

The 2000 National Census of Pink-footed Geese and Icelandic Greylag Geese in Britain & Ireland

A Report to JNCC

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June 2002



SUMMARY

The 41st consecutive census of Pink-footed Geese and Icelandic Greylag Geese took place in Britain and Ireland during autumn and early winter 2000. Two discrete counts were undertaken and coverage of sites was good. Both counts were carried out under favourable weather conditions. Maxima of 242,419 Pink-footed Geese and 81,097 Greylag Geese were recorded in October and November, respectively. When adjusted to account for major sites that were not counted and numbers of UK Greylag Geese, population estimates of 245,349 Pink-Footed Geese and 80,324 Greylag Geese were derived. Both population estimates are greater than those calculated in 1999, although not directly comparable because the methods used to derive the adjusted population estimates are new. The Pink-footed Goose estimate represents an increase of 15.5% over the 1999 peak count and the Greylag Goose estimate an increase of 5.8%. Both species had a more successful breeding season than average: Pink-footed Goose flocks contained 18.7% young and mean brood size was 2.15 goslings per successful pair and Greylag Goose flocks contained 20.9% young and mean brood size was 2.48 goslings per successful pair. The average proportion of young between 1990-99 was 17.6% in Pink-footed Geese flocks and 16.7% in Icelandic Greylag Geese.

INTRODUCTION

The 41st consecutive census of Icelandic/Greenlandic Pink-footed Geese *Anser brachyrhynchus* and Icelandic Greylag Geese *A. anser* took place in Britain and Ireland during autumn and early winter 2000. The aim of this census is to estimate the size and monitor the distribution of these two goose populations. The methods used followed those of previous censuses, with two co-ordinated counts being undertaken; the first in early October and the second in early November. These are timed to coincide with the periods when these geese are most concentrated after their arrival from Iceland. Pink-footed Geese arrive earlier than Greylag Geese and are therefore usually best censused in October. The November count allows for the later migration of Greylag Geese to be completed. This report provides an overview of the results; more detailed data on individual sites or regions are available from WWT upon request.

METHODS

Counts were conducted by a network of volunteer counters over the weekends of 7/8 October and 4/5 November 2000. Most counts were of roosting geese, either undertaken at dusk when the birds are flighting in or at dawn as they depart to feeding areas. They were timed to coincide with the new moons, thus minimising the effects of night-time feeding by geese on the census totals. In a small number of areas where roost sites are poorly known, inaccessible or infrequently used, daytime counts of feeding birds were made. Experienced observers made assessments of the proportion of young (first winter birds; separable from birds older than one year by differences in plumage characteristics) in goose flocks and of brood size during the period 17 September to 24 November.

In this report, two types of adjustment were applied to the peak census total to generate population estimates. For regularly monitored sites not counted during the 2000 census, estimated counts were derived from the mean of the peak monthly count (October for Pinkfeet, November for Greylag) from the period 1995-99. These estimated counts were then added to the peak census total to give the adjusted population estimate. In addition, the Greylag population estimate was also adjusted to account for the number of UK Greylag Geese (i.e. birds from the Re-established or NW Scotland populations) believed to have been counted during the Grey Goose Census. These counts were subtracted from the relevant November count to give a more accurate estimate of the number of Icelandic Greylag Geese present during the Grey Goose Census. The implications of these methods are discussed later.

RESULTS

Coverage and weather conditions

A total of 150 sites was covered during the two counts: 111 of these were counted in both months, seven

only during October and 32 only in November. This is an increase of 6% on the number of sites covered by the 1999 survey. Two important Pink-footed Goose roost sites and four regularly monitored Greylag Goose roosts (including one that has supported >1.0% of the population in recent years) were not covered during the relevant peak count.

An additional 188 supplementary counts were received from 64 sites, including many of the major roost sites, most notably Aberlady Bay, Ballo Reservoir, Breydon Water, Carsebreck & Rhynd Lochs, Dupplin Loch, Hule Moss, Humber Estuary, Loch Garten, Loch of the Lowes, Loch Spynie, the north Norfolk roosts, Upper Cowgill Reservoir and West Water Reservoir. Late-summer estimates of the number of UK Greylag Geese were received from four locations, including the key sites of Lough Swilly and Orkney.

Weather conditions and disturbance levels were generally reported by counters as good and are not considered to have appreciably affected the census results. The new moons were on 13 October and 11 November. Low counts were reported from a total of 22 sites during both counts, mainly due to the arrival of geese during dusk counts when it was too dark to accurately count the birds. Five of these were in October and of these, three held key concentrations of Pinkfeet (Lake of Menteith, Aberlady Bay and Dupplin Loch). A further 17 low counts occurred during November, two at sites that support important numbers of Greylag Geese (Loch of Lintrathen and the River Tay at Bloody Inches).

Total Numbers

Census totals are illustrated in Figure 1 and detailed regional count totals are shown in Table 1.

Pink-footed Goose

The October census total of 242,419 is an increase of 29,926 birds (14.0%) on the previous years peak census (Hearn 2000). Two key Pinkfoot roosts were not counted during October 2000. Estimated counts were derived for these sites thus: Holburn Moss, Northumberland, 1600; Horsey Mere/Heigham Holmes, Norfolk, 1330; although in the case of Horsey Mere/Heigham Holmes counts were only available for two years (1998 and 1999), as this is a relatively new roost. The adjusted population estimate is therefore 245,349, an increase of 32,856 birds (15.5%) on the previous years peak census (Hearn 2000). However, this rate of increase is believed to be unrepresentative due to an undercount during the previous peak census (November 1999). During November 2000, 177,479 Pinkfeet were counted, representing 73.2% of the October census total.

Greylag Goose

The November census total of 81,097 is an increase of 5,231 birds (6.9%) on the previous peak census in November 1999 (Hearn 2000). In addition, estimated counts were derived for four sites not counted during 2000 and four sites where estimates of the number of UK Greylags were available. The four sites where no counts were made were as follows: Isle of Bute, 997; Dowlaw Dam, 500; Threave Estate, 236; Lochwinnoch, 66. The four sites with estimates of UK Greylag Geese were: Orkney Isles consolidated (1,500), Lough Swilly (600), Marlee Loch (275) and the Upper Tay (197). These adjustments gave a population estimate $81,097 + 1,799 - 2,572 = 80,324$ (see Table 1), an increase of 4,458 birds (5.8%) over the previous census.

