REVISED REPORT OF THE 2023/2024 INTERNATIONAL CENSUS OF GREENLAND WHITE-FRONTED GEESE

by

GREENLAND WHITE-FRONTED GOOSE STUDY

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Revised and updated final report – November 2025

SUMMARY

The world population of Greenland White-fronted Geese in spring 2024 comprised 15,043 individuals, the lowest since coordinated counts began in 1982, down by an alarming 16.6% compared to 18,027 counted spring 2023, a reduction of 29.9% compared to spring 2019 and down 57.7% from the peak population count in spring 1999. Spring 2024 numbers comprised 5,608 counted in Ireland, 4,283 at Wexford (down on 5,531 the previous spring) and 9,435 in Britain, including 4,926 on Islay, down from 5,168 in spring 2023. Counts elsewhere in Ireland fell by a staggering 41.4% from 2,261 to 1,325 in 2024, while numbers counted elsewhere in Britain fell by 11.0% from 5,067 to 4,509. The percentage of young among wintering Wexford and Islay geese were again among the lowest on record (2.4% and 2.3%) and low elsewhere, likely primarily due to a late spring and late snow lie on the west Greenland breeding areas.

This report presents updated results from the coordinated Greenland White-fronted Goose surveys carried out on their wintering grounds in winter 2023/2024. Counts from all British resorts (coordinated by the Greenland White-fronted Goose Study) are combined with those in Ireland (co-ordinated by the National Parks and Wildlife Service). Incorporating extra data since the last version of this report, the international coordinated count in spring 2024 found a combined global total of 15,043 Greenland White-fronted Geese, down from 18,027 counted in spring 2023 and a reduction of 57.7% compared to the peak count in spring 1999 since coordinated counts began in spring 1983.

The annual spring 2024 census in **Ireland** found a total of 5,608 Greenland White-fronted Geese (compared to 7,792 in spring 2023) in Ireland, comprising 4,283 birds at Wexford and 1,325 elsewhere in Ireland (compared with 5,531 and 2,261 respectively in the previous spring). Missing spring counts were substituted for 10 flocks, accounting for 13.6% of the total estimate for Ireland. The annual spring count of all known Greenland White-fronted Goose wintering flocks in **Britain** found a total of 9,435 in spring 2024, compared to 10,235 in spring 2023, and comprised no birds counted in England, 30 in Wales, 4,926 on Islay (compared to 5,168 last season) and 4,479 in the rest of Scotland (compared with 5,033 last season). Counts from the specified spring count period were missing from 11 resorts, but all were substituted with counts undertaken closest to the international count dates, amounting to 7.1% of the British total.

Among wintering geese in **Ireland**, the percentage young among aged flocks after the 2023 breeding season was again extraordinarily low at 2.9% (based on 3,426 aged individuals) compared to 2.4% last season. Mean brood size among the Irish flocks was low (2.0, n = 23), down on 2.6 last season. There were 2.4% young among 3,327 aged at Wexford (substantially the same as last season's lowest ever 2.1%). Mean brood size at Wexford was 1.7, based on 16 broods (compared to 2.7 last season). Elsewhere in Ireland, reproductive success was unusually high at 18.2% based on a sample of 99 from just two sites, likely related to the small sample size, with mean brood size 2.6 (n = 7, compared to 2.7 last season). The proportion of young in aged samples from wintering geese in **Britain** was also extremely low at 3.1% (n = 4,274 aged, compared to 4.9% last season), mean brood size was 1.8 (n = 58 broods, compared to 1.7 last season). This included just 2.3% young birds on Islay, (n = 2,195, compared to 3.3% last year) and 3.9% (n = 2,079) elsewhere in Britain. Mean brood size on Islay was again low at 1.5 (n = 31, compared to last year's 1.3) and 2.2 elsewhere (n = 27, almost identical to 2.2 after summer 2022).

