

WWT/JNCC/SNH Goose & Swan Monitoring Programme  
survey results 2015/16  
Pink-footed Goose *Anser brachyrhynchus*

## 1. Abundance

The 56th consecutive Icelandic-breeding Goose Census took place during autumn and winter 2015, providing information on the abundance and distribution of Greenland/Iceland Pink-footed Geese. A full account of the census can be found in Mitchell (2016). Counts were conducted by a network of volunteer observers and professional conservation staff over the weekends of 17/18 October and 14/15 November 2015. Coverage in the UK was good and similar to the preceding year, with 113 sites visited in October and 126 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 530,961 and 270,101 Pink-footed Geese were counted in October and November, respectively (Table 1). The total numbers counted in these months were 37.1% higher and 19.4% lower than the respective counts in the previous year. Coverage was good and only one estimated count needed to be added to the unadjusted total. The peak winter total in October was used to derive a population estimate of 536,871 geese. This represents an increase of 36.5% since 2014/15 (Figure 1), when a population size of 393,170 individuals was estimated.

A mass arrival of Pink-footed Geese into Britain occurred just before the October 2015 count weekend. A quarter of the population had arrived in both East Central Scotland and Southeast Scotland/Northeast England and just under a fifth in Southwest Lancashire by the middle of the month. Only a half of the October count was recorded in November, with Southeast Scotland/Northeast England, for example, falling from holding a quarter of the October count total to just 4%

Table 1. *Regional distribution of Pink-footed Geese during October and November 2015 (nc = not counted).*

<b>Region</b>	<b>October</b>	<b>November</b>
Iceland	8,000	nc
Faroe Islands	nc	nc
Ireland	nc	75
North Scotland	35,293	22,195
Northeast Scotland	75,277	70,841
East Central Scotland	132,370	77,795
Southeast Scotland/northeast England	133,158	21,212
Southwest Scotland/northwest England	16,409	6,976
West England	94,332	25,531
East England	36,122	45,476
<i>Total Counted</i>	530,961	270,101
<i>Estimated counts</i>	5,910	–
<i>Adjusted total</i>	536,871	270,101
<b>Population estimate</b>	<b>536,871</b>	

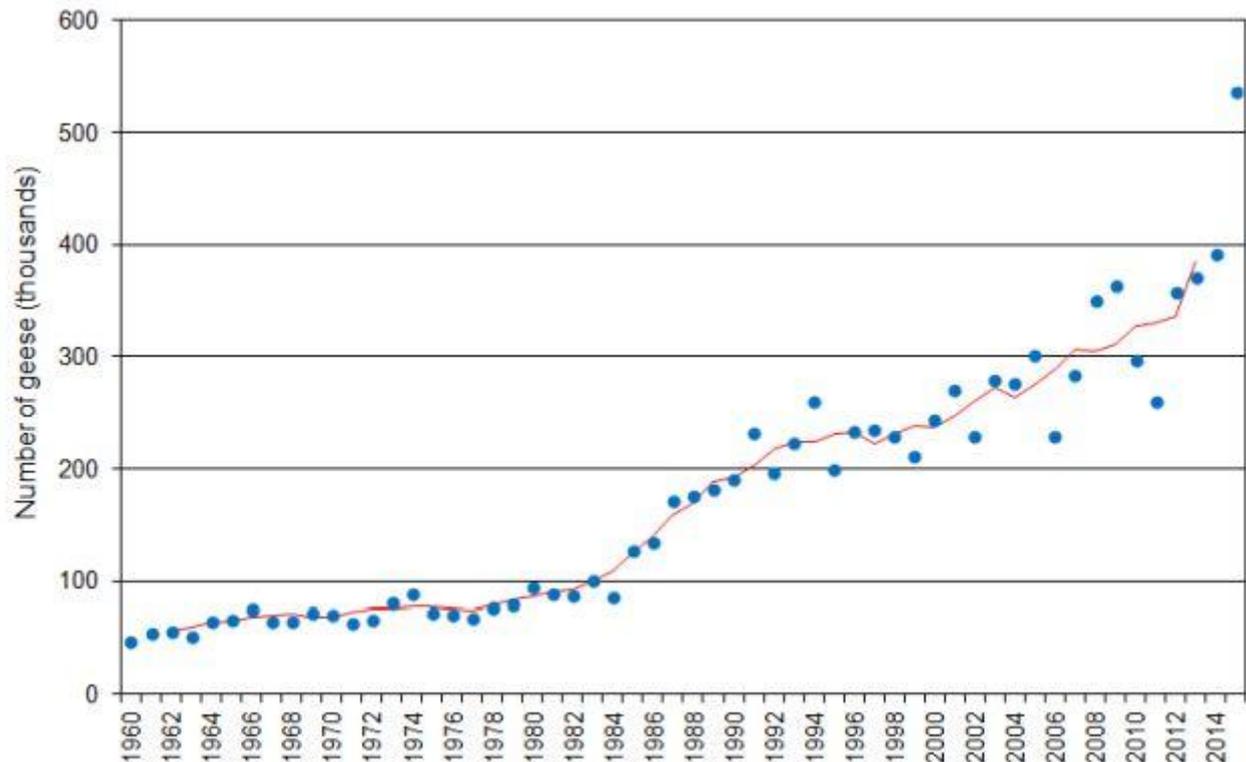


Figure 1. Annual census-derived estimates of Pink-footed Goose population size, 1960-2015. Five-year running mean shown as red line. (e.g. mean for 2013 is from population estimates for 2009-2013).

