

WWT/JNCC/NatureScot Goose & Swan Monitoring Programme survey results 2020/21

Pink-footed Goose *Anser brachyrhynchus*

1. Abundance

The 61st consecutive Icelandic-breeding Goose Census took place during autumn and early winter 2020, 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.* (2021) .

In Britain, counts were conducted by a network of volunteer observers and professional conservation staff over the weekends of 17/18 October and 21/22 November 2020. The additional three-yearly spring census, scheduled to take place in March 2021, was cancelled due to the various restrictions in place across Britain and Ireland as a result of the Covid-19 pandemic: this will, instead, take place in 2022. Outside of Britain, counts were also received from Iceland and Ireland. Coverage across the flyway was considered good, with 136 sites visited in October and 145 in November.

Totals of 485,509 and 373,515 Pink-footed Geese were counted in October and November, respectively (Table 1). The total numbers counted in these months, respectively, were 3.1% lower than the October 2019 count and 4.5% higher than the previous November count. The October 2020 total was used as the updated population estimate (Figure 1).

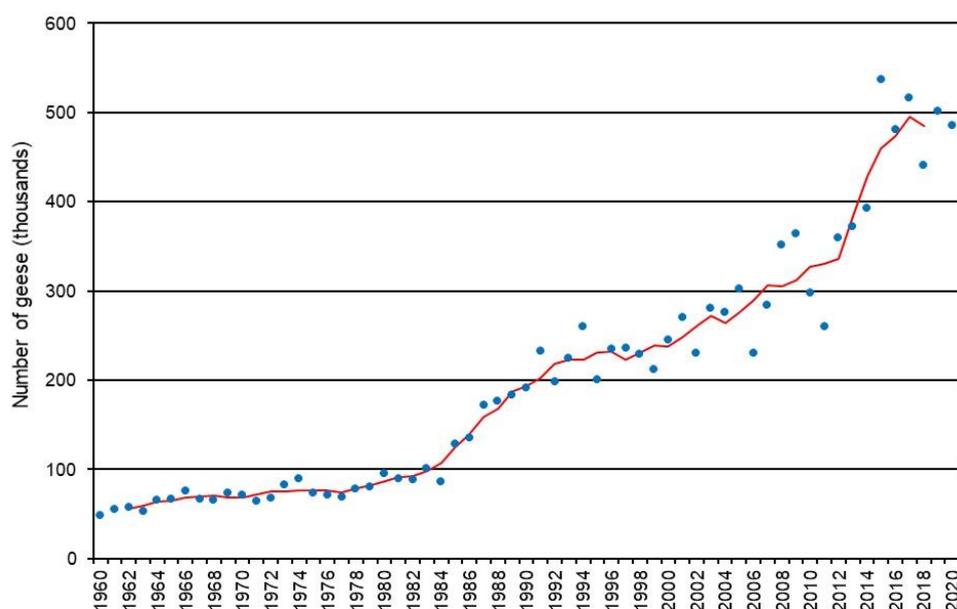


Figure 1. Annual census-derived estimates of the Greenland/Iceland Pink-footed Goose population size, 1960–2020. Five-year running mean shown as red line (e.g. mean for 2018 is from the population estimate from 2016–2020).

During the October census, 15 sites held more than 10,000 Pink-footed Geese. Combined counts from 27 sites holding numbers exceeding 1% of the 2020 population estimate (4,855 birds) accounted for 82.1% of the total October count. The highest numbers were recorded at Montrose Basin, Angus, which held 55,980 birds (11.5% of the population estimate), Alt Estuary, Merseyside (31,262, 6.4%), Read's Islands Flats, Humberside (30,000, 6.2%), Iceland (25,370, 5.2%) and Beaully Firth, Highlands (19,300, 4.0%).

Table 1. Regional distribution of Pink-footed geese during October and November 2020 (nc = not counted or no count received).

Region	October	November
Iceland	25,370	nc
Ireland	nc	161
North Scotland	46,684	28,708
Northeast Scotland	47,818	59,981
East Central Scotland	105,465	64,916
Southeast Scotland/Northeast England	86,492	39,747
Southwest Scotland/Northwest England	13,334	8,633
West England	88,837	52,527
East England	71,509	118,842
<i>Total Counted</i>	485,509	373,515
Population estimate	485,509	

2. Breeding success

Between mid-September and mid-December 2020, a total of 17,345 Pink-footed Geese in 28 flocks was aged at various locations throughout Scotland and England (Table 2). This represented 3.6% of the 2020 population estimate. The brood size of 453 families was also determined during this period.