It is unsurprising that the 2023/2024 census revealed the lowest numbers of Greenland White-fronted Geese since coordinated counts began in 1982/1983, following a catastrophic reproductive season in 2023, with 229 first winter birds in the sample of 7,700 birds aged (3.0%, well below the c.15% required to replace annual mortality). The unfavourable status of this population has precipitated a review of the African-Eurasian Waterbird Agreement International Single Species Action Plan for the Conservation of the Greenland White-fronted Goose and underlines the urgent need for a review of conservation actions, sustained vigilance and, not least, continued monitoring into the future.

This revised report (November 2025) includes the correct version of Table 3 and additional counts and age ratios from Britain that very slightly modify values given in the November 2024 edition, with our apologies.

INTRODUCTION

The 2023/2024 survey represents the 42nd 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, 2019-2024.

	Spring 2019	Spring 2020	Spring 2021	Spring 2022	Spring 2023	Spring 2024
Wexford	7,436	8,312	6,262	5,361	5,531	4,283
Rest of Ireland	1,899	2,106	2,148	2,928	2,261	1,325
TOTAL IRELAND	**9,335**	**10,418**	**8,410**	**8,289**	**7,792**	**5,608**
Islay	6,771	5,910	6,878	5,297	5,168	4,926
Rest of Britain	5,360	5,223	4,898	4,441	5,067	4,509
TOTAL BRITAIN	**12,131**	**11,133**	**11,776**	**9,738**	**10,235**	**9,435**
Population total	**21,466**	**21,551**	**20,186**	**18,027**	**18,027**	**15,043**

Following a long period of decline in overall population size, the global population size of the Greenland White-fronted Goose has now fallen to its lowest level since before coordinated counts began in 1982/1983. The total recorded in spring 2024 fell by an alarming 16.6% compared to 18,027 counted spring 2023 and represents a reduction of 29.9% compared to the spring count in 2019, as well as a fall of 57.7% from the peak count of 35,573 in spring 1999. In the absence of any comparable coordinated counts from prior to the early 1980s, it is difficult to tell how this might have compared with previous population size. Ruttledge & Ogilvie (1979) estimated 14,400-16,600 in the late 1970s, which they considered a reduction on 17,500-23,000 estimated in the 1950s, hence we seem to be approaching the lowest ever estimates of population size. Back then, the decline was ascribed to loss of habitat, mainly bogs in Ireland and shooting and hunting disturbance, where habitat loss had concentrated birds. Disturbance was shown to be a major contributory factor to Irish flock declines in the 1980s (Norriss & Wilson 1988). Since then, hunting has been made illegal in all four Range States involved and is no longer the issue it was, although illegal hunting continues. However, the current situation is all the more worrying because of the remarkable low levels of reproductive success we are currently witnessing among flocks returning to the wintering grounds, which in the last two seasons show less than 5% young among flocks aged (see Tables 5 and 6 later in the report), well below levels necessary to maintain the population at constant size, hence the recent declines. The factors that are responsible for such low reproductive success seem related to conditions experienced by the geese on arrival to the breeding areas but inevitably are affected by conditions throughout the annual cycle. This need to look throughout the course of the year for factors affecting reproductive success has been the core focus of a Ph.D. recently defended at the University of Saskatchewan in Canada by Alec Schindler supervised by Mitch Weegman, which is described later in the report. These declining numbers are triggering a review of conservation actions as David Stroud explains later in this report, but the most important thing right now is to maintain and strengthen the monitoring of the population which is so vital to understand the rate and nature of the decline and its causes. This is why the contribution of the count network is so vital and why we need ever improved count coverage and data on age ratios and brood sizes in your flocks.

REFERENCES

Norriss, D.W. & Wilson, H.J. 1988. Disturbance and flock size changes in Greenland White-fronted Geese wintering in Ireland. *Wildfowl* 39: 63 -70

Ruttledge, R.F. & Ogilvie, M.A. 1979. The past and present status of the Greenland White-fronted Goose in Ireland and Britain. *Irish Birds* 1: 293-363.

