

REPORT OF THE 2017/2018 INTERNATIONAL CENSUS OF GREENLAND WHITE-FRONTED GEESE

by

GREENLAND WHITE-FRONTED GOOSE STUDY



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NATIONAL PARKS AND WILDLIFE SERVICE



An Roinn
Cultúir, Oidhreachta agus Gaeltachta

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SUMMARY

The global population of Greenland White-fronted Geese in spring 2018 comprised 20529 individuals, down very slightly on the 20556 (0.1%) on the previous year; 9587 were counted in Ireland and 10942 in Britain. Numbers at Wexford, SE Ireland, increased by 590 birds (8.4%) to 7637, but numbers wintering on Islay fell by 822 (13.4%) to 5319. Reproductive success was exceptionally low (5.3%) in Ireland and below average in Britain (10.7%).

This report presents the results of the surveys of the Greenland White-fronted Goose on the wintering grounds in winter 2017/2018, combining counts from all the British resorts (coordinated by the Greenland White-fronted Goose Study) and those in Ireland (co-ordinated by the National Parks and Wildlife Service). The international coordinated count in spring 2018 found a combined global total of 20529 Greenland White-fronted Geese, down just 0.1% (27 birds) on the previous world population estimate of 20556 in spring 2017.

*Very good census coverage was again achieved in **Ireland** in spring 2018 which included 7637 counted at Wexford (compared to 7047 in spring 2017) and 1950 (i.e. slightly up on 1912 in spring 2017) from the rest of Ireland. Missing spring counts were substituted for 13 Irish regular wintering resorts, amounting to 9.6% of the Irish total. Complete censuses of all known Greenland White-fronted Goose wintering haunts in **Britain** found totals of 10774 birds in autumn 2017 and 10942 in spring 2018, compared with 10326 and 11597, respectively, reported in the previous season at the same times of year. Another 20 birds were present in Belgium and the Netherlands during the autumn census period, but did not remain after the end of the year. The 2017/2018 totals in autumn and spring comprised none and 6, respectively, reported in England, 49 and 24 in Wales, 5351 and 5319 on Islay (compared to 5585 and 6141 last season) and 5374 and 5593 in the rest of Scotland (compared with 4715 and 5420, last season). The results of the spring 2018 survey on Islay gave 4422 geese, but because of poor weather and large discrepancies between the two count days, Scottish Natural Heritage agreed to substitute the total of the maximum counts from each count sector over the two days (5319). This estimate better reflected other counts throughout the same winter and the number that might have been expected, given the count from last winter and observed reproductive success in the intervening summer. Otherwise coverage in Britain was more or less complete, with all resorts being counted at least once in the season, excluding the Small Isles (where there no longer seem to be regularly wintering geese). Spring counts were missing from the specified count period from seven resorts away from Islay, but all were substituted with counts undertaken very close to the defined international count dates, amounting to 5.1% of the British total excluding the adjustment made to the Islay spring count.*

*Among **Irish** wintering geese, the percentage young among aged flocks after the 2017 breeding season was 5.3% (based on 5202 aged individuals) compared to 12.5% last season. Mean brood size among the Irish flocks was 2.82 (n = 77) compared to 3.04 last season. There were 5.3% young among 4859 aged at Wexford (among the lowest on record, compared to 12.2% last year), where the mean brood size was 2.90 (compared to 3.13 last season) based on 72 broods. Elsewhere in Ireland, reproductive success was a record low with 5.0% (n = 343), and mean brood size 1.83 (n = 5). The proportion of young in aged samples from **British** wintering geese was low following the 2017 breeding season: the average percentage young was 10.7% (n = 4724 aged, compared to 16.5% last season), mean brood size was 2.63 (n = 148 broods, compared to 2.78 last season). This included 9.3% on Islay, (compared to 18.4% last year) where the mean brood size was 2.97 (n = 58 compared to 3.04 last year).*

INTRODUCTION

The 2017/2018 survey represents the 36th annual census of Greenland White-fronted Geese co-ordinated in Great Britain by the Greenland White-fronted Goose Study and in Northern Ireland and the Republic of Ireland co-ordinated by the National Parks and Wildlife Service. Table 1 shows the most recent six seasons of total census data available to the present based on the full survey of all known regular winter haunts for this population, broken down by totals for Wexford and the rest of Ireland, and from Islay and the rest of Britain.

Table 1. Spring population census totals for Greenland White-fronted Geese, 2013-2018.

	Spring 2013	Spring 2014	Spring 2015	Spring 2016	Spring 2017	Spring 2018
<i>Wexford</i>	8751	8110	7984	6421	7047	7637
<i>Rest of Ireland</i>	2465	2512	2282	2172	1912	1950
<i>Islay</i>	5449	5093	3995	5183	6141	5319
<i>Rest of Britain</i>	5491	5082	4593	5103	5456	5623
Population total	22156	20797	18854	18879	20556	20529

AUTUMN ARRIVAL PATTERNS

We were extremely fortunate to have Rachel Stroud and Niall Tierney resident at Hvanneyri in western Iceland throughout the entire autumn staging 2017 period. This extremely large and discrete set of managed hayfields, wetlands and coastal fjord is owned and managed by the Agricultural University of Iceland, and is protected as part of the Andakill Ramsar site. Their presence and dedication mean that they were able to provide, first-hand, a unique picture of the numbers and passage in September/October 2017. The first 21 Greenland White-fronted Geese appeared on 6 September, with numbers gradually increasing over the next week, reaching c.750 individuals, followed by a substantial influx on 21 September, taking the total to 1524. Numbers averaged 1324 during the core staging period of 15 September to 27 October, with a peak count of 1835 on 22 September. Numbers declined only after 25 October, with mass departures on 27 and 28 October, when totals fell from 1205 to 366. The last autumn sighting of any numbers was a flock of 72 on 3 November, and the last individual was seen on 8 November.