Breeding success was lower than the mean for the previous decade, with flocks containing 15.4% young birds (Figure 2) (mean 2010–2019: 17.4% \pm 1.10 SE). The mean brood size of successful pairs was 2.37 juveniles, which is higher than the previous ten-year mean (mean 2010–2019: 2.00 \pm 0.06 SE).

Table 2. The percentage of young and mean brood size of Pink-footed Geese in autumn 2020.

Region	Time period	Total aged	% young	No. of broods	Mean brood size
EC Scotland	Mid-October	4,100	15	19	2.05
	Late October	2,000	12.8	7	2.14
	Mid December	2,050	16.3	9	2.00
NE Scotland	Mid-September	50	34	7	1.71
	Late September	500	33.4	30	2.10
	Early October	50	26	-	-
West England	Late September	570	16.5	8	2.38
	Early October	558	43.9	79	3.10

Region	Time period	Total aged	% young	No. of broods	Mean brood size
	Mid-October	2,303	18.5	64	2.53
	Early November	3,043	2.3	27	2.56
	Mid-November	783	12.6	47	2.11
	Early December	1,338	24.9	156	2.13
Total		17,345	15.4	453	2.37

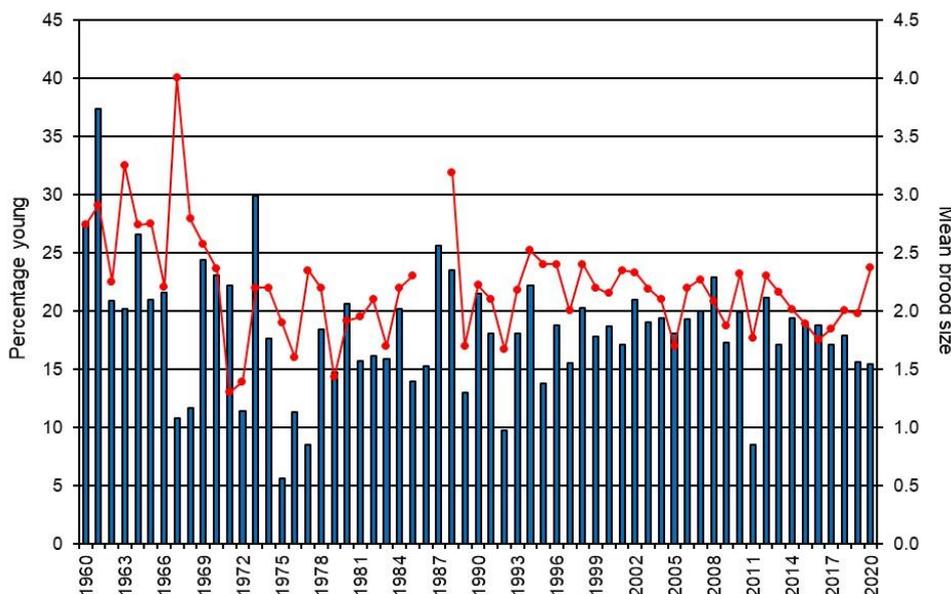


Figure 2. The percentage young (blue columns) and mean brood size (red circles) of Pink-footed Geese, 1960–2020.

3. Discussion

The 2020 population estimate of 485,509 Pink-footed Geese represents a decrease of 3.1% on the previous estimate of 500,928 birds. Although a slight decrease, the number is not too dissimilar to recent population estimates which have ranged between 440,891 (2018) and 536,871 (2015) in recent years. As breeding success and hunting pressure have remained stable over the years (Brides *et al.* 2020) and with no apparent demographic explanation for a decrease in numbers, it is possible that some birds were missed from the overall total. One explanation for the slight decrease in numbers is the possibility that a number of Greenland/Iceland Pink-footed Geese were outside the usual range of the population and therefore not included within the 2020 census.

