

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2010/11

Greenland/Iceland Pink-footed Goose *Anser brachyrhynchus*

1. Abundance

The 51st consecutive Icelandic-breeding Goose Census took place during autumn and winter 2010, providing information on the abundance and distribution of Greenland/Iceland Pink-footed Geese. In addition to the two usual counts undertaken in October and November, a third count in December (introduced in 2005) was also conducted, although this is primarily targeted at Iceland Greylag Geese.

Counts were conducted by a network of volunteer observers and professional conservation staff over the weekends of 9/10 October, 6/7 November and 4/5 December 2010. Coverage in the UK was good and similar to the preceding year, with 111 sites visited in October, 98 in November, but, due to deep snow and very cold temperatures only 68 in December. Outside the UK, counts were made at several sites in Iceland during October, when some birds have yet to leave breeding areas.

Totals of 297,798 and 271,394 Pink-footed Geese were counted in October and November, respectively. The total numbers counted in October and November were 16.9% and 4.5% lower than the respective counts in the previous year. There was no need for the addition of estimated counts (for definitions see full report, Mitchell 2011), and the peak winter total in October was used to derive a population estimate of 297,798 geese. This represents a decrease of 18.2% since 2009/10, when a population size of 364,212 individuals was estimated.

East Central Scotland held the highest number of birds in October with a high percentage also present in Northeast Scotland and West England. By November, a large movement of birds into East England (Norfolk) had occurred and, by December, due to the severe weather, many more had moved to Southwest Scotland/Northwest England, where 50,184 were counted and East England, where 88,717 were counted. The prolonged spell of cold weather in December caused many inland waterbodies to freeze and lying snow meant that many inland feeding areas were also unsuitable for the Pink-footed Geese, which vacated these areas and presumably headed south. However, the poor weather also meant some waterbodies could not be checked by counters.

Regional distribution of Pink-footed Geese during October, November and December 2010 (nc = not counted). Regional counts do not include estimated counts for sites where no data were received.

Region	October	November	December
Iceland	9,000	0	0
Southwest Norway	0	0	0
Ireland	0	0	0
North Scotland	11,228	10,032	3,734
Northeast Scotland	48,871	53,068	300
East Central Scotland	92,545	60,894	22,736
Southeast Scotland/Northeast England	35,138	24,060	1,627
Southwest Scotland/Northwest England	7,437	5,628	49,974
West England	69,960	53,690	57,923
East England	21,919	61,272	88,717
Total counted	297,798	271,394	225,221
Estimated counts	n/a	n/a	n/a
Adjusted total	297,798	271,394	225,221
Population estimate	297,798		

2. Breeding success

Between mid-September and end-October, a total of 11,765 Pink-footed Geese, in 39 flocks, was aged at various localities throughout Scotland and west England. This sample, expressed as a proportion of the 2010/11 population estimate, was 4.0%. The brood size of 148 families was also determined during this period.

Breeding success was similar to the mean for the previous decade, with 19.9% young (mean 2000-2009: 19.3% \pm 0.5 SE). The mean brood size of successful pairs was 2.32 goslings, which was slightly higher than the mean recorded during the previous ten years (mean 2000-2009: 2.12 \pm 0.06 SE).

There was evidence of modest regional variation in the percentage of young Pink-footed Geese, which varied from 17.9% in East Central Scotland to 22.0% in Northeast Scotland. Similarly, mean brood size varied from 2.28 goslings in Northeast Scotland to 2.67 in Southeast Scotland. The percentage young was highest in late September and typically quickly declined by late October, suggesting that successful families arrived earlier on the winter quarters.

The percentage of young and mean brood size of Pink-footed Goose flocks in autumn 2010.

	Total aged	% young	No. of broods	Mean brood size
Northeast Scotland	4,857	22.0	117	2.28
East Central Scotland	4,675	17.9	25	2.44
Southeast Scotland	1,856	19.3	6	2.67
West England	377	20.4	na	na
Overall	11,765	19.9	148	2.32

3. Discussion

The 2010 Pink-footed Goose population estimate represents an 18.2% decrease since 2009. Coverage, particularly of the main sites, was good. Despite recent fluctuations in numbers, partly caused by fluctuations in coverage, notably so in 1995 and 2006, the long term population trend is one of continued increase. Breeding success remains fairly stable at *c.* 15-20% and is, presumably, more than compensating for annual deaths.