Pete Dale was very perturbed to hear Greenland White-fronted Geese calling up Loch Shiel on 13 September, but Isabel Macho disturbed 20-30 Greenland White-fronted Geese on Kentra Moss the following week, so it seems likely a substantial group of geese passed over Iceland this autumn and migrated directly to this resort in mid-September. Following rather more normal timing, Colin Guy saw 14 migrating off Ramore Head, Portrush, County Antrim, Northern Ireland, on 2 October and first arrivals were seen at Gruinard Flats on Islay the next day. With very favourable tail winds streaming from south western Iceland towards the wintering grounds on 5 October, it was perhaps not surprising that Pete Dale witnessed a very remarkable passage that day. At 15:05 that day, Andrew Dacre visited Pete Dale at his house at Dalnabreck, Acharacle. They were discussing Greenland White-fronted Geese when a skein of 50+ in 'V' formation arrived over the house from the northwest, followed by a similar-sized skein which also flew over high in the same direction in 'V' formation. Both skeins continued on a heading of 147 degrees southeast, approximately in the direction of Benderloch. The weather conditions at the time were 3/8 cloud at 3000+ feet, moving in the direction of travel, with bright sun, wind 1-2 north westerly, temperature 8°C. Another observer had reported two skeins of geese heading south earlier in the day giving high-pitched calls, one of 50 high (between 11:00 and 13:00) and one of 120 slightly lower (between 14:00 and 15:00) the same day that were also likely to be White-fronted Geese. At 17:55, it had begun to rain and another skein of 150+ Greenland White-fronted Geese in 'V' formation arrived high over the house from the northwest, followed by 54+ at 18:30, which lost height and landed on Claish Moss, followed by 34 more, which flew over but maintained height and continued onwards. These were followed by 45 (at 18:35), 74 (18:43), 55+ (18:45) and 36 (18:58), all of which continued onwards passing directly over Pete's house. No further geese passed over before 19:05 when the light failed, but White-fronted Goose skeins were heard continuing to pass over at 19:23, 19:31, 19:34 and 19:37 before their vigil stopped at 20:00, by which

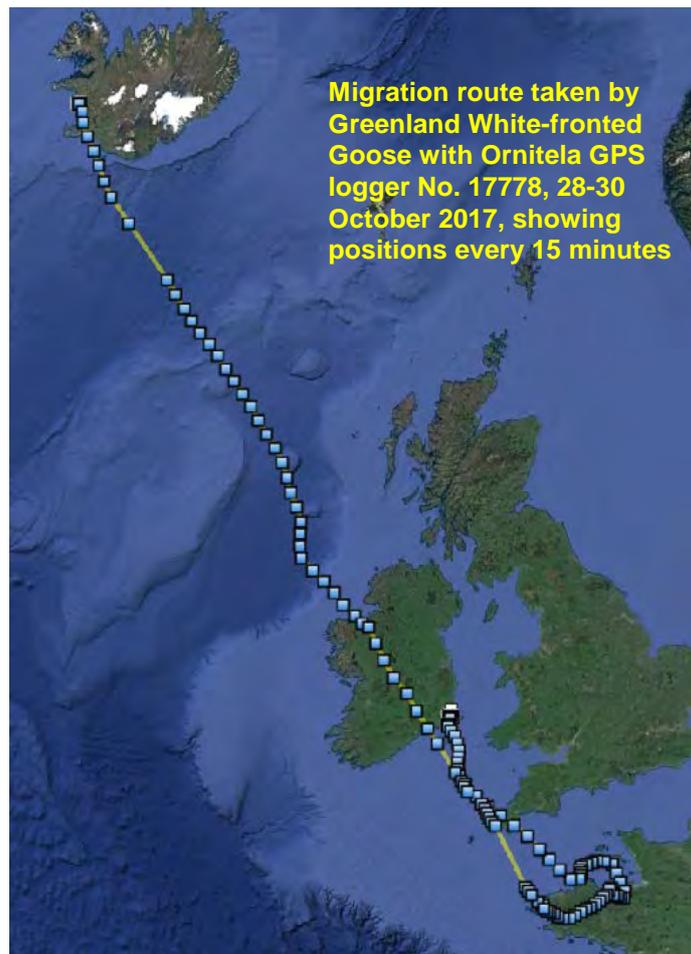
time it was assumed that perhaps as many as 1,000 geese had passed through the area. At least 21 also arrived at Wexford on the afternoon of 5 October (the first arrivals there), but interestingly numbers there had only risen to 600 by 26 and 1000 by 31 October.

Forty birds were reported on the Gruinart RSPB Reserve on 3 October and James How had 68 on 5 October, rising to 104 next day, to 125 by 12 October and 445 by 17 October. Elsewhere, John Bowler had 15 and 33 arrive on Tiree on 9 October, with 4 and 16 arriving on 15 October. Arthur Thirlwell reported his first 12 birds back at Loch Ken on 10 October, building to 30 by 14 and 95 by 4 November, with Larry Griffin reporting at least 100 by 10 November. Derek Farr reported the first birds (12) at Stranraer on 10 October. Two were present in Udale Bay, Moray Firth, on 12 October, when 9 returned to Kilpheder, including 3 birds of the year. On Skye, there was a flurry of observations on 13 October, including 8 which flew into Broadford Bay in the morning from the north (Bob McMillan), 6 flew south at Ashaig early afternoon and 5 west over Portree mid-afternoon (NB), with another two over Kildonan Point on Eigg (JC). Single birds were reported from Montrose Basin, Angus, on 13 October and Crossen Marsh, on the Ribble, Lancashire, and Burnham Overy, north Norfolk, next day. On 15 October, 52 were seen at Rannachan, South Uist, 38 at Threave, Loch Ken, as well as 2 and 21 which flew south over Colonsay, when 50 were reported at Askernish and 2 flew SW off the Butt of Lewis, with 7 on South Uist and 10 at Baleshare, North Uist, on the following day. Four birds were back on Coll on 15 October (Joan Bingley), when birds were also seen heading south over Tiree and Colonsay and two passed south at the Butt of Lewis. Twelve were reported from Munloch Bay on 16 October and 7 flew past Tiumpán Head, Lewis, on 18 October while there were 6 at Bornish (South Uist) on 21 October. The first single bird back in Caithness was a singleton at Thusater with Pinkfeet on 18 October (Peter Miller), with 30 at St John's Loch the next day (Julian Smith), rising to 120 (at Loch Saorach) by 25 October (Alison and Donald Omand). There were no really major movements reported from the Uists, although 34 flew south at South Glensdale/Rubha Ardvule, South Uist, on 26 October and there were 21 back at Loch Bee on 29th. Sinclair Manson did not see his first birds (21 in total) at Loch of Mey, Caithness, until 11 November, rising to 48 next day seen by Mary Legg, who speculated whether these birds still hide themselves away in the patterned mire areas of Caithness before first revealing themselves in the easily watched farmland areas there. Eleven geese were first reported back on the Dyfi on 3 November (Russ Jones, Tom Kistruck) when there were also 145 back at Loch Lomond, rising to 182 there on 10 November (Ian Fulton).