However, this rate of increase is not thought to reflect the true degree of change in population size as it is affected by differences in coverage and calculation with the previous estimate. Principally, counts from Shetland were included for the first time in 2000 and a count was also received from Loch Garten for the first time since 1997. These two sites alone held 4.4% of the peak census.

Counts suggested that the arrival of Greylags into Britain during autumn 2000 was a little later than usual, with just under one third of the November census (25,251) recorded during October. After including estimates of UK Greylag Geese, this falls to an estimate of 23,476 Icelandic Greylag Geese present during October. However, note that the timing of each census is not completely synchronous with previous censuses, as it is based mostly on the phase of the moon.

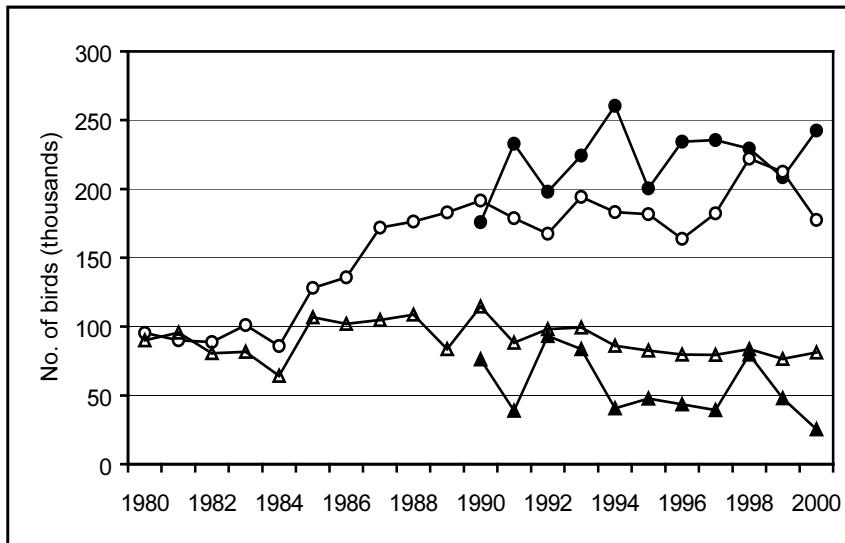


Figure 1. The number of Pink-footed Geese (circles) and Icelandic Greylag Geese (triangles) recorded during October (filled) and November (open) in Britain & Ireland since 1980.

Table 1. The regional distribution of Pink-footed Geese and Icelandic Greylag Geese in Britain & Ireland during October and November 2000. Figures in square brackets show adjusted totals.

Region	October			November		
	Sites	Pinkfoot	Greylag	Sites	Pinkfoot	Greylag
Ireland	0	nc	nc	7	0	2,489 [-600]
Shetland	0	nc	nc	6	0	906
Orkney	11	613	8,586 [-1,500]	10	23	15,914 [-1,500]
Caithness+	1	1,534	323	1	0	8,326
Sutherland	2	0	1,790	2	1	908
Ross & Cromarty	9	2	2,202	10	191	9,981
Inverness/Nairn	1	0	0	2	0	181
Badenoch & Strathspey	0	nc	nc	1	0	2,700
Moray	2	350	92	2	13,500	6,120
Banff & Buchan	1	42,615	0	1	25,046	676
Gordon/Aberdeen	3	23,754	5,437	3	5,972	10,854
Kincardine & Deeside	1	0	220	1	0	2,820
Angus/Dundee	5	33,434	227	5	14,436	954
Perth & Kinross	14	51,840	2,051 [-275]	17	16,674	6,954 [-472]
Stirling/Falkirk/Clackmannan	5	6,850	9	6	2,037	444
Fife	23	4,410	573	22	8,930	2,479
Argyll & Bute	2	0	0	3 [1]	0	430 [+997]
Glasgow area*	2	3	1,205	4 [1]	0	2,710 [+66]
Clydesdale	1	110	0	1	300	0
Stewartry/Wigtown	4	276	1,039	4 [1]	578	494 [+236]
Annan & Eskdale/Nithsdale**	1	2,541	283	1	1,269	105
East/Mid Lothian	7	14,040	208	6	9,421	40
Edinburgh/West Lothian	2	1	134	2	1	401
West Borders/Tweeddale/East Borders***	12	41,530	524	10 [1]	13,124	1,598 [+500]
NE England	5 [1]	151 [+1,600]	348	8	5,595	2,613
Humberside	1	1,310	0	1	2,700	0
Cumbria**	1	0	0	1	0	0
Lancashire & Merseyside+	1	16,885	0	1	12,305	0
Lincolnshire	0	nc	nc	0	nc	nc
Norfolk	1 [1]	170 [+1,330]	0	5	45,376	0
Total	118 [120]	242,419 [245,349]	25,251 [23,476]	143 [147]	177,479	81,097 [80,324]

* includes Bearsden & Milngavie, Clydebank, Cumbernauld & Kilsyth, Cumnock & Doon Valley, Cunninghame, Dumbarton, East Kilbride, Eastwood, Glasgow City, Hamilton, Inverclyde, Kilmarnock & Loudoun, Kyle & Carrick, Monklands, Motherwell, Renfrew and Strathkelvin

** for convenience, counts from the Solway Firth are included in the Annandale & Eskdale/Nithsdale total even though some birds roost and feed on the Cumbrian side of the estuary

*** includes Ettrick & Lauderdale, Roxburgh and Berwickshire

+ several feeding sites consolidated

nc no count received

Regional Distribution

The regional distribution of geese during the two censuses is summarised in Table 2 and illustrated in Figures 2, 3 and 4.

Table 2. Gross regional distribution of Pink-footed Geese and Icelandic Greylag Geese in Britain & Ireland during October and November 2000, expressed as a percentage of the maximum count for each species.

