

# WWT/JNCC/NatureScot Goose & Swan Monitoring Programme survey results 2019/20

## Pink-footed Goose *Anser brachyrhynchus*

### 1. Abundance

The 60th consecutive Icelandic-breeding Goose Census took place during autumn and winter 2019, providing information on the abundance and distribution of Greenland/Iceland Pink-footed Geese. A full account of the census can be found in Brides *et al.* (2020).

Counts were conducted by a network of volunteer observers and professional conservation staff over the weekends of 19/20 October and 23/24 November.

Coverage across the flyway was excellent, with 153 sites visited in October and 154 in November. Outside Britain, counts were also received from Iceland and Ireland.

Totals of 500,928 and 357,507 Pink-footed Geese were counted in October and November, respectively (Table 1). The total numbers counted in these months were 13.6% higher than the October 2018 count and 8.0% lower than the previous November count. The October total was used as the updated population estimate (Figure 1).

During the October census, 15 sites held over 10,000 Pink-footed Geese. Combined counts from the 32 sites holding numbers exceeding 1% of the 2019 population estimate (5,009 birds) accounted for 81.5% of the total October count. The highest numbers were recorded at Montrose Basin, Angus, which held 66,575 birds (13.3% of the population estimate), Beaulieu Firth, Highland (26,000, 5.2%), Carsebreck and Rhynd Lochs, Perth & Kinross (24,000, 4.8%), Findhorn Bay (20,800, 4.2%) and Middlemuir, New Pitsligo Moss (18,200, 3.6%).

*Table 1. Regional distribution of Pink-footed geese during October and November 2019 (nc = not counted or no count received).*

Region	October	November
Iceland	7,500	20
Faroe Islands	–	–
Ireland	12	73
North Scotland	70,983	15,231
Northeast Scotland	77,826	95,855
East Central Scotland	153,348	68,897
Southeast Scotland/Northeast England	49,384	20,243
Southwest Scotland/Northwest England	20,452	17,515
West England	50,405	52,551
East England	71,018	87,114
Southwest England	nc	8
<i>Total Counted</i>	500,928	357,507
<b>Population estimate</b>	<b>500,928</b>	

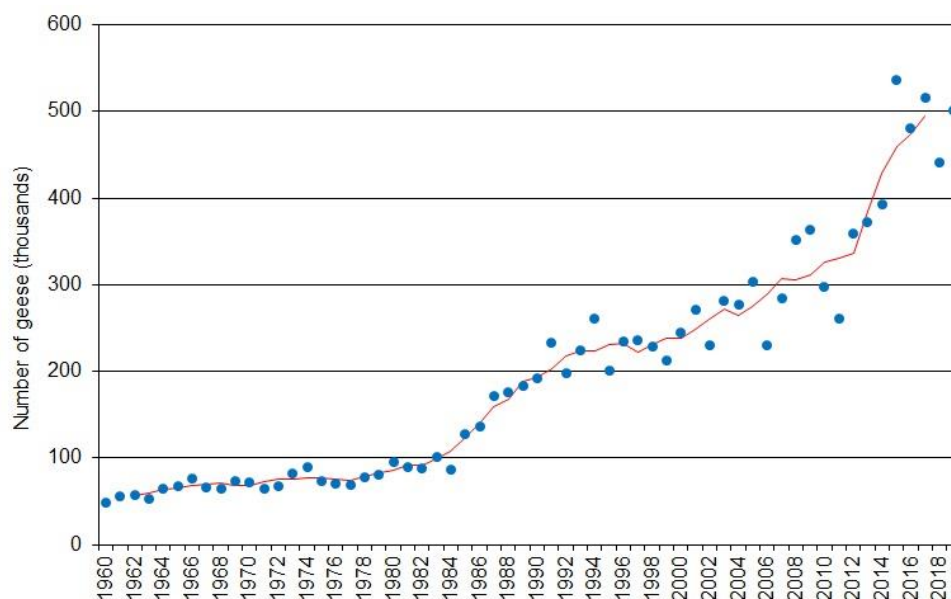


Figure 1. Annual census-derived estimates of the Greenland / Iceland Pink-footed Goose population size, 1960–2019. Five-year running mean shown as red line (e.g. mean for 2017 is from population estimates from 2015–2019).