Four adults and 2 first winter birds turned up at Itteren, Maastricht, the Netherlands, on 18 November, where they were associating with Greylag Geese on the Maas River which divides the Netherlands from Belgium (Robert van Tiel, per Bob Coenen).

Of course, there are many stories untold about the circumstances that lead to such displacements and we have little idea why that family group should have turned up on the borders of the Netherlands and Belgium where, when and how they did. However, thanks to the wonders of modern day technology, we do begin to be able to have greater insight about what happens to birds during migration, especially with respect to how weather conditions may affect their movements. We were fortunate to be funded by Professor Cao Lei at the Chinese Academy of Sciences in Beijing to fit Ornitela GPS loggers to some Greenland White-fronted Geese in 2017. These collars are little larger than the conventional plastic collars we use to register individuals, but they carry solar cells which maintain battery power within the collar to collect regular (in this case at 15 minute intervals) gps positions. This information is regularly downloaded via the mobile phone network so we can watch where the geese are travelling throughout their annual cycle. With the support of Mitch Weegman from University of Missouri, we attached some of these devices to geese caught by Alyn Walsh at Hvanneyri, in western Iceland during the autumn of 2017. One of these birds (device code 17778) experienced an interesting journey back to Wexford Slobs after it left Iceland, generating the extraordinary trace you see on the GoogleEarth map on the following page. 17778 was an adult female caught on 23 September 2017 and we could see from our own observations of her movements during her subsequent stay on the farm at Hvanneyri that she associated with a first autumn male with the orange collar CDZ, an adult female fitted with the orange collar V3Y (both caught in the same catch) and an unringed adult male (which probably escaped capture when the other family members were caught). This social group moved to a farm called Leirulækjarsel in Mýrar at around 08.30 on 25 September, where they remained until they departed from Iceland. Both Hvanneyri and Leirulækjarsel are important staging areas for these geese in spring and autumn.

17778 departed from Leirulækjarsel at around 12.00 UTC, leaving Iceland on 28 October en route for “home”, which eventually turned out to be Wexford Slobs, SE Ireland where she remained the rest of the winter, although the route she took was pretty amazing! 17778 made southern Ireland safely on its way south, no problems, passing over Tramore, Waterford on 29 October 2017 at 04:26 UTC but seemed not to realise that she was so close to Wexford! The winds were 35-40 km/h from the WNW at the time (not the 100 km/h we were experiencing in Jutland, Denmark at the same time), so there seems little reason to think that she and her companions were seriously blown off course. 17778 continued onwards, however, for some reason, ultimately doing a tour of the Channel Islands and Brest in Brittany before turning again for Wexford, reaching Tacumshane Lake (on the south coast of County Wexford and a well-known GWFG resort as well) around 05:27 on 30 October, where it rested before coming up towards the Slobs, going straight into the North Slob by about 07:20 the same day! What was also interesting was that V3Y was photographed alone at Marazion Marsh in Cornwall at 14:00 on 1 November by Alan James, so she had obviously dropped out from the group and had been left behind at this stage of the story, while at least 17778 continued back to Ireland.



We assume that V3Y was caught up with 17778 for the majority of the journey, but somehow became separated and ended up resting in Marazion for a couple of days. Did she go to France as well, or did they argue about the route, and she stayed in SW England?! Who knows! Fortunately this good story has a very happy ending, because whatsoever may have happened en route, it was John Wilson, who first started the National Parks and Wildlife Service collar marking project of Greenland White-fronted Geese way back in 1983, who resighted CDZ, V3Y, Ornitela 17778 and an unringed adult goose all back together again in field number 25 on the Wexford North Slob on 8 November 2017, together with Alyn Walsh, who was responsible for cannon netting and banding all of the geese involved in this story and every other one in Ireland and Iceland back to 1983. So after her Cornwall sojourn, V3Y had indeed found her way home and joined up with her lost family!

SPRING DEPARTURE PATTERNS

Numbers remained well above 130 geese at Loch Ken until 26 March, but then fell to 82-83 until the end of the month, dropping to 46 by 4 April, 14 by 14 April and all were gone on 16 and 17 April (Arthur Thirlwell). On Tiree, John Bowler watched 326 moving north on 11 April, but 13 were still on the island on 13 April. On the Dyfi, there were still 24 birds present on 11 April, but only one remained by 16 April. Two birds also lingered on Lismore until 16 April. In Caithness, numbers persisted well into April, with the final report being of 140+ flying north, presumably departing for Iceland at Dunnet Head on 18 April (Sinclair Manson and Karen Munro).

Alex Maní saw the very first White-fronted Geese of the spring in southern Iceland when a small group arrived in the morning of 27 March, but there were many "all over the place" by the afternoon. At Hvanneyri, the very first birds arrived on the night of 28 March (Ragnhildur Jónsdóttir) with many more following the next day.

COUNTS IN BRITAIN 2017/2018

We are increasingly spoiled by the outstanding coverage the count network in Britain achieves every year. Excellent coverage of all known regular Greenland White-fronted Goose wintering sites was again achieved in Britain during winter 2017/2018. We are extremely grateful to Pete Dale for extracting counts from the wide variety of sources included in this year's report. Maximum monthly counts from the regular wintering sites, together with the census period totals, are presented in Table 2, with a more detailed explanation of the contributions which came from the irregular sites in Scotland and England, (plus those reported from the Low Countries) in Table 3, and longer-term trends in autumn and spring counts since 1982/1983 in Britain are shown in Figure 1.