Area*	Pink-footed Goose		Greylag Goose	
	October	November	October	November
Ireland	0.0	0.0	0.0	3.1
North Scotland	0.9	0.1	15.9	48.0
Northeast Scotland	27.5	18.4	7.1	25.2
East Central Scotland	39.8	17.3	3.5	13.4
Southeast Scotland/North-east England	23.0	11.6	1.5	5.7
Southwest Scotland/North-west England	1.2	0.9	3.1	4.6
West England	7.0	5.1	0.0	0.0
East England	0.6	19.8	0.0	0.0
Total	100.0	73.2	31.1	100.0

* areas defined as follows:
 Ireland: all regions
 North Scotland: Shetland, Orkney, Western Isles and Highland
 Northeast Scotland: Grampian (Aberdeenshire & Moray)
 East Central Scotland: Tayside (Perth & Kinross), Central (Stirling) and Fife
 Southeast Scotland/Northeast England: Lothian, Borders and Northumberland
 Southwest Scotland/Northwest England: Strathclyde, Dumfries & Galloway and Cumbria
 West England: Lancashire and Merseyside
 East England: Humberside, Lincolnshire and Norfolk

Pink-footed Goose

Pink-footed Geese displayed a typical distribution during the two counts in 2000. In October, key concentrations were in Northeast Scotland, East Central Scotland, Southwest Scotland/Northwest England and, to a lesser extent, West England. In November, they remained concentrated in the three main Scottish regions, but with a much larger proportion further south in East England.

Greylag Goose

The autumn distribution of Greylag Geese during 2000 was also similar to recent years. A low proportion of the population was present during the October census, but those birds found were typically in usual arrival areas, namely North and Northeast Scotland. By November, both the number of birds and the proportion of the peak count had increased in both of these regions and, in addition, key concentrations were also found further south in East Central Scotland.

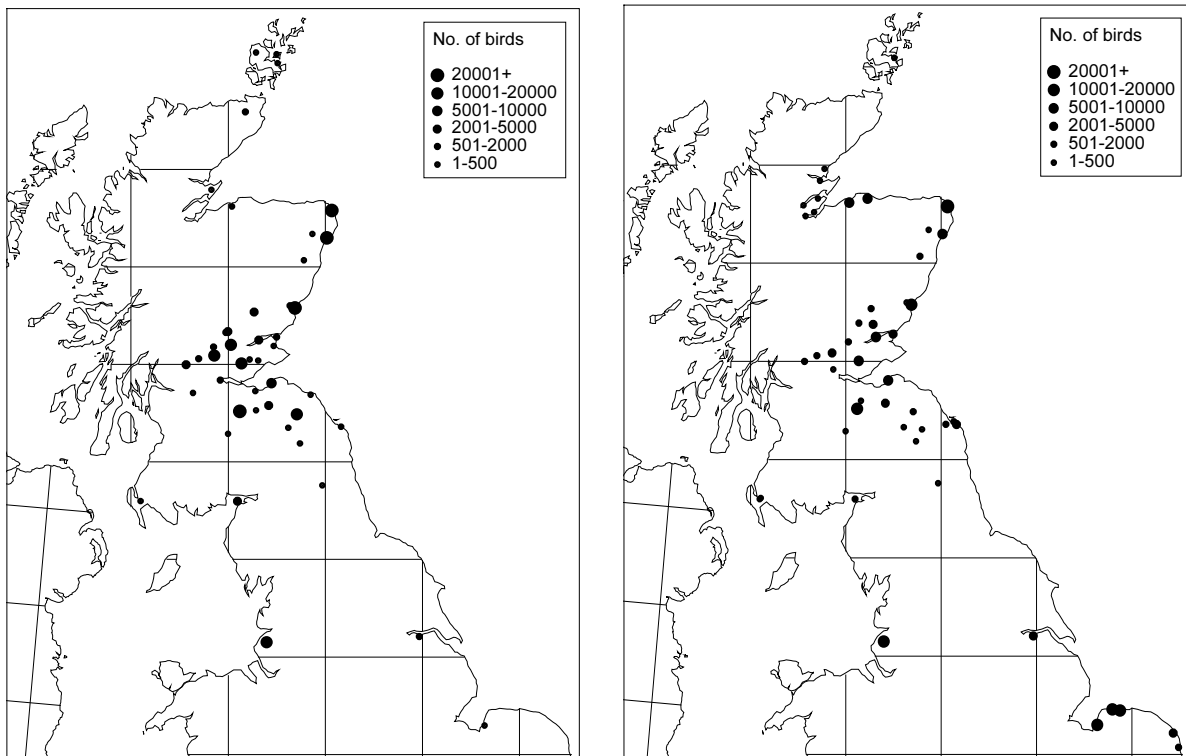


Figure 2. The distribution of Pink-footed Geese counted in October (left) and November (right) 2000.

