

**WWT/JNCC/SNH Goose & Swan Monitoring Programme**  
**survey results 2016/17**  
**Pink-footed Goose *Anser brachyrhynchus***

## 1. Abundance

The 57th consecutive Icelandic-breeding Goose Census took place during autumn and winter 2016, providing information on the abundance and distribution of Greenland/Iceland Pink-footed Geese. A full account of the census can be found in Mitchell & Brides (2017). Counts were conducted by a network of volunteer observers and professional conservation staff over the weekends of 22/23 October and 19/20 November 2016. Coverage in the UK was good although lower than the preceding year, with 102 sites visited in October and 100 in November. Outside the UK, counts were made at several sites in Iceland during October, when some birds had yet to leave breeding areas.

Totals of 481,341 and 363,574 Pink-footed Geese were counted in October and November, respectively (Table 1). The total numbers counted in these months were 9.3% lower and 34.6% higher than the respective unadjusted counts in the previous year. Coverage was good and no estimated counts needed to be added to the total. The peak winter total in October was used to derive a population estimate of 481,341 geese. This represents a decrease of 10.3% since 2015 (Figure 1), when a record population size of 536,871 individuals was estimated.

A mass arrival of Pink-footed Geese into Britain occurred before the October 2016 count weekend. A fifth of the population had arrived in both East Central Scotland and Southwest Lancashire by the middle of the month. Only a 75% of the October count was recorded in November, with west England, for example, falling from holding a fifth of the October count total to just 8.8%

Table 1. *Regional distribution of Pink-footed Geese during October and November 2016 (nc = not counted, or no count received).*

<b>Region</b>	<b>October</b>	<b>November</b>
Iceland	8,000	nc
Faroe Islands	nc	nc
Ireland	nc	nc
North Scotland	68,848	41,660
Northeast Scotland	74,755	81,599
East Central Scotland	91,890	76,091
Southeast Scotland/northeast England	51,672	30,481
Southwest Scotland/northwest England	23,027	11,304

Region	October	November
West England	93,313	42,420
East England	69,836	80,019
<i>Total Counted</i>	481,341	363,574
<i>Estimated counts</i>	–	–
<i>Adjusted total</i>	481,341	363,574
<b>Population estimate</b>	<b>481,341</b>	

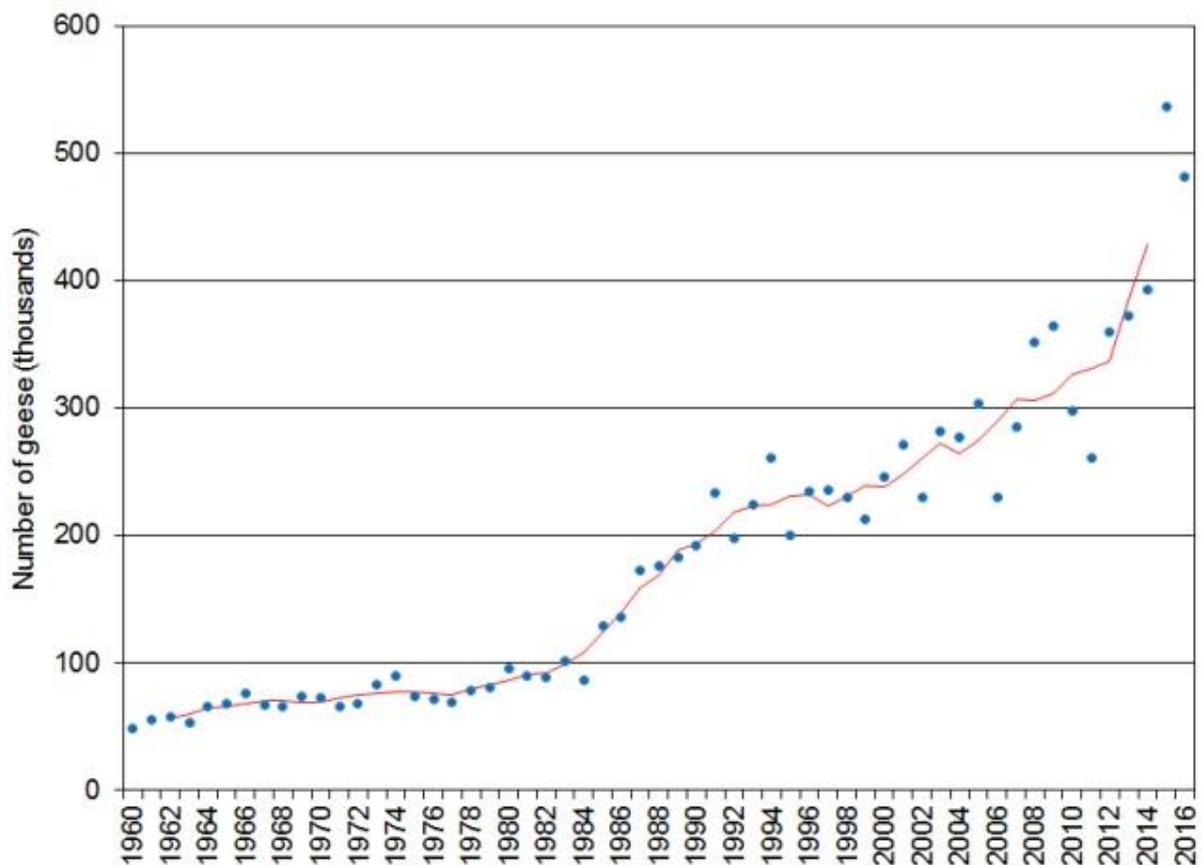


Figure 1. Annual census-derived estimates of Pink-footed Goose population size, 1960–2016. Five-year running mean shown as red line. (e.g. mean for 2014 is from population estimates for 2012–2016).

