

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2010/11

Greenland Barnacle Goose *Branta leucopsis*

1. Abundance

A full census to estimate the size of the Greenland population was last undertaken in spring 2008 (International Greenland Barnacle Goose Census), however, in winter 2010/11, counts were made at seven of the most important areas for Greenland Barnacle Goose in Scotland, which in spring 2008 (the last complete census) contributed 92.5% of the total count in Scotland, included:

Islay: Two comprehensive counts are organised on Islay by Scottish Natural Heritage (SNH) each winter. The most recent counts were 44,844 birds in December 2010 and 35,661 in March 2011. The adopted island count is taken as the mean of these two counts, and in winter 2010/11 this was 40,252 birds (but note the large difference of 9,183 birds between the December and March counts). The adopted count was 7.0% higher than the adopted count in the previous winter and 20.0% lower than the highest adopted count recorded on Islay; 50,232 geese in 2006/07.

Tiree & Coll: Greenland Barnacle Geese were counted on Tiree and Coll by RSPB. The winter peak on Tiree was the highest ever winter count on the island at 4,190 birds, and some 12.3% higher than the previous winter. On Coll, the winter peak was 775 birds, 12.0% lower than the peak in the previous winter, and 65.8% lower than the highest ever count of 2,264 birds in winter 2006/07.

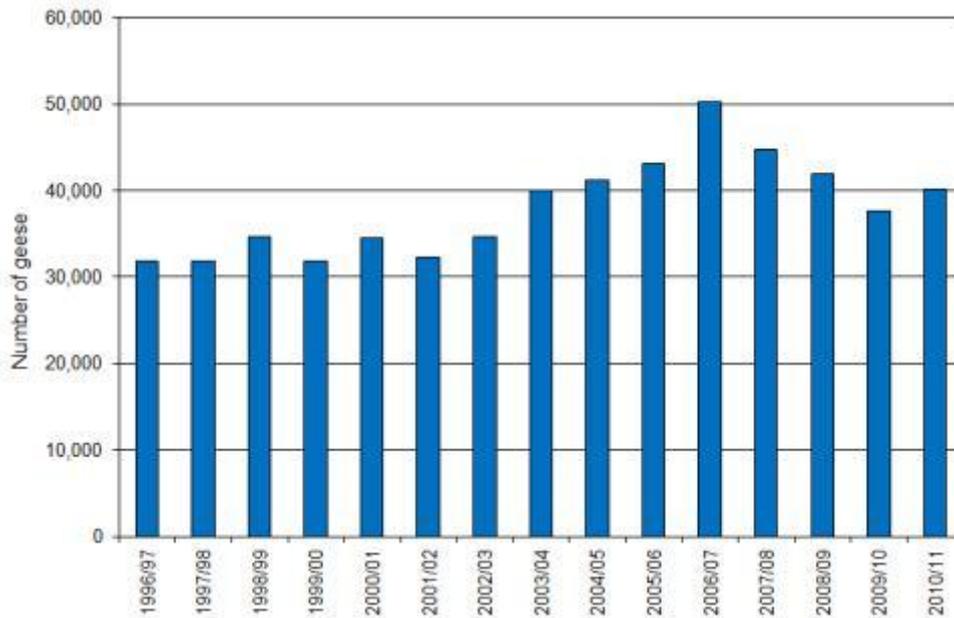
Uists: Greenland Barnacle Geese were counted in the Uists in February 2011 as part of the coordinated counts organised by the Uist Greylag Goose Management Committee. The combined total of 2,546 geese was 6.4% higher than the peak in the previous winter, but only a half of the highest count of 4,659 birds in winter 2005/06.

South Walls, Orkney: Orkney: Monthly count data were collected by SNH throughout winter 2010/11 as part of the South Walls Goose Management Scheme. The peak count was 1,861 geese in January. This figure was 16.3% higher than the peak in the previous winter although 22.1% lower than the highest ever count of 2,390 birds in winter 2004/05.

Danna: The peak winter count on Danna in the Inner Hebrides during 2010/11 was 715 birds, some 21.6% higher than the peak in the previous winter.

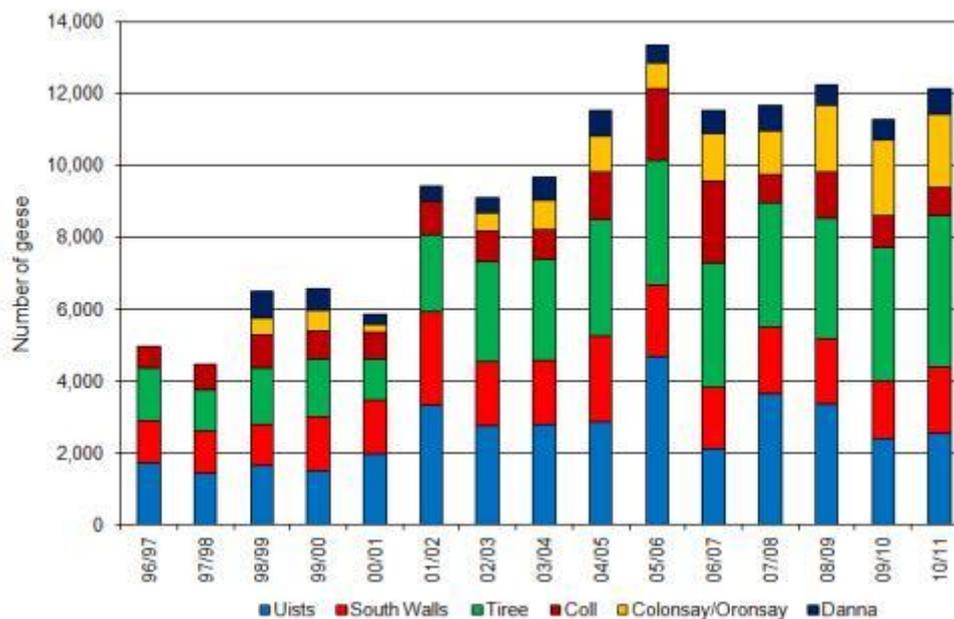
Colonsay/Oronsay: Regular winter counts on Colonsay/Oronsay are organised by RSPB. In winter 2010/11, the peak winter count was 2,056 birds, very similar to the peak count in the previous winter (2,100).