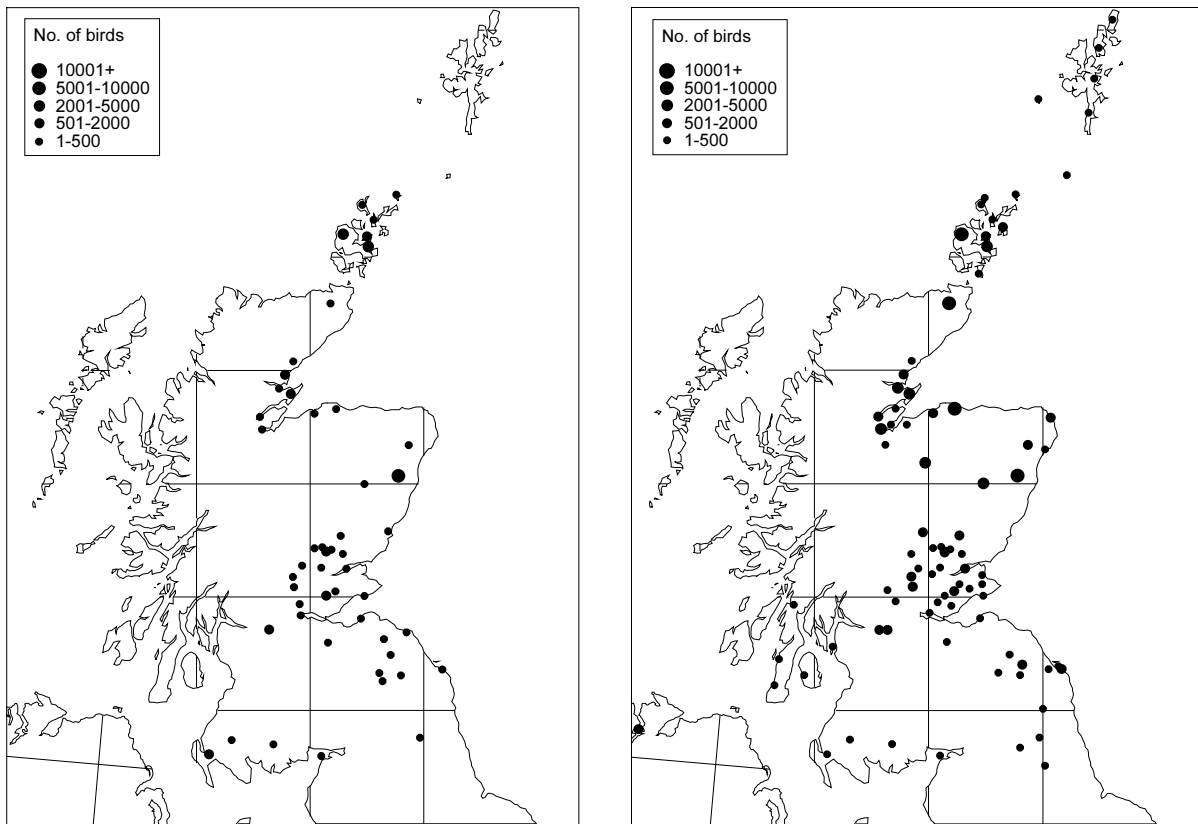


Figure 3. The distribution of Icelandic Greylag Geese counted in Scotland and northern England during October (left) and November (right) 2000.

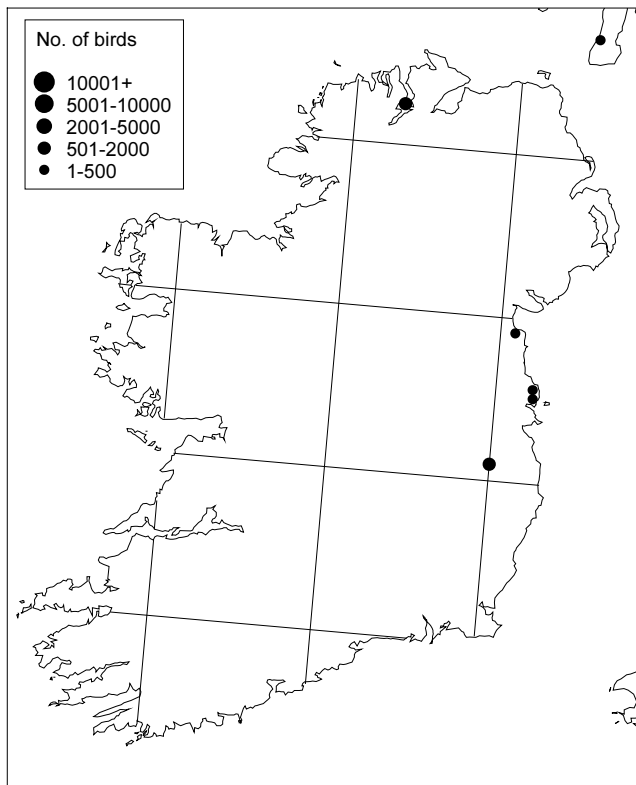


Figure 4. The distribution of Icelandic Greylag Geese counted in Ireland during November 2000.

Principal Concentrations

All sites that supported more than 1% of the Pink-footed Goose or Greylag Goose peak census total for 2000 are shown in Table 3.

Pink-footed Goose

During October, Pinkfeet were reported from a total of 46 sites, of which 39 held more than ten birds. Fifteen of these held greater than 1% (2,424 birds) of the October census total and nine supported more than 10,000 birds (Table 3). More than 40% of the October census total was recorded from three of these sites: Loch of Strathbeg (42,615), Montrose Basin (29,922) and West Water Reservoir (26,500). In November, Pinkfeet were typically found at slightly more sites, 50 in total, of which 43 held more than ten birds. Twenty held more than 1% of the October census total, with 10,000 or more birds counted at seven of these. The top four sites held 28% of the census total: Loch of Strathbeg (25,046), Snettisham (17,050), Holkham Bay (13,750) and South-west Lancashire (12,305). In total, Pinkfeet were recorded at 66 sites during both counts, one more than the previous year.

Both of the top two sites in October held more than average numbers of Pinkfeet (Table 3, column C). Other atypically large counts were reported from Meikle Loch and Lake of Menteith. Numbers at Dupplin Loch and the Solway Firth continue to decline, while low counts were also reported from South-west Lancashire and the Inner Firth of Tay.

Away from the census period, a peak of 82,100 was counted at the north Norfolk roosts on 2 January 2001. For the first time, this included a fourth roost site, although its precise location is confidential at the request of the counters. A further 1,120 were counted on that date at Berney Marshes, in east Norfolk, giving an all-Norfolk peak of 83,220 (34% of the October census total). It is likely that additional birds were in the Horsey/Heigham area as well. Later in January 2001, 5,500 were recorded at Berney Marshes.

Table 3. Principal Pink-footed Goose and Icelandic Greylag Goose resorts in autumn 2000. Columns show all counts from sites holding $\geq 1\%$ of the 2000 peak census total for each species (A), the site count as a percentage

of the peak census total (B), the site count as a percentage of the mean 5-year peak count (C), and 5-year peak mean count (D). 5-year peak mean counts are calculated using all available count data (WeBS, Grey Goose Census and additional counts), thus may appear larger than counts recorded in the autumn by this census.