## 2. Breeding success

Between mid-September and late November, a total of 22,533 Pink-footed Geese, in 34 flocks, was aged at various localities throughout Scotland and England. This sample, expressed as a percentage of the 2016/17 census-derived population estimate, was 4.7%. The brood size of 592 families was also determined during this period.

Breeding success was similar to the mean for the previous decade, with 18.8% young (mean 2006–2015: 18.5%  $\pm$  1.2 SE) (Figure 2). The mean brood size of successful pairs was 1.75 juveniles, which was lower than the mean recorded during the previous ten years (mean 2006–2015: 2.09  $\pm$  0.06 SE).

Age counts were taken in several regions, but at different times during the autumn. This leads to differences in the percentage young and mean brood sizes recorded both spatially and temporally. Traditionally, all age counts have been collated and overall figure calculated, but the results from autumn 2016 suggest that there is some variation in age assessments both geographically and temporally and collating all the figures masks these differences.

Table 2. *The percentage of young and mean brood size of Pink-footed Geese in autumn 2016.*

Region	Time period	Total aged	Percentage of young (%)	Number of broods	Mean brood size
North Scotland	Early Nov	869	23.3	10	2.30
Northeast Scotland	Early Oct	1,500	26.2	48	1.94
	Late Oct	1,000	26.0	16	1.88
	Late Nov	500	21.2	3	1.67
	Late Oct	3,307	19.9	1	2.00
East Central Scotland	Early Nov	1,369	19.7	3	3.00
	Late Sept	4,346	15.2	20	2.05
West England	Early Oct	2,366	19.3	208	1.71
	Late Oct	3,329	18.2	172	1.69
East England	Late Oct	107	35.5	12	1.91
	Early Nov	3,840	15.2	99	1.68
<b>Overall</b>		<b>22,533</b>	<b>18.8</b>	<b>592</b>	<b>1.75</b>