As in 2008 and 2009, Pink-footed Geese were early in reaching the UK in autumn 2010 with 23 recorded at Loch Leven on 31 August and 50 at Hule Moss on 9 September. There then followed arrivals of large numbers at several important sites, notably on the east coast of Scotland Loch of Strathbeg recorded 32,882 birds on 15 September and Montrose Basin held 10,000 birds on 20 October. This quickly increased to 65,060 Pink-footed Geese at Montrose Basin on 1 October a record for the site. The severe weather at the time of the early December count weekend clearly affected the distribution of Pink-footed Geese in the UK. The Solway Firth experienced a huge influx of nearly 50,000 geese as birds escaped the frozen waterbodies and extensive snow cover further north.

Breeding success in summer 2010 was average compared to the 2000-2009 mean (19.3%) and it therefore might have been expected that annual recruitment would have balanced annual losses through hunting and natural mortality. It is therefore highly surprising that the 2010 population estimate is *c.* 60,000 fewer than in 2008 and 2009, and it would seem, therefore, that the 2010 census is an undercount. Counts from 2006, and possibly the 2007, were also regarded as underestimates.

Examining the twenty population estimates between 1991 and 2010, there have been between year declines in eight years ranging from decreases of 4,354 Pink-footed Geese (between 2003 and 2004) to 72,651 (between 2005 and 2006). However, in only two years after each between year decline has the subsequent population estimate been larger than the estimate two years previously. This indicates that in the year(s) following a suspected underestimate, counts don't typically simply 'bounce back' to previous high counts. For example, in 1994 a then record of 260,500 Pink-footed Geese was counted. The following year, the population estimate fell to 200,300 (a decline of *c.* 60,000 geese). Numbers did not reach 260,500 until seven years later, when *c.* 274,600 was counted in 2003. Given this, it therefore seems possible that the occasional observed population declines of tens of thousands of birds may be real, and should not necessarily be treated as suspected underestimates. Winter 2009/10 was particularly harsh during January and early February (notably so in Scotland) with prolonged snow

cover and freezing temperatures. Over winter mortality may increase during prolonged periods of severe weather a feature of winter 2010/11 too. Time will tell how quickly, if at all, the population takes to recover to *c.* 350,000 and thus whether the 2010 population estimate is an underestimate or not.

Bag statistics from Iceland for 2010 suggest that *c.* 17,114 Pink-footed Geese were shot there during the autumn, a slight increase on the mean for the last five years (*c.* 15,284 geese, data from Wildlife Management Institute, Akureyri, Iceland). This suggests that it is unlikely that autumn hunting in Iceland accounted for the apparent low count in 2010. Unfortunately, meaningful bag statistics remain unavailable from the UK and Ireland, which makes interpreting changes in population dynamics all the more complicated, but it is likely that there was not a significant increase in hunting mortality there either.

More Pink-footed Geese were recorded in Iceland at the time of the October IGC count than normal (9,000; Arnór Sigfússon pers. comm.), however, the completeness of counts from Iceland remains difficult to ascertain as this species can remain dispersed at inaccessible areas at this time. Peak counts of Pink-footed Geese have occurred in November in one of the previous five years (in 2006), so the timing of the departure of the species from Iceland clearly varies year to year. It is possible, therefore, that in years when possible underestimates are recorded, such as 2006, large numbers may still be residing at inaccessible and uncounted areas of Iceland. However, whilst in 2006 the count total increased between October and November, suggesting a late departure of birds from Iceland and therefore probable underestimate, in 2010 there was no such increase between census months, which supports the suggestion that the decrease in total numbers was real, at least to some extent. Given the unpredictability over the timing of departure from Iceland, it is essential that coverage of sites holding Pink-footed Geese needs to be maintained in both October and November, and that count coverage in Iceland is improved.

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Goose & Swan Monitoring