## 2. Breeding success

Between late September and late October, a total of 15,992 Pink-footed Geese, in 21 flocks, were aged at various locations throughout Scotland and England (Table 2). This represented 3.1% of the 2019 population estimate. The brood size of 494 families was also determined during this period.

Breeding success was lower than the mean for the previous decade, with flocks containing 15.6% young birds (Figure 2) (mean 2009–2018: 17.6%  $\pm$  1.09 SE). The mean brood size of successful pairs was 1.98 juveniles, which is similar to the previous ten-year mean (mean 2009–2018: 1.99  $\pm$  0.66 SE).

Table 2. The percentage of young and mean brood size of Pink-footed Geese in autumn 2019.

Region	Time period	Total aged	Percentage of young (%)	Number of broods	Mean brood size
North Scotland	Late Sept	1,200	22.8	28	2.25
	Early Oct	500	21.6	1	2
	Late Oct	1,000	15.7	—	—
EC Scotland	Late Oct	6,700	14.8	18	—
W England	Late Sept	1,640	7.9	63	2.05
	Early Oct	3,392	14.4	247	1.93
	Late Oct	1,216	19.7	127	1.88
E England	Late Sept	153	38.6	3	3
	Early Oct	191	29.8	7	3
<b>Total</b>		<b>15,992</b>	<b>15.6</b>	<b>494</b>	<b>1.98</b>

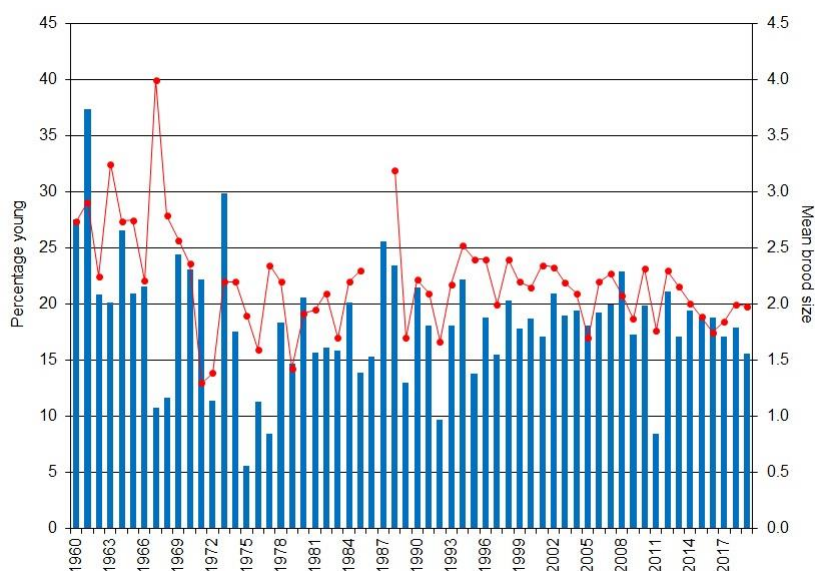


Figure 2. The percentage young (blue columns) and mean brood size (red circles) of Pink-footed Geese, 1960–2019.

### 3. Discussion

The 2019 Pink-footed Goose population estimate of 500,928 was 13.6% higher than the 2018 estimate (440,891) and is the third highest population estimate during 60 years of annual monitoring of this population (Figure 1). It is likely that the 2018 population estimate suffered from some degree of undercounting. It is possible that the lack of information regarding how many Pink-footed Geese were present in Iceland during October 2018, twinned with the potential for birds to be roosting at locations in Britain not covered as part of the census, could have contributed to the overall 2018 population estimate being too low. A concerted effort was made by colleagues in Iceland to count Pink-footed Geese in the country during October 2019. A different approach to previous years was taken whereby birders and members of the public were asked to report sightings of Pink-footed Geese during the time of the census. This this will be built upon in future censuses.

As with previous censuses, the use of GPS tracking data helped to identify potential roost sites not being covered by the census. During October and November 2019, counters were deployed to an additional seven locations thought to be holding roosting Pink-footed Geese. Five of the additional seven locations held Pink-footed Geese at the time of the census, combined counts from these locations in October and November equated to 2.8% (14,005 birds) and 2.6% (13,200) respectively, of the overall population estimate. GPS tracking data continue to provide useful information on roosting locations used by birds throughout the wintering range and will continue to be used to identify new roost sites that are not yet covered as part of the Icelandic-breeding Goose Census.