ARRIVAL PATTERNS IN AUTUMN 2023

There were few reports of very early returning geese and none in September, but 24 were seen feeding at Hillhead of Catter, Loch Lomond on 7 October 2023 and collared bird V4Z was back at Cornabus on Islay on 9 October on the same date as 97 were reported at Loch Gruinart there. Also on 7 October, four were back on Ulva, 100 flew over Balephuil on Tiree and stalwart observers thought they heard birds flying over at Loch Shiel (with 14 rising to 17 later in the day, with those numbers confirmed there again on 11 October). The first 11 adults were seen back at Finniness, Loch Ken on 10 October. Numbers had built to 327 at Loch Gruinart, Islay by 11 October and exceeded 400 there on 13 October. Eleven geese were back at Laggan on Kintyre on 11 October, where they had increased to 36 on 14 October; the same day two apparently landed on Iona (Mull). Eleven Greenland White-fronted Geese were reported flying south past Arisaig on 12 October. Despite very large numbers of Pink-footed Geese migrating and stopping off in the Western Isles from late September through to the end of October, there were relatively few reports of Greenland White-fronted Geese there from most resorts before the end of October. An exception was two on Barve (Barra) on 28 October (remaining until 16 November). Numbers had risen at Loch Ken to 19 on 25 October and 65 were back at Stranraer on 25 October. Otherwise, two were reported at Borve (Lewis) and on Gigha (off Kintyre) on 28 October and two at Loch Tangasdale (Barra) on 31 October. By 21 October, 67 were back at Rhunahaorine, Kintyre, on 24 October, 19 (including six young) were back at Westfield, Caithness and on 26 October, there were 45 back feeding in stubbles at West Mey, Caithness, seen almost daily until 30 October, building to 64 by 11 November and 70 the day after. The first 13 geese seen back on the Dyfi did not arrive until 3 November. Unusually, two Greenland White-fronted Geese were at Rillé in central France during 6-12 November, which, at 720 km SE of the most southerly wintering site at Wexford Slobs, represents quite an autumn migration overshoot.

The first bird seen on Rathlin Island, off the coast of Northern Ireland, was a single on 25 October, with two seen flying over the west arm of the island on 4 November, with flocks of up to 11 geese seen through the month, potentially including some passage migrants. Numbers trickled in at Wexford from the beginning of October, with 400 on the North Slobs on 16 October and 800+ by 27 October.

DEPARTURE PATTERNS IN SPRING 2024

Remarkably, 50 odd Greenland White-fronted Geese were observed migrating over Laragh, Co. Wicklow at 08:00 on the very early date of 19 March, geese that most likely were from Wexford. Later that same day, several flocks at the Wexford Slobs were witnessed flying high and “testing the wind” in the characteristic way they do prior to departure. A census next day found 4,068 on the North Slob and 215 on the south Slob, some 300 less than had been present previously suggesting a departure of that many geese on the previous day. Geese were next reported migrating over Curracloe north of the Slobs at 16:15 on 26 March and there were less than 2,000 geese remaining on the North Slob the following day, confirming more than half had left by then. Three flew east over Rathlin Island on 27 March and on 30 March, Greenland White-fronted Geese were recorded during a NocMig session over Ardeath, Co. Meath. Also on 30 March, 49 passed Portstewart at midday and were seen an hour later crossing Rathlin (one of which was photographed with a telemetry collar, alas with insufficient detail to confirm its identity). By 3 April, there were just 58 Greenland White-fronted Geese left on the North Slobland at Wexford.