Despite a small fall on Orkney, numbers at the two Caithness flocks were up by 50 birds overall bringing the total to a very healthy 311 birds in spring 2018. Many of the smaller flocks, however, continue to struggle, with the Lewis flock (which has been doing well in several recent years) falling from 51 to 38 in spring 2018, the Kilpheder/Askernish group barely surviving (8 birds regularly reported compared to 13 last spring) and the two Skye flocks declining from 10 and 19 to 7 in the north of the island and 8 around Broadford, respectively, in spring 2018. Numbers at Loch Shiel/Kentra Moss were happily sustained, with 64 in the spring 2018 census being not so different to the 62 the same time last year. Numbers at Appin/Benderlock were slightly better in spring 2018, when a total of 84 geese were reported (compared to 43 last winter). This group has become increasingly difficult to find, but at the regular resort at Appin, there is no doubt of a substantial decline in recent years. We are still unsure how much exchange there is with the adjacent island of Lismore, but since geese are regularly seen commuting between there and the mainland, we have to hope that increases on the island account for losses on the mainland. Lismore wintering numbers were regularly breaking 110 and made 150 at the spring count date, a little up on the same time the previous year. Numbers increased modestly on Coll and fell slightly on Tiree since the last spring survey, resulting in a 17% reduction in the combined total for the two islands. Numbers just broke 100 birds on Colonsay and Oronsay, much the same as the previous winter but it was cheering to have four birds back at Lowlandmans Bay on Jura for much for the winter 2017/2018. Numbers at Danna, Kiells and Ulva were little changed but the tiny and long suffering "flock" that traditionally wintered at Moine Mhor mustered only three birds during November-December and only two in the New Year. Following recent trends, the major Kintyre aggregations showed modest increases, the Rhuanahaorine flock increased by 9% to 739 and that at Machrihanish by a staggering 19% to 1721 in spring 2018, resulting in a 10% increase (to 2618) in the total numbers at all Kintyre resorts combined compared to spring 2017. Numbers reported from Bute in spring 2017 (130) were probably an underestimation of true numbers present, which may help account for the increased count of 190 in spring 2018. However, numbers wintering on Loch Lomond seemingly fell from 201 in spring 2017 to 168 in spring 2018, despite an autumn count of 296 and three other monthly counts exceeding 200. Loch Ken and Stranraer numbers were slightly down on the previous year, but happily the Dyfi Estuary flock in central Wales held its own at 24-25 individuals in winter 2017/2018

compared to 22 in the previous spring. The largest loss of birds between the two seasons was from the major resort of Islay, where the official spring count of 4422 (taken as always as the mean of the two counts, undertaken on 20 and 21 March 2018) was well below that of 2017 (6141) and rather less than the consistent c.5000 counted in other months. For this reason, Scottish Natural Heritage agreed that the international spring count on Islay adopt the maximum count for each of the six count sectors on the two consecutive days. Observations of collared, leg-banded and telemetry-tagged birds suggest modest movement of individuals between farms on consecutive days, yet there were major discrepancies between the daily sector totals, especially in Laggan/Glen, Kilmeny and Rinns. The total derived from this adjustment was 5319, which also fits better with sector numbers in the farm counts and with the other monthly counts presented in Table 2, as well as the expected numbers based on last winters' counts and the intervening level of production.

Failure to locate birds, bad weather, absent counters and incomplete counts means substitution of missing counts was required during the international spring census count period at seven other sites amounting to 557 geese. Most missing values come from February 2018 and therefore unlikely to be different to those present in the March count window, constituting 5.5% of the British count total (shown shaded in grey in Table 2). Although flocks show different trajectories, the net result was a 3.1% increase in British numbers away from Islay, where numbers decreased by 13.4%, resulting in a 5.7% decline in estimated British wintering numbers from 11597 in spring 2017 to 10942 in spring 2018.



Caithness feeding Greenland White-fronted Geese feeding at Westfield. Photo Ian Francis

Table 2. Summary counts of Greenland White-fronted Geese in Britain 2017/2018

shaded values are estimates for sites where no counts were received for the precise period of the international census periods

SITE NAME	SEP	OCT	NOV	AUTUMN CENSUS	DEC	JAN	FEB	MAR	SPRING CENSUS	APR
ORKNEY										
Loons			60	72	72	51	67	66	66	
Papay										
North Ronaldsay										
CAITHNESS										
Westfield		120	71	150	150	140	82	150	150	150
Loch of Mey			100	138	138	120	160	154	161	161
NE SCOTLAND										
Loch of Strathbeg	0	0	0	0	0	0	0	0	0	0
WESTERN ISLES										
Barvas/Shawbost, Lewis				38			38		38	
Benbecula				23	23	3	1	1	23	
North Uist		10								
Kilpheder/Askernish, South Uist		50	9	8	8	8	8		8	
Loch Bee/Kilaulay, South Uist		21	54	128	128	125		73	125	
Bornish, South Uist		6								
Cleat, Barra							2	2		
INNER HEBRIDES										
Loch Chalium Chille, Skye			9	8	8	8		7	7	
Broadford/Pabay, Skye	19			8					8	
LOCHABER/NORTH ARGYLL										
Muck/Eigg										
Loch Shiel/Claish Moss		31	53	70	70	60	70	64	64	
Lorn:Tralee/Shenaville				59					60	
Lorn: Appin				24					24	
Lismore			130	120	117	110	110	140	150	130
Tiree			630	597		901	839	830	830	
Coll	131		98	152		169	104		185	
Fidden, Mull				32			21		41	
SOUTH ARGYLL										
Colonsay/Oronsay			88	88	62	52		62	102	
Jura: Loch a'Chnuic Bhric			0	23		0			35	
Jura: Lowlandman's Bay			4	4	4	0		4	4	
Danna/Kiells/Ulva	105		211	152		85	144		177	
Moine Mhor	0		3	3	3	2		2	2	
Rhunahaorine				596			541		739	
Machrihanish				1882			1608		1721	
Clachan			161	69					130	
Gigha				100					28	
Glenbarr				70			67		0	
Isle of Bute		1		140	140	122	135	200	190	
Endrick Mouth, Loch Lomond	56		228	296	226	268	103	92	168	
ISLAY			4877	5351	5351	5077		4422	5319	
DUMFRIES & GALLOWAY										
Loch Ken		58	138	149	108	183	194		148	153
Stranraer		66	112	174	174	205	213	205	205	103
WALES										
Dyfi Estuary			25	25	25	25	25	24	24	24
Cors Ddysga, Llyn Coron, Anglesey			13	15	15					
Warren Farm, Point of Ayr			9	9	9	9	9			
ENGLAND										
Grindon Lough										
Longhirst, Northumberland										
Durridge Pools/Easington, Northumberland										
OTHER IRREGULAR SITES										
England combined	9	9	0	0	6	7	6	6	6	6
Scotland combined	15	5	1	2	11	0	6	4	1	
TOTALS	698	7097	10774	6833	7740	4550	6510	10942	728	
Rest of GB less Islay	698	2220	5423	1482	2663	4550	2088	5623	728	
Rest of Scotland less Islay			5374					5593		
England			0					6		
Wales			49					24		