Interestingly, during winter 2019, two colour-marked Pink-footed Geese from the Svalbard/Northwest European population were sighted in Lancashire (S. Darbyshire pers. comm.). Whilst any interchange between the two populations is not thought to massively affect the overall population estimates, connectivity is known to occur from time to time (Madsen *et al.* 2014).

Overall, Pink-footed Geese wintering in Britain had an average breeding season during 2019, with 15.6% young recorded at wintering sites in Britain. This was lower than the previous year (22.6%) and lower than

the mean for the previous decade (mean 2009–2018:  $17.6\% \pm 1.09$  SE). The mean temperature ( $9.3^{\circ}\text{C}$ ) in Iceland in June 2019, was lower than the June temperature recorded in the previous five years (2014–2018;  $10.2^{\circ}\text{C}$ ; Tutiempo 2020), and it is possible that temperature and weather conditions in Iceland may have affected the 2019 breeding success to some degree.

The harvesting of Pink-footed Geese in Iceland has fluctuated between c.15,000–24,500 birds annually between 2008–2019 (at the time of writing, data for 2019 are preliminary) (Figure 3; Statistics Iceland 2020). During 2018, 24,352 Pink-footed Geese were reported shot in Iceland, this being higher than the previous ten-year mean (2008–2017: 17,129 birds  $\pm 8.41$  SE). Since the start of hunting bag reporting in Iceland, the average total bag for Pink-footed Goose has been 15,316 birds ( $\pm 7.23$  SE).

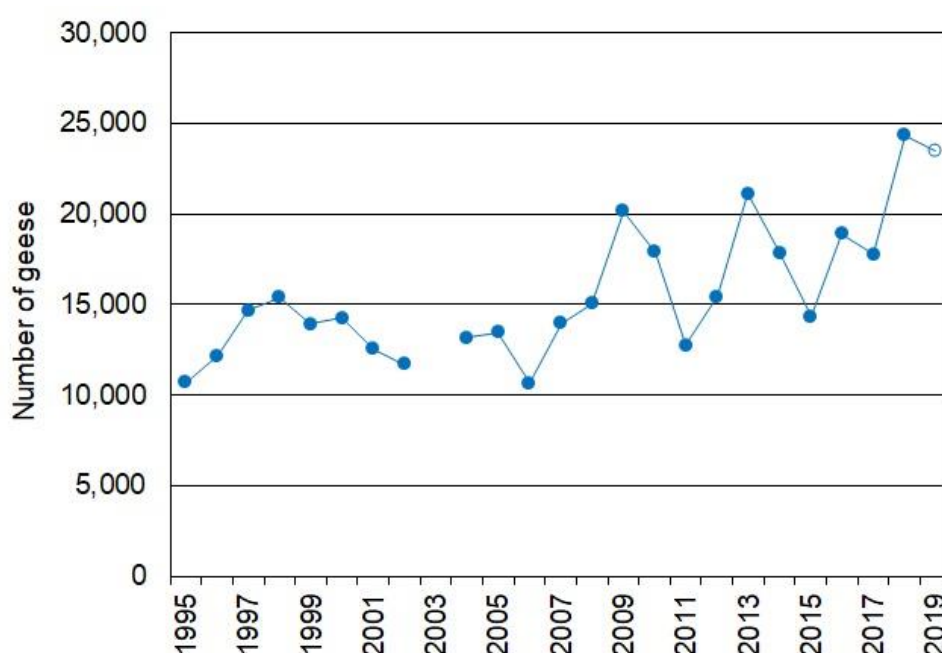


Figure 3. The annual number of harvested Pink-footed Geese in Iceland, 1995–2019. No data are available for 2003. Data for 2019 (unfilled circle) are preliminary (Statistics Iceland 2020).

#### 4. Acknowledgements

Many thanks go to the many IGC counters and Local Organisers who provided the basis of the population estimates. Thanks also go to those who contributed age assessment data.

#### 5. References

- Brides, K, C. Mitchell & S. N.V. Auhage. 2020. *Status and distribution of Icelandic-breeding geese: results of the 2019 international census*. Wildfowl & Wetlands Trust Report, Slimbridge. 19 pp.
- Madsen, J., R. Tjornlov, M. Frederiksen, C. Mitchell & A. Sigfusson. 2014. *Connectivity between flyway populations of waterbirds: assessment of rate of exchange, their causes and consequences*. Journal of Applied Ecology.

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## Goose & Swan Monitoring