At Loch Shiel, at least 73 were still present on 28 March, where unknown numbers were heard departing on 30 March, but all had gone by 3 April. On the Western Isles, the earliest reported migrants were 12 flying over Stoneybridge and 39 which dropped in on West Loch Ollay (both on South Uist) on 29 March; 15 flew north over Barra and 40 north over Balranald, North Uist, both on 4 April, with 17 seen at Loch Mor, Benbecula the same day and 11 there on 8 April were likely staging migrants, as were 25 on Loch Paible, North Uist on 8 April. Many birds departed Tiree on 1-2 April, with more migrating over the island on 4 April, including 110 over Loch an Eilein, 100+ passed south over Balephuil on 9 April; five at Loch Riaghain and six at Balinoe on 11 April were the last records on Tiree for 2023/2024. On Coll, 70 flew north out over the Minch from Hogh Bay on 10 April, the same day as 31 Greenland White-fronted Geese (including five collared geese that had wintered on Colonsay) were reported sheltering during

poor visibility at Achamore on Coll. There were still 26 birds on Colonsay on 8 April, with one injured bird remaining until at least 1 May. Twelve birds feeding in fields at Kilmaluag on the very northern tip of Skye on 12 April were still present two days later but were undoubtedly staging passage birds. Four lingered at Lock Ken only as long as 1 April, but the Dyfi flock apparently did not leave until 14 April, when all left together. This flock of 14 was watched leaving the saltmarsh on the estuary at 07:02 on that morning to fly to some of their traditional fields south of the railway. These birds had gone from those fields by mid-day, and there were no subsequent sightings suggesting they had departed that morning. Six Greenland White-fronted Geese were at Ness, Lewis on 18 April, eight on croftlands at Cleat (Barra) on 18 April, while a remarkable 65 were seen flying northwest from the Butt of Lewis on the extremely late date of 7 May, a date when normally most geese will have left after spring staging in Iceland.

COUNTS IN BRITAIN 2023/2024

This report is dedicated to the amazing network of enthusiastic observers who every year on behalf of the geese give up their time and energy to count Greenland White-fronted Geese at all their regular wintering resorts. We offer a huge thanks to you for achieving such amazing coverage during the coordinated counts again in winter 2023/2024. We also greatly appreciate all the efforts of the many other observers who have this year contributed their records through either the BirdTrack database (organised by BTO with project partners Royal Society for the Protection of Birds, BirdWatch Ireland, Scottish Ornithologists Club, Welsh Ornithologists Society and BirdLife International) which gave us an overview of geese away from regular sites or via the Wetland Bird Survey (WeBS, organised by BTO with project partners RSPB and JNCC) at those regularly monitored sites. While these counts add only a few extra records to our regular basic monitoring, we are extremely grateful for these observations at non-regular sites and especially during migration periods for contributing to our understanding of the wintering population.

Monthly maximum counts from all known regularly occupied British wintering haunts for Greenland White-fronted Geese are shown in Table 2, where we also present the totals from the nominated internationally coordinated census periods in December and March (shown compared to earlier years in Figure 1). Each year, we encourage count coverage during these two periods to ensure coordination with parallel counts in Ireland. Counts from other sites, not known to support regular numbers of Greenland White-fronted Geese are shown in Table 3, and their totals are added to the master totals in Table 2.

As explained in earlier reports, we feel the March count provides a more representative assessment of total numbers in the population each winter. Our experience continues to be that geese are seemingly more aggregated and therefore more easily counted during this spring period at most resorts compared to other times of year. It also has the advantage that it represents the population size after the course of the preceding winter.