Table 3. Summary counts of Greenland White-fronted Geese at irregular sites in Britain 2017/2018

	OCT	NOV	AUTUMN CENSUS	DEC	JAN	FEB	MAR	SPRING CENSUS	APR
OTHER IRREGULAR SITES									
Scotland									
Culmailty, Sutherland							1	1	
Scatness, Shetland		1							
Munlochy Bay, Easter Ross	12								
Udale Bay, Easter Ross	1	1							
Loch Eye, Easter Ross		2			10		1	1	
Little Loch Shin, Easter Ross							1	1	
Loch of Skene, Aberdeenshire	1	1	1	2	1				
Montrose Basin, Angus	1								
Letham Pools, Fife							1	1	1
Cambus, Clackmannanshire							2		
England									
Walney Bird Observatory	4								
Wheaton, East Yorkshire	3								
Martin Mere, Merseyside		2							
Crossens Marsh, Lancashire	1								
Marloes, Pembrokeshire		7							
Burnham Overy, Norfolk	1								
Fen Drayton, Cambs						1			
Trimley Marshes, Essex					6	6	6	6	6
Low Countries									
Itteren, Maastricht, NETHERLANDS		6	6	6					
Limburg, Flanders, BELGIUM			14	14					
TOTALS									
England	9	9	0	0	6	7	6	6	6
Scotland	15	5	1	2	11	0	6	4	1
Low Countries	0	6	20	20	0	0	0	0	0

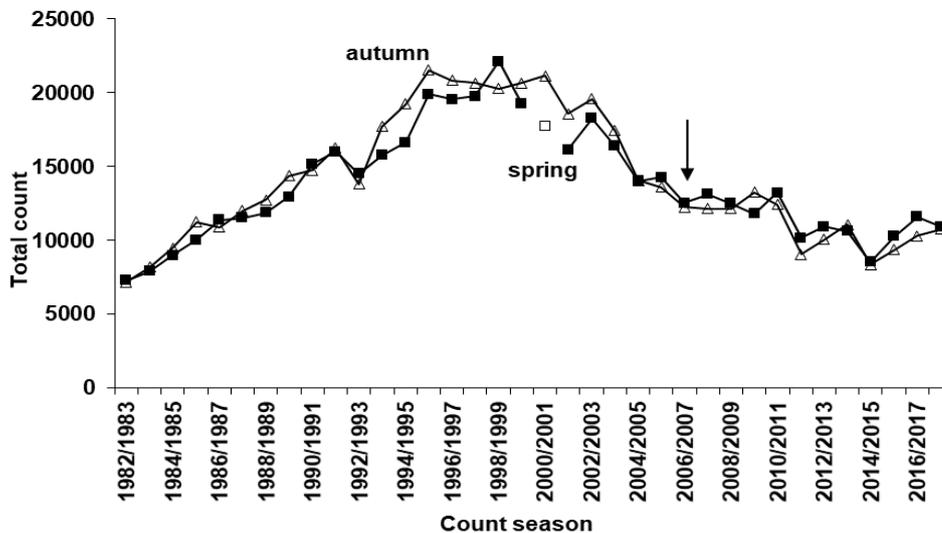


Figure 1. Counts of Greenland White-fronted Geese in Britain, 1982/1983-2017/2018, showing autumn (open triangles) and spring (filled squares) census results for each season. The value for spring 2001 (unfilled square) was missing on account of the outbreak of Foot and Mouth Disease that year and was therefore estimated from previous counts. Vertical arrow indicates the start of the hunting ban in Iceland in autumn 2006.

COUNTS FROM IRELAND

Good count coverage was achieved throughout Ireland in the 2017/2018 season, especially at the more important Irish sites, many of which were covered every month (Table 4). However, in many areas, the flocks were extremely difficult to locate and observers experienced some difficulty in locating their flocks, especially in mid-winter, but also especially around the time of the spring census. As in Britain, the numbers at various resorts showed very different patterns, with dramatic increases at a few, but losses compared to 2016/2017 at many. On the positive side, particularly encouraging was the report of between 21 (during the spring count) and 67 Greenland White-fronted Geese at North Lough Ree in the Shannon floodplain, because there have been no counts from this site since 10 were reported in 2009/2010. Alas, again no birds were counted from Lough Oughter in the north central region nor from the Killarney Valley in the extreme south west, so both resorts are now considered to no longer support regularly occurring geese.

Although numbers in spring 2018 were lower at Loughs Foyle and Swilly (607) than in 2017 (720), elsewhere in Donegal, Dunfanaghy consistently held greater numbers through 2017/2018 than in the previous year, the spring count rising substantially from 44 to 150. Numbers at Sheskinmore also increased modestly, from 29 to 35, although those counted on the Pettigo plateau fell to 45 after an encouraging 82 were counted last spring. However, these and other discrepancies may derive from the difficulty of finding flocks this winter, especially at the time of the spring counts. Numbers remained more or less stable at Loughs Macnean, Errif and Derrycraff, North County Clare, and the Suck River resorts, while numbers fell at the small flocks wintering at Lough Conn (31 to 20) and at the Bog of Erris (60 to 17), although the latter is always a complex set of subgroups using different resorts and habitats that can be extremely difficult to cover. Numbers also fell among the larger flocks at Little Brosna (170 to 150) and Rahasane Turlough (88 to 65). At the latter site, for instance, the flock proved highly elusive in the mid-winter period, although 50+ birds that were observed flying from Creganna in the direction of the Flaggy shore on 22 January 2018 possibly suggests that this group uses alternative feeding sites approximately 12 km away from previously known sites for this wintering flock. Elsewhere, however, there were cheering, if modest, increases, as at the smaller flocks at Lurgangreen/Stabannon (15 to 26), Rostoff and Killower (58 to 92), Lower Lough Corrib (2 to 25) and Tullagher (18 to 23), as well as increases in the larger groups at Lough Gara (100 to 120) and the Midland Lakes 193 to 268).