## 2. Breeding success

Between early September and early November, a total of 16,765 Pink-footed Geese, in 39 flocks, was aged at various localities throughout Scotland and west England. This sample, expressed as a percentage of the 2015/16 census-derived population estimate, was 3.1%. The brood size of 404 families was also determined during this period.

Breeding success was similar to the mean for the previous decade, with 18.8% young (mean 2005-2014:  $18.4\% \pm 1.22$  SE) (Figure 2). The mean brood size of successful pairs was 1.89 juveniles, which was also similar to the mean recorded during the previous ten years (mean 2005-2014:  $2.07 \pm 0.07$  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 2015 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 2014.*

<b>Region</b>	<b>Time period</b>	<b>Total aged</b>	<b>Percentage of young (%)</b>	<b>Number of broods</b>	<b>Mean brood size</b>
North Scotland	Late Oct	1,350	18.4	–	–
Northeast Scotland	Late Sep	1,000	27.1	36	2.33
	Early Oct	1,500	26.5	29	2.17
	Late Oct	1,000	19.8	5	2.20
	Early Oct	–	–	2	1.50
East Central Scotland	Early Oct	1,050	19.3	7	2.57
	Late Oct	4,300	17.2	10	2.70
Southwest Scotland	Late Sept	427	34.9	17	3.29
West England	Early Oct	3,400	12.6	181	1.67
	Early Nov	443	10.6	24	1.45
East England	Late Oct	2,295	20.3	93	1.77
<b>Overall</b>		<b>16,765</b>	<b>18.8</b>	<b>404</b>	<b>1.89</b>

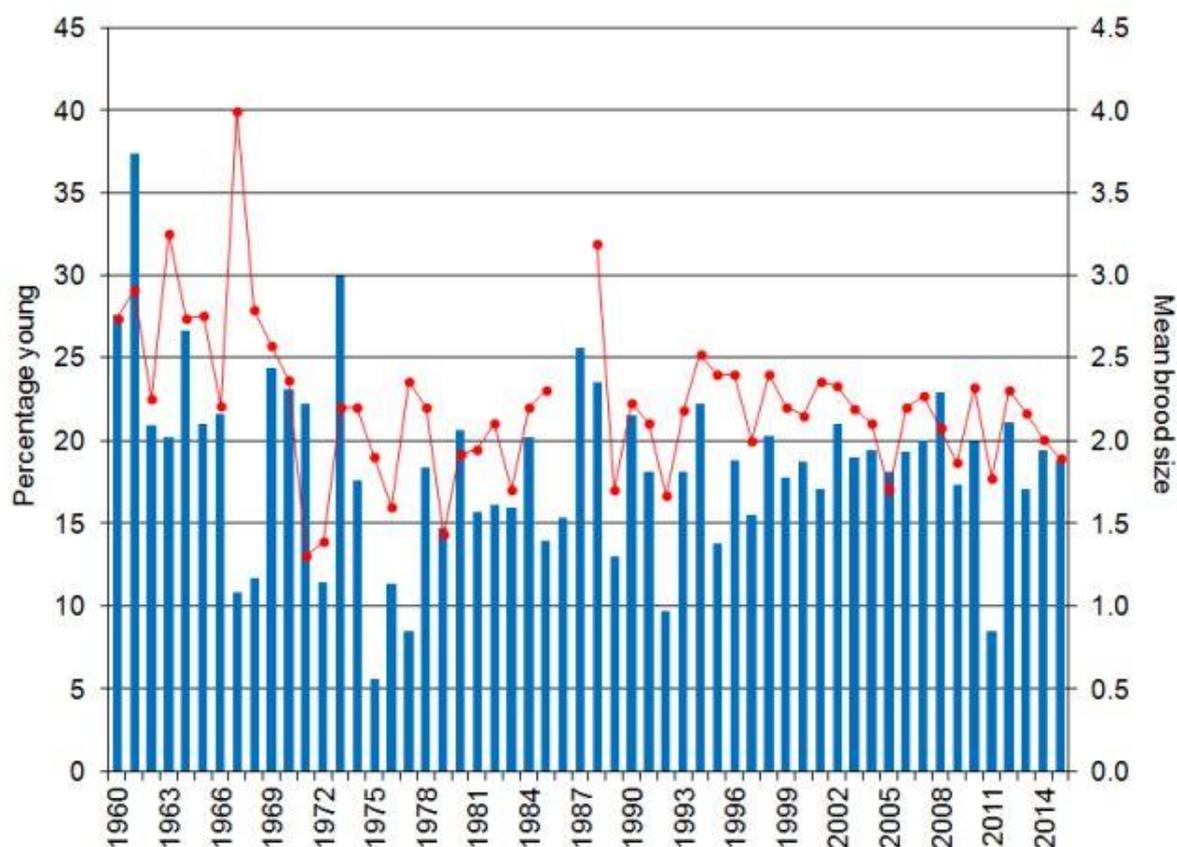


Figure 2. The percentage of young (blue columns) and mean brood size (red circles) of Pink-footed Geese, 1960-2015.