Given almost negligible reproductive success in summer 2023, it was hardly surprising that numbers counted in spring 2024 were the lowest counted in Britain since spring 1985. Numbers fell by 7.8% on the previous year and things are looking overall rather dire. Numbers counted on Orkney fell to 51 from 84 last year and the little group on Stronsay in 2022/2023 did not rematerialize in 2023/2024. The Westfield (Caithness) flock struggled to exceed 88 for most of the winter but peaked in February at 127, well down on the previous winter when 170 were present at maximum. The spring count of the other Caithness flock, at Loch of Mey numbered 138, coincidentally exactly the same number counted the previous year. After an encouraging count of 25 last winter on Lewis (Western Isles), only 18 were present in the spring 2024 count there. Twenty-eight were counted on Benbecula mid-winter and five geese just hanging on in the tiny fragile flock at Askernish, South Uist. The large Loch Bee flock that has continued to hold up well numbered 180 at most in 2022/2023, numbered just 106 at peak in 2023/2024, fortunately still supporting more than 100 birds. Two birds wintered on Skye (compared to four last winter), while the flock frequenting the twin mires of Claish and Kentra Bogs held firm around 74 (down slightly on 82 last season) and a total of 93 was counted spread between Benderloch and Lismore Island (as compared to 102 last year, with the regular resort of Appin now seemingly abandoned). The spring counts on Tiree were a little down at 746, but numbers on Coll almost halved

since last year to 128 in spring 2024, while Mull numbers were modestly up at 19 birds counted in January (though here they were hard to find and counts at other times were much lower). Numbers on Danna/Kiells/Ulva were down, but extraordinarily, three geese again returned faithfully to winter at Moine Mhor for yet one more winter! How much longer can these birds return? They must surely be the same individuals for many winters now without offspring, so it must be just a question of time before they disappear. It is hard to believe that this flock regularly held over 60 birds in the 1980s and there was even a count of 132 in 1987/1988. Overall numbers distributed between the flocks on the Mull of Kintyre summed to 2,160, relatively little changed compared to 2,255 last winter, but again reflecting the inexorable decline even in these most robust of flocks. Numbers continued to decline on Bute (115), Loch Lomond (161), on Islay (4,926, also the lowest count back to 1985), Loch Ken (120) and Stranraer (137). As some vague encouragement, numbers at both Welsh resorts remained at the same level as they were last winter with 14 on the Dyfi and 16 on Anglesey.

Despite the extraordinary diligence of the counters, no counts were forthcoming in the spring census period from just 11 sites for which we had to substitute counts from other months for these sites. This amounted to substitutions of 666 geese, or 7.1% of the overall total presented in Table 2.