The spring 2018 count from Wexford came in at 7637, reassuringly up on the 7047 counted in the previous spring (an increase of 8.3%), with monthly counts consistently breaking 7000 throughout the winter.

At 13 sites, missing counts or failure to find geese when they were known to be present during the spring international count period meant that we have substituted counts from dates outside the spring international count period, although the majority of these were substituted from other dates in February or March and there are therefore considered to be reasonable assessments of the likely numbers present. We are therefore reasonably confident that inclusions of these counts make relatively little difference to the totals. The sites involved are shown shaded in Table 4 and amount to 9.6% of the total Irish population.

Table 4. Summary counts of Greenland White-fronted Geese in Ireland 2017/2018

shaded values are estimates for sites where no counts were received for the precise period of the international census periods

	OCT	NOV	AUTUMN CENSUS	DEC	JAN	FEB	MAR	SPRING CENSUS	APR
DONEGAL									
Loughs Foyle & Swilly		707	697	697	613	649	607	607	
Dunfanaghy			80		80	150		150	
Sheskinmore lough	13	32	35	35				35	
Pettigo		28	74	74		45		45	
NORTH CENTRAL									
Lough Macnean		4	83	83	76	0	87	87	
Lough Oughter	0	0	0	0	0	0	0	0	
Lurgangreen			52			52	26	26	
Kilcoole Marshes		1	1		1			1	
MAYO									
.Lough Conn			32	32	3	0	20	20	
Bog of Erris									
a. Mullet			10					10	
b. Carrowmore		7	7		7	7		7	
c. Owenduff	0	0	0	0	0	0	0	0	
MAYO/GALWAY UPLANDS									
Errif & Derrycraff			52	52				52	
Connemara									
GALWAY LOWLANDS									
Rostaff & Killower		62	91	92	92	92	92	92	
Lower Lough Corrib	0	0	14		14	0	25	25	
Rahasane turlough	9	75	65					65	
CLARE/LIMERICK									
Tullagher			12	5	12	23	23	23	
North County Clare			38		38	37		37	
SHANNON HEADWATERS									
Lough Gara			120					120	
MIDDLE & LOWER SHANNON									
North Lough Ree		38	67	67		21		21	
River Suck		14	46	46	50	109		109	
Little Brosna	10		65	65	145	109	150	150	
MIDLANDS									
Midland lakes		166	213	213	228	268		268	
SOUTH WEST									
Killarney valley									
SOUTH EAST									
Wexford		7329	7030	7030	7646	7095	7637	7637	
COUNT TOTALS									
Ireland without Wexford	32	8463	8884	8491	9005	8657	8667	9587	0
			1854					1950	

THE INTERNATIONAL TOTALS

Adding 7637 counted at Wexford to the 1950 geese counted elsewhere in the rest of Ireland, taken together with the British totals, gives rise to a global total of 20529 Greenland White-fronted Geese in spring 2018, very close to the 20556 counted in spring 2017, but happily sustained above the counts in spring 2015 (18854) and 2016 (18879, Figure 2).

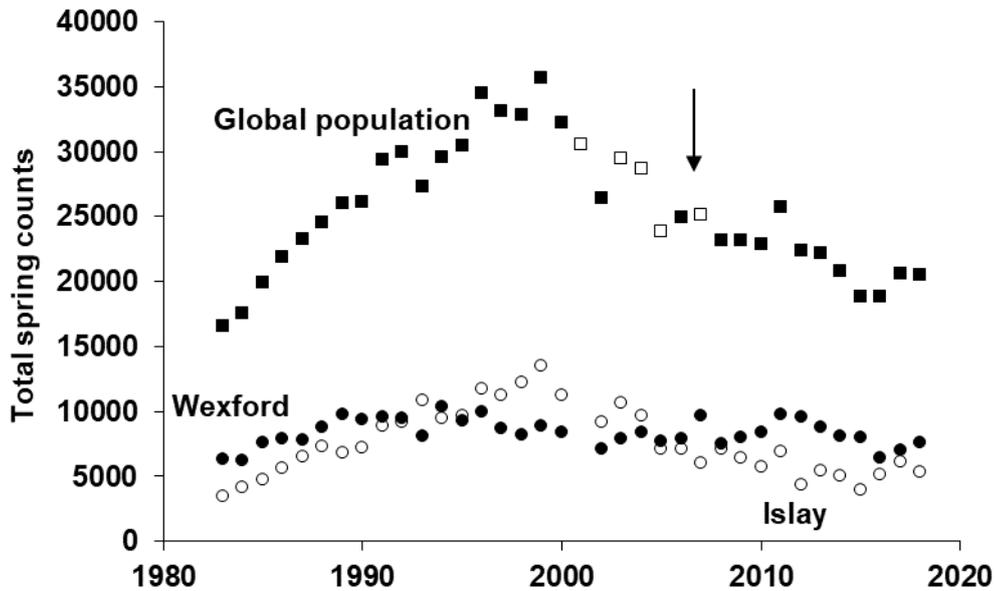


Figure 2. Spring counts of Greenland White-fronted Geese from Wexford Slobs and Islay and the global population count, 1983-2018. Values for the total population size are missing in some years when complete coverage could not be achieved (open squares, for which estimated counts based on previous counts have been substituted). Values for spring 2001 were missing on account of the outbreak of Foot and Mouth Disease that year and were therefore also estimated from previous counts. The arrow marks the point at which autumn hunting in Iceland was stopped in 2006.