Since complete censuses of the entire population are carried out only once every five years, tracking the trend at seven of the most important sites is thought to reflect changes at the population level.



Adopted counts (mean of the two winter counts) on Islay, the most important wintering site for Greenland Barnacle Geese, 1996/97-2010/11.

The highest adopted count of Greenland Barnacle Geese was recorded on Islay in 2006/07 (50,232 birds) and, for the next three winters, there was a reduction in numbers counted there to a low of 37,637 birds in winter 2009/10. However, in winter 2010/11 number increased again, possibly as a result of 2010 being a reasonable breeding season (see below), with a the mean of 40,252 birds. However, there was an unusually large difference of over 9,000 birds between the December and March counts, so it is possible that an average is not the best way of estimating the number of birds present in this particular year. Elsewhere, the combined counts from six other important sites show a broadly similar trend; a peak count in winter 2005/06 followed by a decline with a modest increase in numbers in winter 2010/11. This suggests that the modest increase in numbers seen on Islay in winter 2010/11 was also seen at the other wintering sites. Note that peak numbers occurred on Islay (in 2006/07), and at the other key sites in Scotland (in 2005/06), before the most recent population census which was in winter 2007/08.



Winter peaks at six of the most important wintering sites for Greenland Barnacle Geese in Scotland, 1996/97-2010/11.

2. Breeding success

On Islay, 8,960 birds were aged during November and December 2010. The sample is thought to be approximately 23% of the early winter total. The percentage of young in flocks showed an overall mean of 11.2%. This suggests that 2010 was a reasonable breeding season in east Greenland and is the highest percentage young since 15.9% was recorded in 2004/05. A total of 151 families was assessed for brood sizes. Of these, 16.6% contained one juvenile, a half (49.7%) contained two young, a quarter (25.2%) contained three young and 8.6% contained four young. The overall mean brood size was 2.26 goslings per successful pair.

On Tiree in November, the overall percentage of young birds in a total of 700 birds aged was 10%, slightly lower than the overall mean of those flocks on Islay. Of 51 broods assessed, the mean brood size was 1.39 goslings. We are very fortunate in receiving a copy of annual age counts undertaken on Inishkea, north west Ireland by David Cabot going back to the early 1960s. Combined, these data give an overall estimate of breeding success of 10.4% young and 2.04 mean brood size.

The proportion of young and mean brood size of Greenland Barnacle Geese during winter 2010/11.

	No. of geese aged	No. of young	% young	Mean brood size
Islay	8,960	1,003	11.2	2.26
Tiree	700	70	10.0	1.39
Inishkea	1,450	82	5.7	2.05
Total	11,110	1,155	10.4	2.04

3. Discussion

Several key sites in Scotland hold the majority of Greenland Barnacle Geese with most of these wintering on Islay. Combined numbers at the key sites, including Islay, underwent a sustained increase up to 2006/07, however, counts in the following three winters indicate an apparent decrease in the size of the Scottish wintering population compared to the peak year, followed by a slight increase again in winter 2010/11. Annual breeding success has been low in the last ten years (see below) and this is undoubtedly an important part of this decrease in abundance. In addition, \approx 1,000 - 1,500 Greenland Barnacle Geese are shot in Iceland each year and licences to shoot \approx 1,000 on Islay have been issued by the Scottish Government in recent years.

It has been suggested that an increase in disturbance on Islay in recent years due, in part, to the lethal scaring programme may have led to a redistribution of Greenland Barnacle Geese within Scotland and possibly to Ireland. However, peak winter counts from six of the other most important sites in Scotland fail to back this up, and indicate that numbers decreased at those sites too before increasing slightly again in the most recent winter.

Thus, mortality through hunting/control and low breeding success appeared to have halted the long term increase. However, a reasonable breeding season in 2010 appears to have reversed this recent decline. The next international census is due in late winter 2012/13 and will give the opportunity to determine whether this trend is representative of the entire population.

Results from age counts conducted during 2010/11 on Islay (from where the largest sample is provided) show that the 2010 breeding season was reasonable; the figure of 11.2% young recorded being higher than the previous 10-year mean of 8.5% (\pm 1.2 SE). Since 2001, annual breeding success has been below 10% in seven out of the ten years. Mean brood size in 2010 was also average at 2.26 young per successful pair, and slightly higher than the previous 10-year mean of 1.91 young (\pm 0.1 se).

The results from age counts carried out on Tiree were in broad agreement with those recorded on Islay. In 2010/2011, the percentage young recorded at Inishkea was half that recorded on Islay (5.7% *cf* 11.2%), a relationship that appears to be long term, with Inishkea supporting a lower percentage young in 42 out of 49 years (86%). This suggests there may be a differential distribution of young in the winter quarters, though more detailed analysis is required to confirm this.

This report should be cited as:

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Goose & Swan Monitoring