### 3. Discussion

Large counts at some of the principal resorts in mid-October 2015 suggested that there had been a mass arrival of Pink-footed Geese into Britain in the weeks prior to the count weekend. The count of 85,632 Pink-footed Geese at Montrose Basin, Angus, was the largest IGC count ever recorded at a single site and accounted for 16% of the entire population. West Water Reservoir, Borders held 82,920 birds on the same date. A total of 14 sites held over 10,000 geese at the time of the October census and 27 sites held over 5,000 birds. 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 (269,579, or 50% of the October count) was remarkable in how few birds were counted.

The 2015 population estimate of 536,871 was 36.5% higher than the figure for October 2014 (393,170) and, by far, the highest population estimate ever recorded. Breeding success in 2015 was about average and appears to be more than compensating for annual mortality. The 2015 population estimate confirms that the counts of autumn 2010 and 2011 underestimated the total number of geese in the population in those years. However, the increase of nearly 144,000 birds between 2014 and 2015 suggest that the most recent counts in 2012-2014 also probably underestimated the true number of birds in the population. 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 18.4% ( $\pm 1.22$  SE) over the most recent ten years. The average productivity was also confirmed by the proportion of young in the Iceland bag; at 26.9%, this was just lower than the recent average (28.2%) for the ten year period 2005 to 2014 (A. Sigfússon *in litt.*). Hunting of Pink-footed Geese in Iceland appears stable with 16,656 shot there 2014 (the year for which the most recent data are available). Unfortunately, no comparable data exist for the number shot in the UK. It would appear that sustained output of around 20% young per annum, and annual mortality probably static, in terms of the number of birds shot, is sufficient to fuel a steady increase in numbers.

The November 2015 count recorded only 270,101 birds, approximately half the number counted a month before. In the three years prior to 2015, the November count had been, on average, 83% of the October count. Poor weather, particularly around the Irish Sea on the weekend of the November count affected count conditions on the Solway Firth and probably at other western sites too, which may have led to undercounts. In Southwest Lancashire numbers fell from over 92,000 geese to 24,000 between October and November, a difference of nearly 70,000 birds. The number in Norfolk only increased by 15,000 birds so it is unlikely that those absent from Southwest Lancashire were there. Thus, undercounting on the Solway Firth and Southwest Lancashire in November is a very real possibility. In addition, recent telemetry data has identified a number of new roosts, including flooded areas close to rivers, that, due to their temporary nature, are not counted. Some Pink-footed Geese in November may have been using such roosts.

Alternatively, the October counts may have over-estimated the true number of Pink-feet in Britain. To this end, counters were asked to double check their count figures and typographical errors in the data entry were also checked. As far as is possible to tell, the high October count appears to be valid. Checks were made in Denmark and there was no evidence from marked birds, or ring-recoveries that there had been an influx of birds from the Svalbard population (J.Madsen *in litt.*). It is possible that in the years between 2009 and 2015, some Pink-footed Geese remained in Iceland, or even in east Greenland, at the time of the October counts, although information from hunters in the interior of Iceland in early October suggest that this is unlikely. The first snows in the interior of Iceland tend to occur in mid September, pushing the birds south, and GPS location data from marked Pink-footed Geese indicated that movements from East Greenland to Iceland were in early September and departure from Iceland was in the last days of September.

Thus, it must be tentatively 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. The breeding range and abundance of Pink-footed Geese in Iceland and north and east Greenland have increased in recent decades, confirming a 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 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.

In 2015, it would appear that for the first time since 2009/10, the vast majority of geese had left Iceland and they were concentrated at traditional roosts that are well covered by IGC. A combination that was conducive to the best population estimate possible.

## 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, and Helen Boland from Birdwatch Ireland from Ireland. Ian Patterson, Kane Brides and Larry Griffin kindly provided additional age counts.

## 4. References

Mitchell, C. 2016. *Status and distribution of Icelandic-breeding geese: results of the 2015 international census*. Wildfowl & Wetlands Trust/Joint Nature Conservation Committee Report, Slimbridge.

This report should be cited as:

WWT. 2015 *Goose & Swan Monitoring Programme: survey results 2015/16 Pink-footed Goose *Anser brachyrhynchus**  
WWT/JNCC/SNH, Slimbridge.

© Wildfowl & Wetlands Trust

All rights reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the copyright holder.

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