AGE RATIOS IN BRITAIN

It continues to be of considerable importance that we attempt to understand the population processes that are driving change in the abundance of wintering flocks throughout Ireland and Britain. The changes can be due to survival, emigration and immigration, but clearly the annual contribution of young birds to the population makes a considerable difference to overall numbers that return to the wintering grounds. For this reason, we are incredibly grateful to the counters who take the considerable time and trouble to collect information on the ratio of first winter geese to adults as well as assessing the family unit sizes to compile brood size information. This season we again achieved a very high proportion of assessments in winter 2017/2018 (Table 5) and once again, we extend a very sincere thank you to everyone who has contributed.

Table 5. Summary of age ratio determinations and brood sizes for Greenland White-fronted Geese wintering in Britain 2017/2018.

SITE NAME	% YOUNG	SAMPLE AGED	MEAN BROOD SIZE	FAMILIES SAMPLED
The Loons, Orkney	26	50	2.17	6
Loch of Mey, Caithness	10.53	114	1.5	2
Westfield, Caithness	23.94	71	2.83	6
Kilpheder, South Uist	50	8		
Tiree	10.61	462	2.58	19
Coll	10.95	137		
Loch Shiel	10.71	56		
Lorn, Appin	9.09	44	2	2
Lorn, Tralee	10.53	19		
Mull, Fidden	30	10		
Keills/Danna	13.51	74		
Moine Mhor	0	2		
Colonsay	9.09	88		
Glenbarr ¹	10.45	67	3.5	2
Rhunahaorine, Kintyre ¹	9.79	378	2.47	15
Machrihanish, Kintyre ¹	5.38	558	2	15
Jura, Inver ¹	50	18		
Jura, Lowlandmans Bay ¹	0	4		
Islay ¹	9.29	1970	2.97	58
Bute	19.18	73	3.5	2
Loch Ken	12.43	185	2.86	7
Stranraer	18.47	157		
Endrick Mouth	13.08	130		
Dyfi Estuary	24	25	3	2
Warren Farm, Point of Ayr	55.56	9		
Anglesey sites	0	15		
Britain, excluding Islay	11.62	2754	2.41	90
OVERALL	10.65	4724	2.63	148

¹Details from Jura, Islay and Kintyre courtesy of Dr Malcolm Ogilvie

The 2017 breeding season for Greenland White-fronted Geese, which produced an average of 10.7% young, was not as impressive as those in 2014, 2015 and 2016, when age ratios in Britain were 12.9%, 15.5% and 16.5%, respectively (see Figure 3). The percentage exceeded 10% at 18 out of 26 sites from which data were available (Table 5), comprising 9.3% among 1970 birds aged on Islay compared to 11.6% among 2754 sampled elsewhere. Mean brood size was 2.63 overall based on 148 families sampled from many sites, including a mean of 2.97 on Islay (n = 58) compared to 2.41 elsewhere (n = 90).

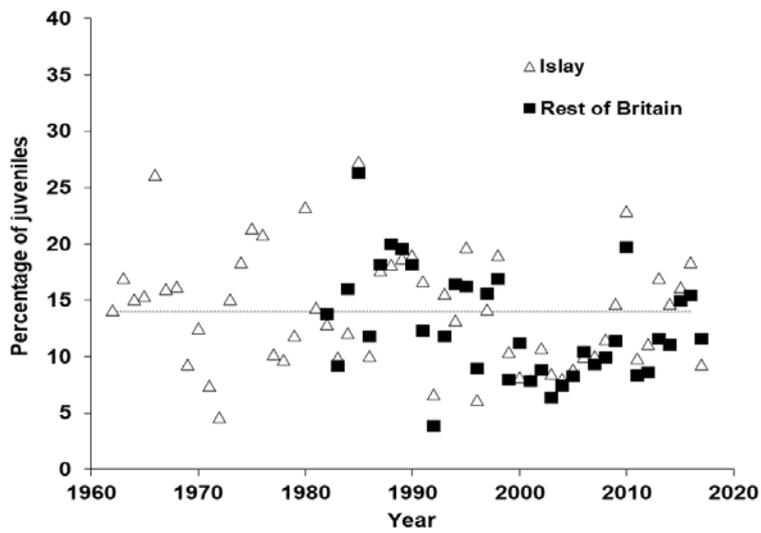


Figure 3. Age ratios sampled among Greenland White-fronted Geese at Islay 1962-2017 and compiled from other sites in Scotland and Wales, 1983-2017. The horizontal dotted line indicates the average percentage young among samples from Islay for 1962-2017.



A less than conventional view of Greenland White-fronted Geese at Blackford Farm, Loch Lomond, December 2017. Photo: Ian Francis

AGE RATIOS FROM IRELAND

Breeding success following the 2016 summer among flocks returning to Ireland had been encouraging, with 12.2% young at Wexford and 14.9% from samples elsewhere in Ireland. Unfortunately, reproductive success following the return of geese to the Irish winter quarters after summer 2017 was dismal, with just 5.3% young among the 4859 geese assigned to adult/first winter birds and just 5.0% young among 343 sampled at other Irish sites (the lowest ever recorded), with no young at all among birds aged at Lough Conn (n = 20) and Rostaff and Killower (n = 92).

Table 6. Summary of age ratio determinations and brood sizes for Greenland White-fronted Geese wintering in Ireland 2017/2018.

SITE NAME	% YOUNG	SAMPLE AGED	MEAN BROOD SIZE	FAMILIES SAMPLED
Sheskinmore, Donegal	8.57	35	1.5	2
Pettigo, Donegal	9.52	42	2	2
Lough Macnean	6.02	83		
Lough Conn, Mayo	0	20		
Errif & Derrycraff	3.85	52	2	1
Rostaff & Killower, Galway	0	92		
Lower Lough Corrib	15.79	19		
Wexford	5.29	4859	2.9	72
Ireland, excl. Wexford	4.96	343	1.83	5
OVERALL	5.27	5202	2.82	77