PINK-FOOTED GOOSE

October census total	242,419			
	A	B	C	D
Loch of Strathbeg	42,615	17.6	121	35,256
Montrose Basin	29,922	12.3	112	26,713
West Water Reservoir	26,500	10.9	78	33,974
Meikle Loch, Slains	23,500	9.7	138	17,000
South-west Lancashire	16,885	7.0	55	30,748
Carsebreck and Rhynd Lochs	16,500	6.8	109	15,192
Dupplin Loch	15,000	6.2	50	30,236
Hule Moss	14,700	6.1	87	16,826
Loch Leven	14,700	6.1	100	14,646
Aberlady Bay	8,630	3.6	94	9,208
Fala Flow	4,910	2.0	91	5,412
Lake of Menteith	4,500	1.9	263	1,713
Loch Tullybelton	4,050	1.7	82	4,962
Inner Firth of Tay	3,165	1.3	56	5,675
Solway Estuary	2,541	1.0	25	10,048

GREYLAG GOOSE

November census total	81,097			
	A	B	C	D
Orkney (all sites)	15,914	19.6	103	15,392
Loch of Skene	9,660	11.9	97	9,947
Caithness	8,326	10.3	95	8,730
Loch Spynie	5,500	6.8	117	4,700
Beaully Firth	2,980	3.7	343	869
Dinnet Lochs	2,820	3.5	20	13,898
Loch Garten	2,700	3.3	190	1,418
Loch Eye	2,639	3.3	51	5,155
Gadloch/R. Kelvin feeding sites	2,500	3.1	196	1,274
Dornoch Firth	2,386	2.9	96	2,486
Lough Swilly	1,674	2.1	94	1,783
Marlee Loch	1,250	1.5	86	1,449
Sites in Upper Tay	1,189	1.5	117	1,019
Inner Cromarty Firth	1,151	1.4	136	845
Inner Firth of Tay	1,116	1.4	67	1,672
Haddo Country Park	1,100	1.4	74	1,496
Drummond Pond	1,075	1.3	66	1,636
Lindisfarne NNR	1,050	1.3	130	810
Carsebreck and Rhynd Lochs	955	1.2	130	736
Loch of Lintrathen	905	1.1	34	2,651
Loch Fleet	900	1.1	58	1,539

Greylag Goose

During October 2000, Greylag Geese were found at typical arrival sites in north and central Scotland, although the proportion of the November census total present (31%) was below average (mean 1996-2000: 59%). In all, they were reported from a total of 51 sites (including seven in Orkney), of which 45 held more than ten birds. Taking Orkney as a consolidated site (as birds there are counted at feeding sites), five of these held more than 1% (810 birds) of the November census total: Orkney (8,586), Loch of Skene (5,375), Loch Fleet (1,700), Loch Eye (1,550) and Gadloch (1,205). Unusually, Caithness supported very few geese at this time; just 323 birds were counted during October 2000, or 4.9% of the mean October count for 1996-00 (6,535). By comparison, the October count at Gadloch, north Glasgow, was the largest recorded to date and, although not unprecedented, was noticeably higher than the recent average (mean for October 1996-00: 818).

By November, Greylags were found at 89 sites (including nine in Orkney), of which 87 held more than ten birds. Again taking Orkney as a consolidated site, 21 sites supported more than 1% of the November census total and four held more than 5,000 birds (Table 3), totalling 49% of the census total: Orkney (15,914), Loch of Skene (9,660), Caithness (8,326) and Loch Spynie (5,500). In all, Greylags were recorded at a total of 95 sites during both counts (of which nine were in Orkney), 13 more than the previous year. Much of this increase is due to the inclusion of Shetland for the first time, where six sites were counted.

During the November count, much higher than normal were recorded at the Beaully Firth, Loch Garten and Gadloch and the River Kelvin feeding sites. Notable counts were also made at Loch Spynie, the Upper Tay, Carsebreck and Rhynd Lochs and Lindisfarne NNR. In contrast, the number of Greylags at Dinnet Lochs was low for the third consecutive year. Just 2,820 were present during the November count (20% of the mean peak count for 1996-00), although a count of 4,560 was made shortly after the census. Other low counts were recorded at Loch of Lintrathen, Loch Eye and Loch Fleet. The low count at Loch Eye does not reflect the overall number of Greylags in the Inverness area, as higher counts were recorded at nearby coastal roosts, such as the Beaully and Inner Cromarty Firths, and this is a reflection of the increasing use being made of coastal roosts by Greylags in this area.

Breeding Success

Totals of 21,074 Pink-footed Geese and 4,256 Greylag Geese were aged at various localities throughout Scotland and England between 17 September and 24 November. In addition, brood sizes were collected for 368 broods of Pinkfeet and 31 broods of Greylag Goose. Pink-footed Goose flocks contained 18.7% young and the average brood size of successful pairs was 2.15 goslings. In comparison, Greylag Goose flocks contained 20.9% young and the average brood size was 2.48 goslings per successful pair (Table 4). These estimates were within the typical range shown during the last decade. The average proportion of young in Pink-footed Geese flocks between 1990-99 was 17.6% and in Icelandic Greylag Geese it was 16.7% (Figure 8). Average brood size during the same period was 2.21 and 2.47, respectively (Figure 9).

Most Pinkfeet were aged in Northeast and East Central Scotland and only in the former region was the sample spread throughout the autumn period (Figure 5). The temporal range in other regions was limited, most birds being aged during the first half of October. This difference, with Northeast Scotland being the only region where more than a handful of birds were aged during late September, may account for the slightly higher than average proportion of young recorded in that region, as this is known to vary temporally; the proportion of young birds decreases as the autumn progresses (Figure 6). However, this region still supported a slightly greater proportion of young Pinkfeet when the sample period was standardised to early October, the period when most data were collected (Figure 7).

The overall estimate of productivity for Pinkfeet is also affected by the lower proportion of young found in East England. Small sample sizes mean that it is not possible to test this statistically, but it is clearly much lower than all other samples. Excluding this region, the overall proportion of young Pinkfeet was 19.6%.

Table 4. The proportion of young and mean brood size of Pink-footed and Greylag Goose flocks in autumn 2000 (regions defined in Table 2).

	Region	Total aged	% young	No. of broods	Mean brood size
Pink-footed Goose	North Scotland	477	17.0	2	3.5
	Northeast Scotland	8,677	22.6	240	2.2
	East Central Scotland	5,876	17.1	21	2.2
	Southeast Scotland	1,473	17.9	0	-
	West England	3,041	16.9	87	2.1
	East England	1,530	7.9	18	1.7
	Total		21,074	18.7	368
Greylag Goose	North Scotland	2,772	22.3	15	2.5
	Northeast Scotland	1,484	18.3	16	2.4
	Total	4,256	20.9	31	2.48

Figure 5. The temporal distribution of Pink-footed Goose age samples in each region during autumn 2000. Periods: S2 = late September, O1 = early October, O2 = late October, N1 = early November, N2 = late November (regions defined in Table 2).