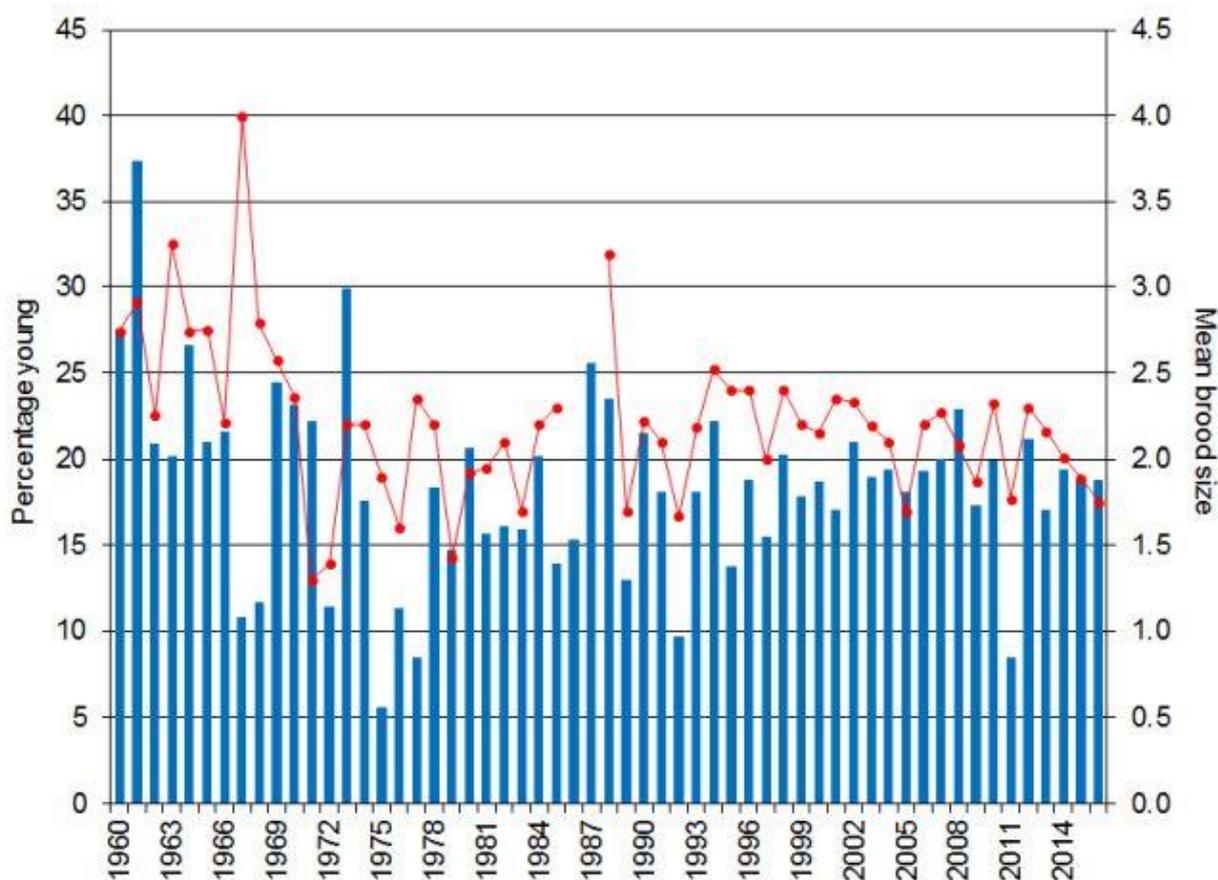


Figure 2. The percentage of young (blue columns) and mean brood size (red circles) of Pink-footed Geese, 1960/61–2016/17.

### 3. Discussion

There was an influx of large numbers of Pink-footed Geese into northern Britain in the weeks prior to the mid-October count weekend. The number of sites holding more than 1% of the 2016 population estimate (4,813 birds) was 30 in October and 21 in November revealing a breakup in the mass concentrations soon after arrival. Seventeen sites held over 10,000 birds in October, and 12 in November. Combined counts from the 30 sites exceeding 1% of the population estimate accounted for 89.0% of the total October count and numbers at the top five sites alone held 33.5% of the population estimate.

In October, high numbers were recorded at Montrose Basin, Angus, which held 42,840 birds (8.9% of the population estimate), Loch of Skene, Aberdeenshire (34,340, 7.1%), Beaully Firth, Highland (30,300, 6.3%), WWT Martin Mere, Southwest Lancashire, (30,050, 6.2%), the Alt Estuary, Southwest Lancashire (23,893, 5.0%), Solway Firth (22,927, 4.8%), Morecambe Bay, Southwest Lancashire (21,850, 4.5%), Hule Moss, Borders (15,900, 3.3%) and West Water Reservoir, Borders (15,300, 3.2%).

It is well established that some key wetland sites support higher numbers of geese soon after they arrive in northern Britain, and numbers decline as geese move south within Scotland or onto Lancashire and Norfolk. However, the low number counted in the November census (75% of the October count) was remarkable in how few birds were counted.

The 2016 population estimate of 481,341 was 10.3% lower than the figure for October 2015 (536,871) and the second highest population estimate ever recorded. Breeding success in 2016 was about average and, since in recent years it appeared to be compensating for annual mortality, it is likely that the 2016 population estimate was an underestimate, with more birds still in Iceland than counted. Assuming steady growth in the population the annual rate of increase since 1987 has been at about 3.0% per annum.

Pink-footed Goose breeding success in summer 2015, at 18.8%, was unremarkable and similar to the long-term average of 18.5% ( $\pm 1.22$  SE) over the most recent ten years. The average productivity was also confirmed by the proportion of young in the Iceland hunting bag; at 27.0%, this was just lower than the recent average (30.0%) for the ten year period 2006 to 2015 (A. Sigfússon *in litt.*). Hunting of Pink-footed Geese in Iceland appears stable with 13,661 shot there in 2015 (the year for which the most recent data are available). Unfortunately, no comparable data exist for the number shot in the UK.

Thus, it must be concluded that since 2009/10, the annual autumn IGC counts have probably underestimated the true number of Pink-footed Geese within the Iceland/Greenland population, apart from in 2015/16. The breeding range and abundance of Pink-footed Geese in Iceland and north and east Greenland have increased in recent decades, coincident with the population increase. However, it is apparent that the surveillance undertaken to track the population is markedly different to the situation up to the early 2000s. In some years since 2000, more roosts, that are not counted, are probably being used, and the timing of the IGC October count needs to be carefully chosen to avoid large number of birds remaining in Iceland. Pink-footed Geese tend to leave the highlands of Iceland once the first snow falls in late September. The timing of the departure from Greenland is largely unknown. Any change in the timing of early autumn snowfall, caused by climate change may be affecting the dates the geese arrive in the UK.

#### 4. Acknowledgements

As ever, thanks are extended to the many IGC counters who provided the basis of the population assessments. Of particular importance is the role of the Local Organisers. Goose count information was also provided by G. Gudmundsson and A. Sigfússon from Iceland. Ian Patterson and Lee Bailey kindly provided additional age counts.

#### 5. References

Mitchell, C. & K. Brides. 2017. *Status and distribution of Icelandic-breeding geese: results of the 2016 international census*. Wildfowl & Wetlands Trust/Joint Nature Conservation Committee Report, Slimbridge.

This report should be cited as:

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## Goose & Swan Monitoring