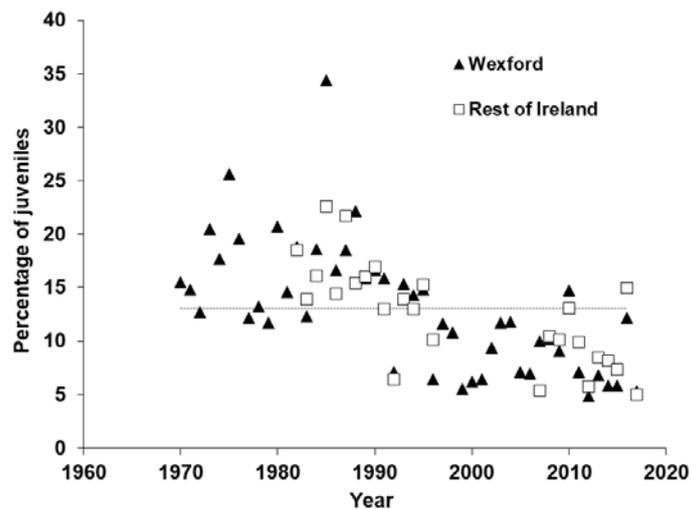


Figure 4. Age ratios sampled among Greenland White-fronted Geese at Wexford 1970-2017 and compiled from other sites elsewhere in Ireland for years in which there exist sufficient data. The horizontal dotted line indicates the average percentage young among samples from Wexford for 1970-2017.

ACKNOWLEDGEMENTS

We continue to be amazed by the kindness and support we derive from all the folk who continue to submit counts, age ratios, brood assessments and marking resightings every year without fail. We are very deeply indebted to you all for the selfless contribution you make, we always love to hear your anecdotes and stories about the geese and your experiences, but without your dedication, it would be quite impossible to monitor the fortunes of this restricted little goose population and understand the threats facing its survival. Thanks to each and every one of you! For Britain, those people who have kindly contributed data and information during 2017/2018 include: Rebecca Austin, Paula Baker, Dave and Pat Batty, Richard Boddington, Yvonna Boles, John Bowler, Jack Brown, Ed Burrell, Francois Chazel, George Christie, Sue Clare, Bob Coenen, Robert Coleman, Andrew Dacre, Pete Dale, Steve Duffield, John Dye, Alan and Anthony Fraser, Ian Fulton, Julia Gallagher, Steven Gorman, Larry Griffin, Robin Harvey, Kath Hamper, Ian Hawkins, Brian Henderson, Aimee Hood, Ian Hopkins, James How, Simon Hugheston-Roberts, Lachlan Hutchinson, Iain Jamieson, David Jardine, Tracey Johnston, Ben Jones, Dave Jones, Russell Jones, John Kemp, Alan Kerr, Amy Kirkbright, Tom Kistruck, Morven Laurie, Mary Legg, Alan Leitch, Alison Leonard, Steve Littlewood, Stephen Longster, Sinclair Manson, Paul Massey, Rae McKenzie, Irene McCulloch, Bob McMillan, Emma Martinelli, Peter Miller, Carl Mitchell, Karen Munro, Brian Neath, Bill Neill, Alex Nichol, Alison and Donald Omand, Malcolm and Carol Ogilvie, Mike and Val Peacock, Nicky Penford, Stan Phillips, Dave Pickett, Brian Rabbitts, Bryan Rains, Alan Reid, Robin Reid, Brian Ribbands, Nicola Richie, RSPB staff on Anglesey, Alison Searl, Jean and Bob Shand, Julian Smith, Andrew Stevenson, David and Judy Stroud, Arthur Thirlwell, Gareth Thomas, Terry Ward, Colin Wells, Sarah West, Catriona White, Emily Wilkins and Barbara Wolff. In Ireland, these include: Bart Ballard, Yolanda Ballard, Penny Bartlett, Dominic Berridge, Tony Berry, Richard Bonser, Ann Bingham, Noel Bugler, Brian Burke, David Cabot, John Carey, Kevin Cathcart, Cameron Clotworthy, Kendrew Colhoun, Dick Coombes, Mark Craven, Niall Cribbon, Fionnbar Cross, Miriam Crowley, Stephanie Cunningham, Clive Darling, Eamon Doran, Larry Donnelly, Tom Fiske, Triona Finnen, Ciara Flynn, Laura Gallagher, Joe Gatins, Emma Glanville, Michael Hackett, Gerard Hannon, John Higgins, Kyran Kane, Aiden G. Kelly, Niall Keogh, Elaine Keegan, James Kilroy, Brian Laheen, George Lett, Joe Lennon, Annette Lynch, Lee McDaid, David McDonagh, Cian Merne, Rachel Merne, Declan Murphy, Graham McElwaine, Eoin McGreal, Emer Magee, Gerry Murphy, Tony Murray, Irene O'Brien, Padraig O'Donnell, Thomas O'Loughlin Ciara O'Mahony, Peter Phillips, Brad Robson, Tim Roderick, Ralph Sheppard, Andrew Speer, Sarah Stapleton, Raymond Stephens, Dave Suddaby, Rebecca Teesdale, Matthew Tickner, David Tierney, Nicky Walsh, Alice Walsh, Romy Warner, Ross Watson, Mitch Weegman and John Wilson.

We do so hope that we have not inadvertently forgotten anyone, as we do so very appreciate the work that everyone puts in to making this compilation of counts, age ratios and brood sizes, as well as all the reporting of individually marked birds so many of you provide. Thanks to the continuing programme of research and surveillance carried out by the National Parks and Wildlife Service and the count network in Ireland for another fantastic effort to gather all the data for this report. We are especially grateful for the continuing help and support of John Wilson who initiated the entire process of studying White-fronted Geese in Ireland and continues to be the source of great support. Thanks to SNH for site coverage throughout Argyll, especially to Andrew Kent, but also Tracey Johnston and Morven Laurie who so kindly helped with count data on Islay, to the counter teams on Kintyre and Islay and to all the contributors for their kind help in preparing sections of the report. Special thanks as ever to Dr Malcolm Ogilvie for his extensive age ratios and for wise counsel at all times. The census is only possible thanks to the financial support of the Joint Nature Conservation Committee through a sub-contract from the Wildfowl and Wetlands Trust under their UK Goose and Swan Monitoring Programme, and we thank Colette Hall for her considerable help and support for the project.

Please be aware that the international census periods to count Greenland White-fronted Geese in the coming season are: **8-12 December 2018 and 9-13 March 2019**, but we welcome all counts from any dates, but the other monthly counts especially during the period: **17-21 November 2018, 12-16 January 2019 and 9-13 February 2019**.