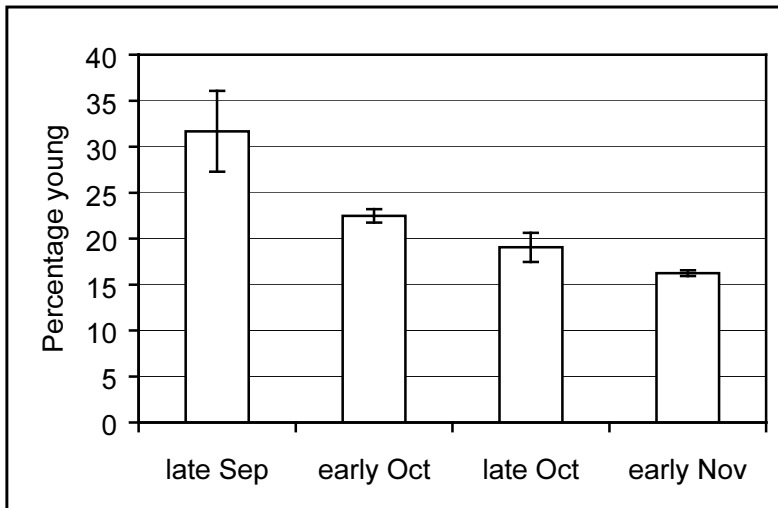
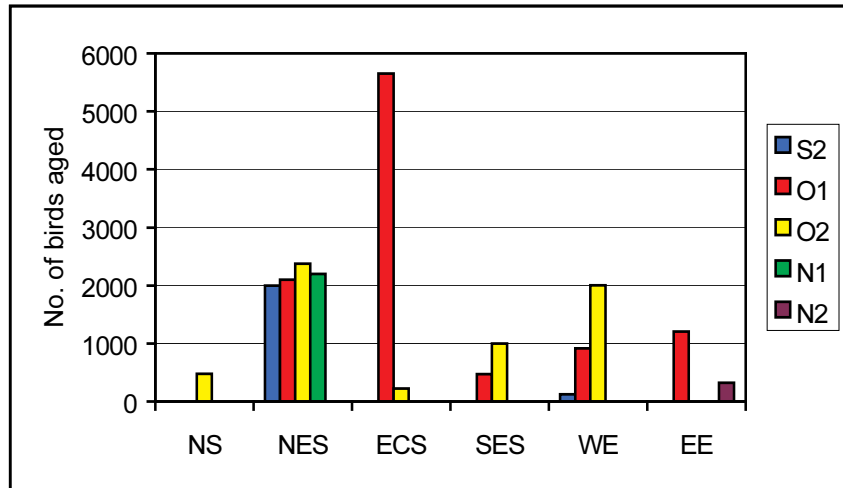
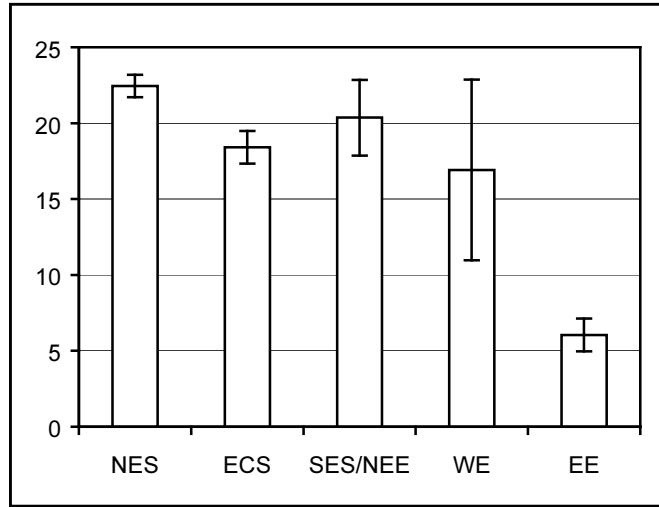


Figure 6. The proportion of young Pink-footed Geese in Northeast Scotland during different periods of autumn 2000. Means are presented ± 1 S.E.

Figure 7. The regional difference in the proportion of young Pink-footed Geese during early October 2000. (Regions defined in Table 2). Means are presented \pm 1 S.E.



Due to their later migration and being less widespread than Pinkfeet, the temporal and regional distribution of Greylag Goose age samples was more limited. All samples were collected in just two regions between 29 October and 5 November. This prevents any spatial or temporal comparisons being made.

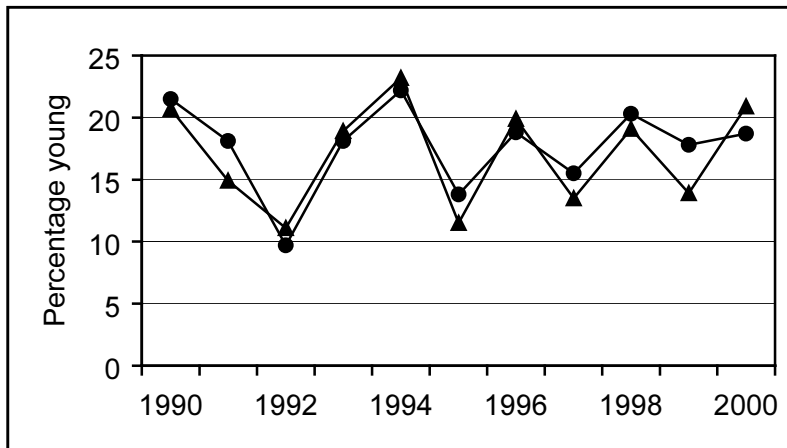
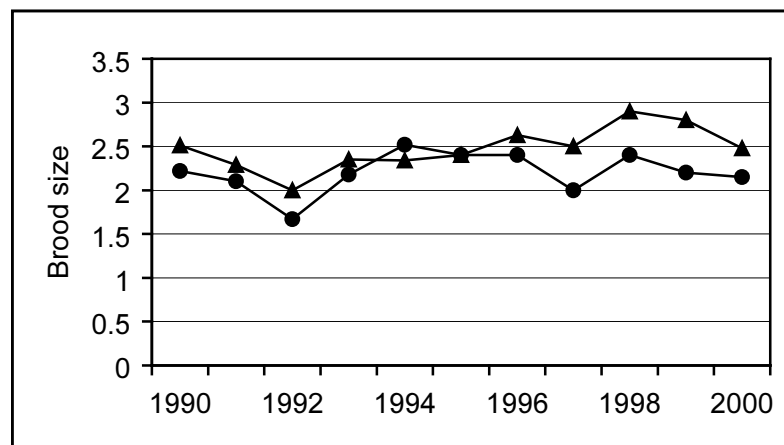


Figure 8. The average percentage of young Pink-footed Geese (●) and Icelandic Greylag Geese (▲) in Britain, 1990-2000.

