both November (16,324) and December (12,920). It is interesting to speculate whether the increase in shooting in Orkney as part of the pilot management programme displaced birds to the nearby Caithness feeding grounds.

Breeding success in the Iceland Greylag Goose population appeared to be average in 2012 (21.7%), although the figure was based on a small sample size. Due to their later migration and more limited range, age counts were only collected in one region (north Scotland) during November. Monitoring annual breeding success for this population is becoming more difficult because the main wintering areas (Orkney, Caithness and around the Moray Firth) hold ever larger numbers of British Greylag Geese and separating birds from each population is impossible in the field. It is possible that the only way of getting a valid assessment of annual breeding success for this population is by checking birds in Iceland in the autumn, although that would alter the methodology employed since 1960 of checking the age ratios after the autumn migration.

In Shetland, post breeding and winter surveys of Greylag Geese in 2010 and 2011 have revealed a summer population of *c.* 5,000 birds that is joined by up to *c.* 2,000 winter migrants (Harvey *et al.* 2012). Ringing of a small number of British Greylag Geese there in July 2011 and 2012 revealed that only one bird left the islands, hence it is likely that the summer stock is largely sedentary. The count from December 2012 of 2,106 Greylag Geese was incomplete and well short of the *c.* 5,000 birds thought to be resident on the archipelago, thus, this count has been treated as referring wholly to British Greylag Geese.

The number and distribution of British Greylag Geese continues to increase and present problems in identification of the provenance of Greylag Geese encountered on the winter quarters. Guidance from IGC counters in other parts of Scotland suggest that at the time of the November IGC count, the number of Iceland Greylag Geese occurring at sites south of the Moray Firth, Badenoch & Strathspey, Aberdeenshire and east of Bute has diminished over the last 15 years. Thus, for many areas, notably, Northumberland, Dumfries & Galloway, the Borders, Lothians, parts of Fife, parts of Angus and parts of Perth & Kinross, the number of Greylag Geese counted in November are similar to those counted in October and probably refer to British Greylag Geese. Several counters from southeast Scotland have suggested that, in late autumn, no Iceland Greylag Geese are likely to occur there at that time. The results of the February 2012 survey (Mitchell 2012) however, indicate that birds from Iceland probably do occur at former important sites later in the winter (*e.g.* 1,317 at Loch Lomond, Argyll; 1,230 at Loch of Lintrathen, Angus; 1,110 at Loch of Skene, Aberdeenshire). This strengthens the value of the periodic late winter counts, which we hope to repeat every three years.

Bute remains an important area that does attract large numbers of Iceland Greylag Geese from November onwards and ring sightings of marked birds confirm that most of these are from Iceland. However, even there,

the number of British Greylag Geese is increasing, with an estimated 500 birds present in late summer 2012 (I. Hopkins *in litt.*).

Thus, as the abundance and distribution of British Greylag Geese increases, it is getting ever harder to separate, and hence accurately record the abundance of Icelandic migrants. Regular summer surveys in key areas (*e.g.* Orkney) give figures that can be deducted from the IGC counts, but summer surveys of large parts of south and east Scotland would be very difficult to orchestrate on an annual basis. Certainly some key sites in south and east Scotland that formerly held large numbers of Iceland migrants (*e.g.* Lindisfarne in Northumberland, Drummond Loch, Loch Leven and Carsebreck & Rhynd Lochs in Perth & Kinross, and Loch of Skene, Dinnet Lochs and Haddo Country Park in Aberdeenshire) hold virtually no Iceland migrants at the time of the autumn IGC counts. Any geese that are counted at most of the lochs in south and east Scotland during IGC are now far more likely to be British Greylag Geese.

Peak counts of Iceland Greylag Geese have occurred in November in each year since 2005, but due to the varying arrival time of migrants from Iceland, and given the recent shifts in winter distribution, it would appear prudent to maintain coverage of sites holding these birds in both November and December.

## Revised population estimates

The Iceland Greylag Goose population estimates were revised by Trinder *et al.* (2010) based on adjustments being made to the number of British Greylag Geese in Orkney. A census in summer 2008 found c.10,000 Greylag Geese on the archipelago and, based on projections of population growth, the number of summering geese expected to be resident there was calculated. These projected values were then deducted from the winter counts. In late August 2012, a second summer census found 21,367 Greylag Geese in Orkney (Mitchell *et al.* 2012). However, by the time of the November IGC count at least 3,191 were known to have been shot as part of a pilot management programme managed by Scottish Natural Heritage (SNH). Thus, the total number of British Greylag Geese thought to be present in Orkney in November was rounded down to 18,000. It was then possible to revise the Iceland Greylag Goose annual population estimates for the period 2009 to 2011 and update the information presented in Trinder *et al.* (2010). It is proposed that these revised annual population estimates are adopted and used in future analyses and publications. See Mitchell 2013 for further details.

## 4. References

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This report should be cited as:

WWT. 2013. *Goose & Swan Monitoring Programme: survey results 2012/13 Iceland Greylag Goose: Anser anser*. WWT/JNCC/SNH, Slimbridge.

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This report was produced under the Goose & Swan Monitoring Programme (GSMP). This programme monitors numbers and breeding success of geese and swans in the UK during the non-breeding season. GSMP is organised by the Wildfowl & Wetlands Trust in partnership with the Joint Nature Conservation Committee (on behalf of Natural Resources Wales, Natural England and the Council for Nature Conservation and the Countryside) and Scottish Natural Heritage.



## Goose & Swan Monitoring