Whilst it's not known how many individuals from the Greenland/Iceland population were on mainland Europe during the time of the October IGC, it is possible that birds migrating from Iceland were caught up in an area of low pressure over the southern North Sea named Storm Odette, which produced an extended period of disruptive winds, exceptional rainfall and notably cold temperatures to parts of the UK between 24–26 September 2020, with parts of Norfolk experiencing one of the longest duration of gales to affect the area during the past 30 years (Holley, 2021).

During October 2020, two colour-marked Pink-footed Geese, both ringed in England, were sighted in The Netherlands during the week of the October IGC census (Figure 3): both birds were reported in separate flocks of several hundred individuals. One individual, ringed in Norfolk in 2018, had previously been seen in

the UK (in Dumfries & Galloway) during winter 2019/20, suggesting that it is a regular wintering bird in the UK: it was sighted in The Netherlands on 10/10/2020. The second individual, which had not been seen in the UK since it was ringed at WWT Martin Mere in 2018, was sighted in The Netherlands on 12/10/2020, in Belgium on 13/11/2020 and 09/02/2021 and in Denmark on 03/03/2021. The sighting in Denmark is interesting as it suggests that this individual is likely to have joined the breeding population from Svalbard.

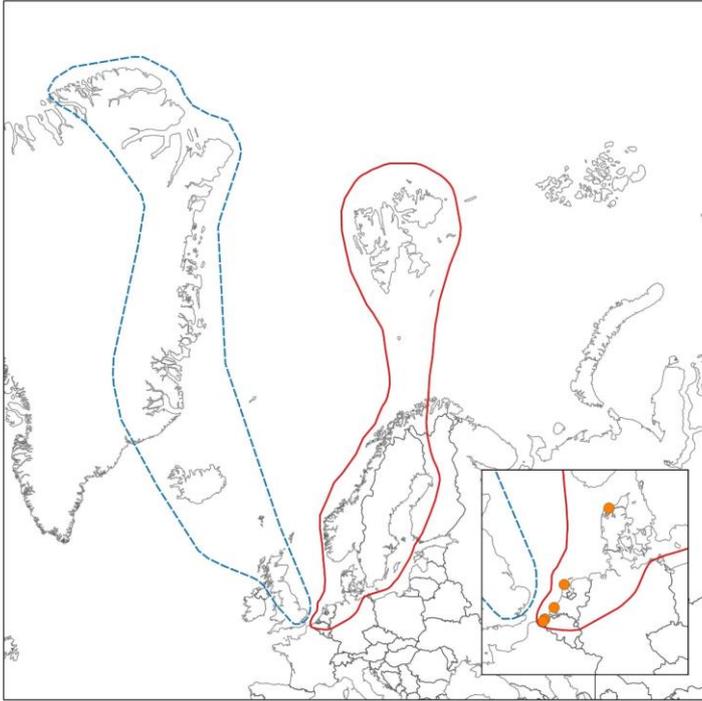


Figure 3. The population ranges of the Greenland/Iceland Pink-footed Goose (blue dashed line) and the Svalbard Pink-footed Goose (red line) with the re-sightings (orange dots) of the Pink-footed Geese colour-marked in England and sighted in Belgium, The Netherlands and Denmark during winter 2020/21 in the inner box (WWT unpublished data).

These interesting sightings come after colour-marked Pink-footed Geese from the Svalbard population were seen in the UK during the time of the 2019 IGC (see Brides *et al.* 2020). Whilst interchange between the two populations is known to occur from time to time (Madsen *et al.* 2014), it is not thought to massively affect the overall population estimates (Brides *et al.* 2020). Such sightings also reaffirm the importance of colour-marking and telemetry in population monitoring, as the use of these techniques provides valuable knowledge and insight into the connectivity that may occur between different populations.

During 2020, Pink-footed Geese wintering in Britain experienced a lower than average breeding season, with 15.4% young found in those flocks assessed; however, the mean brood size of successful pairs was slightly higher than the previous ten-year mean. It is possible that temperature and weather conditions in Iceland may have affected the 2020 breeding success to some degree: although the mean temperature (10.7°C) in northern Iceland in June 2020 was slightly higher than the June temperature recorded in the previous five years (2015–2019; 9.7°C; Tutiempo 2021), periods of prolonged wet weather could have contributed to a poorer breeding season.

4. Acknowledgements

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5. References

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Goose & Swan Monitoring