Figure 9. The average brood size of successful pairs of Pink-footed Geese (●) and Icelandic Greylag Geese (▲) in Britain, 1990-2000.



DISCUSSION

The 2000 National Grey Goose Census revealed increases since the previous year in the populations of both Icelandic-breeding grey geese (Figure 10). Despite this, the 5-year running mean for Greylag Goose continued to decrease. Both counts were carried

out under favourable weather conditions and coverage was good. However, the true extent of these increases is masked by small inconsistencies in coverage and the calculation of adjusted population estimates

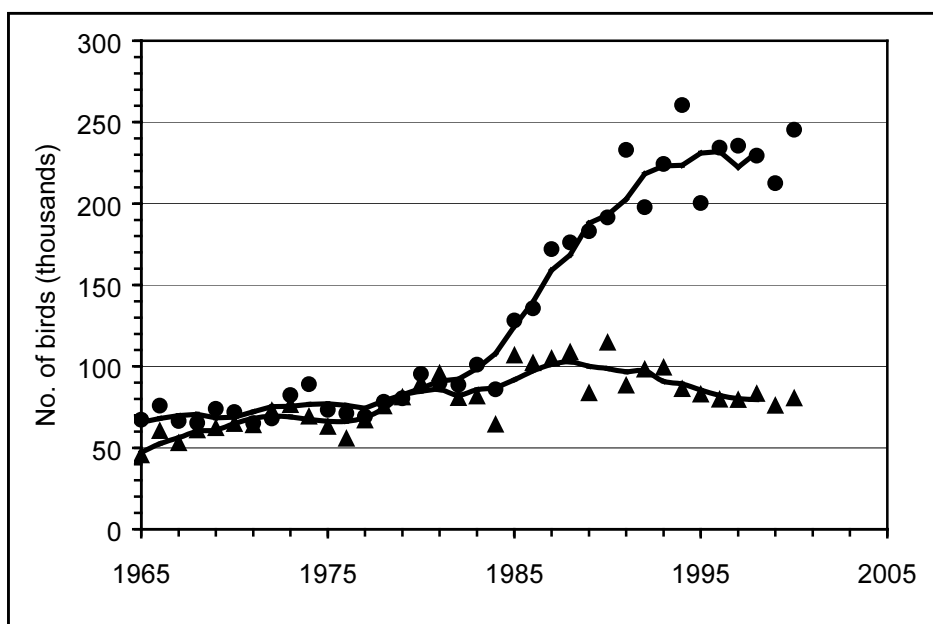


Figure 10. Population estimates of Pink-footed Goose (●) and Icelandic Greylag Goose (▲) since 1965, with 5-year running means as smoothed line (i.e. mean for 1998 is from population estimates for 1996-2000).

The Pink-footed Goose peak census total was the second largest since records began. For the first time, estimates for sites not counted during the census were derived, from the mean number counted there during the previous five years, and used to produce an adjusted population estimate. These adjusted counts formed 1.2% of the total population estimate. Providing some information is available to confirm that the number of birds was likely to have been typical (e.g. anecdotal observations or counts outside of the census period), this method is believed to be valid and should allow for more accurate population estimates to be made using the results of the National Grey Goose Census.

Whether the peak census total or adjusted population estimate is used, the rate of increase shown over the 1999 peak census is unlikely to be representative of the actual degree of change, as the 1999 census is considered an undercount due to the late arrival of Pinkfeet into Britain that autumn (see Hearn 2000 for details).

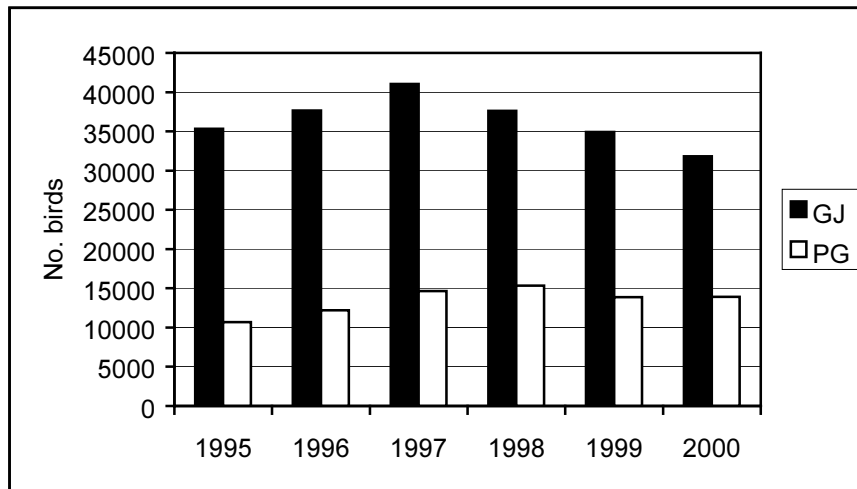
Adjusted counts were also derived for a total of eight Greylag sites. Estimates of Re-established Greylags have been used to calculate the number of Icelandic birds at Lough Swilly since 1998, but this is the first time other sites have been treated in this way. This is considered to be a valid way to improve estimates of abundance in Icelandic Greylag Geese, particularly in discrete areas such as Orkney, although a greater understanding of abundance, distribution and dispersal in Re-established Greylag Geese is needed before this approach can be applied more widely.

Difficulties caused by the presence of UK Greylag Geese (principally Re-established birds) in the wintering areas of Icelandic migrants has been highlighted in previous reports (e.g. Hearn 2000) and continues to limit the understanding of trends in abundance in this population. At a local scale, UK Greylag Geese could cause either under- or over-estimation of Icelandic Greylags, depending on whether birds at a particular site are thought to be Icelandic or not. In order to measure the abundance of Icelandic and other Greylag Geese more accurately, a suite of projects that first clarify the local status of UK Greylags is needed. This research is made more urgent by the concern regarding the conservation status of the Icelandic Greylag population.

The collation of late summer counts of UK Greylag Geese in areas of population overlap is an important first step towards this and is already proving to be a useful technique. There is also a need to establish a more international approach to this census, as, through the resighting of marked individuals, it is now apparent that Icelandic Greylag Geese have a wider distribution than previously thought, or have recently expanded their wintering range. They are now known to be present in mid winter in southwestern Norway, as well as Iceland and the Faeroes. In addition, Icelandic Greylag Geese have regularly been sighted as far south as North Yorkshire in recent winters, although such movements tend to occur in late winter or early spring, well after the census period. This highlights the need for an improved understanding of delimitation in these populations.

The number of Greylag Geese shot in Iceland remained high during 2000, although the total bag decreased for the third consecutive year (Figure 11). This probably reflects the effort of the Icelandic Institute of Natural History and others to discourage hunting of Greylag Geese. However, to date, legislative measures to reduce the Greylag Goose bag have not been introduced, despite the species now being listed as vulnerable in the Icelandic Red List of Birds (Náttúrufræðistofnun Íslands 2000). The annual harvest of Pink-footed Geese was typical of recent years.

Figure 11. Number of Pink-footed Geese (PG) and Icelandic Greylag Geese (GJ) shot in Iceland, 1995-2000. Source: Icelandic Wildlife Management Institute (<http://www.ni.is/veidi/>).



COLOUR-MARKED GEESSE

The colour-marking of Pink-footed Geese and Icelandic Greylag Geese with plastic tarsus rings and neck collars has largely ceased for the time being, although small numbers have recently been marked in

Aberdeenshire and plans to continue this marking in the near future are being developed. Marked birds also remain within these populations and all sightings are still eagerly sought. In addition, a new study of Greylag Geese in Yorkshire using orange neck collars will start in August 2002 and is likely to mark some Icelandic birds, as well as Re-established individuals. Goose counters are asked to contribute their sightings to the addresses below. The colours and ring/collar codes to look out for are as follows:

- | | |
|----------|---|
| Pinkfeet | white or orange rings with three letters and grey neck collars with two or three characters |
| Greylags | white or orange rings with two characters, light green rings with two or three letters and grey neck collars with two or three characters |

Please send sightings of colour-marked Pink-footed Geese (and any other wildfowl) to Colour-marked Wildfowl at WWT Slimbridge, or by email to <colourmarkedwildfowl@wwt.org.uk> and sightings of colour-marked Greylag Geese to Bob Swann at either 14 St Vincents Road, Tain, Ross-shire IV19 1JR or <bob.swann@freeuk.com>.

FUTURE AUTUMN COUNTS

The dates for the 2001 annual National Census were reported in the preliminary report sent to counters in August 2001. The dates for the next census (autumn 2002) will be announced in the 2001 report, which will be sent to counters during late summer 2002.

If you do not receive your count forms for this autumn, or require additional forms, please contact the Goose Monitoring Officer at WWT Slimbridge.

ACKNOWLEDGEMENTS

This census is part of the long-term Goose Monitoring Programme organised by WWT and funded by WWT and the Joint Nature Conservation Committee. Their support is gratefully acknowledged.

This census would not be possible without the support of a large number of dedicated goose enthusiasts. Enormous thanks go to them and the regional co-ordinators for all their hard work and effort, advice and comments on their local goose situations. These include (with apologies for any omissions or misspellings): Bob Adam, George Adam, David Aiton, Peter Allard, John Allen, R Anderson, Angus Ranger Service, George Ashcroft, P Assenti, Chris Badenoch, Alan Barclay, Andrew Barker, Anne Barnes, Malcolm Bayne, H Bell, Mike Bell, Dominic Berridge, William Bews, Neil Bielby, Ivan Brockway, Paul Brooks, Allan Brown, P A Brown, David Bryant, Rhys Bullman, John Burrow, Dave Butterfield, Euan Cameron, Mike Carrier, Graham Catley, Dominic Coath, Mike Cockram, Robert Coleman, Kendrew Colhoun, Steve Cooper, Simon Cooter, Colin Corse, D A Creasey, Fergus Crystal, Tom Cunningham, Phil Davey, T R Dean, C Dillon, H E M Dott, Keith Duncan, Keith Dye, Brian Etheridge, K Fairclough, Martin Faulkner, Fife Ranger Service, Derek Forshaw, Mike Fraser, Hugh Gray, Alistair Godfrey, A G Gordon, Peter Gordon, Ronnie Graham, M Gregory, Larry Griffin, Sandra Hacker, Ron Harold, Tim Harper, Clive Hartley, Paul Harvey, Les Hatton, Bill Hay, Fiona Hewlett, Brian Hodgson, Paul Hollindrake, Mark Holling, Norman Holton, Ian Hopkins, Eleanor Hurley, Ian Hutchison, Gordon Huxley, Hugh Insley, Keith Kirk, A C Knight, David Law, Allan Lawrence, Stan Laybourne, Larry Lenehan, Charlie Liggett, Loch Fitty Fisheries, James Lough, Margaret MacKay, Ewan & Shirley MacLeod, Brian Madden, Tony Malin, Jim Malone, Wendy Mattingley, John Mason, Frank Mawby, J & R McCutcheon, N McMullan, Greg McShane, Richard Mearns, Eric Meek, Peter Miller, Andy Mitchell, Neil Morrison, Donald Muir, Norman Mulholland, Ray Murray, Eddie Nixon, John Palfery, Scott Paterson, Ian Patterson, Chris Pendlebury, David Pickett, Sean Pierce, Iain Pirie, Steve Prior, Mike Ramage, B Ribbands, Mike Richardson, Alistair Robertson, Keith Robeson, Martin Robinson, Michael Rooney, Malcolm Ross, Nick Rossiter, Jim Rowe, Andrew Sanderman, Steve Sankey, Jim Scott, Roger Sidaway, Fiona Slack, John Smith, R W J Smith, Stephanie Smith, Anne-Marie Smout, Karen Spalding, Paul Speak, Fraser Symonds, Pam Tateson, Neale Taylor, Ian Thomson, Vivienne Underwood, Christine Urquhart, John Wills, Tony Wilson, Ted Wise, Fergus Younger and Bernie Zonfrillo.

Age assessments were provided by George Brown, Graham Catley, Graham Clarkson, Carl Mitchell, Ian Patterson and Chris Tomlinson.

Thanks also to Peter Cranswick and James Robinson for checking an earlier draft of this report.

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