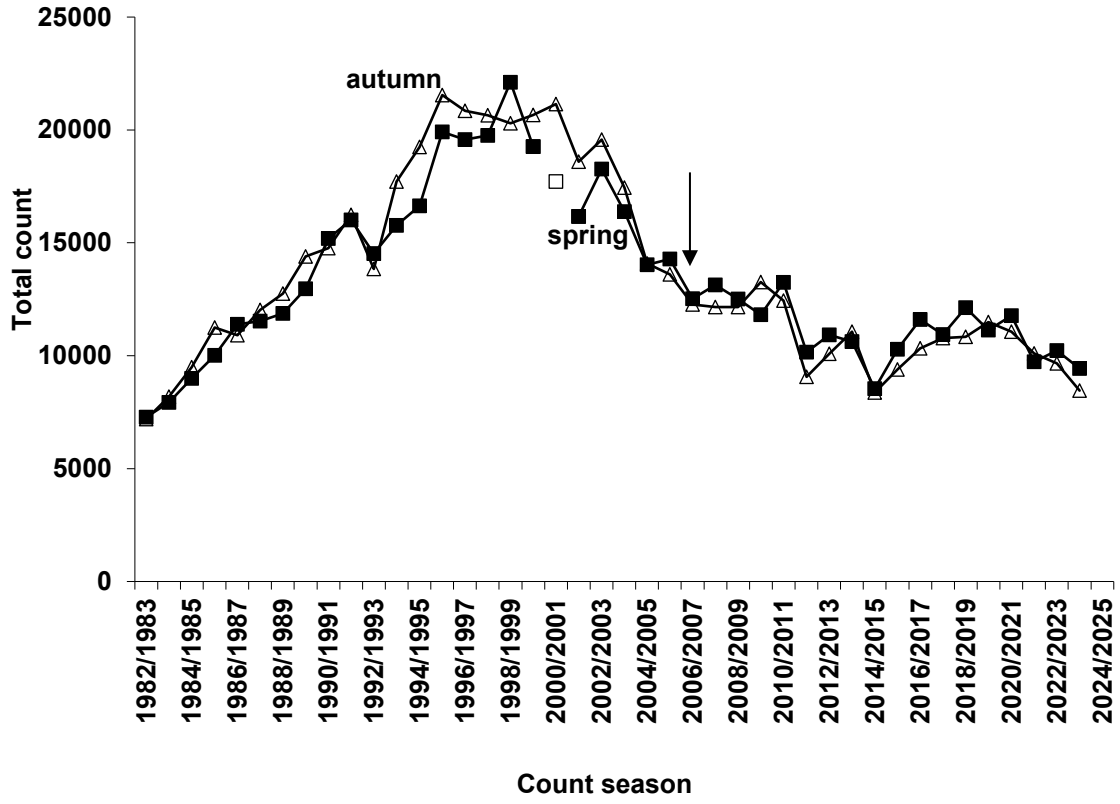


Figure 1. Counts of Greenland White-fronted Geese in Britain,1982/1983-2023/2024, showing autumn (open triangles) and spring (filled squares) census results for each season. The value for spring 2001 (unfilled square) was missing on account of the outbreak of Foot and Mouth Disease that year and was therefore estimated from previous counts. Vertical arrow indicates the start of the hunting ban in Iceland in autumn 2006.

Table 2. Summary counts of Greenland White-fronted Geese in Britain 2023/2024

shaded values are estimates for sites where no counts were received within the nominated periods for the international censuses

SITE NAME	SEP	OCT	NOV	AUTUMN CENSUS	DEC	JAN	FEB	MAR	SPRING CENSUS	APR
ORKNEY										
Yonbell, Birsay				51	51				51	
Loons, Birsay							17			
Hundland, Birsay						28				
CAITHNESS										
Westfield		19	54	85	85	88	127	28	127	
Loch of Mey		45	110	110		83	100	138	138	
WESTERN ISLES										
Barvas/Shawbost, Lewis				18			1		18	
Nunton, Benbecula							140			
Loch Mor, Benbecula						28			28	
Kilpheder/Askernish, South Uist				6	6	6	5		5	
Loch Bee/Kilaulay, South Uist			95	103	103	106	92		106	
INNER HEBRIDES										
Kilmuir, Skye				2			2		2	
Broadford/Pabay, Skye										
LOCHABER/NORTH ARGYLL										
Muck/Eigg										
Loch Shiel/Claish Moss		46	78	78	78	75	74	74	74	
Lorn:Benderloch			23	28	28	29	0		29	
Lorn: Appin			0		1			0	0	
Lismore		22	59	59		40	62		63	
Tiree		75	564	746	746		753	746	746	
Coll			162	99	99	160	168	128	128	31
Assapol, Mull				0	0			0	0	
Fidden Mull		2		0	0	19	4	0	19	
SOUTH ARGYLL										
Colonsay/Oronsay			142	107	107	102	19	99	99	93
Jura: Loch a'Cnhuic Bhric				0				14	14	
Jura: Lowlandman's Bay			0	0	0			0	0	
Danna/Kiells/Ulva		4	189	90	90	130	143	46	125	
Moine Mhor				0	0	3		3	3	
Rhunahaorine		67	370	253	339	409	274	351	239	
Machrihanish			1281	1274	1274		1541	1776	1776	
Clachan				82	82		118	80	80	
Gigha				10	10			65	65	
Glenbarr				0	0			0	0	
Isle of Bute				115				115	115	
Endrick Mouth, Loch Lomond		28	157	161	161	141			161	
ISLAY			3948	4714	4714	4390		4926	4926	
DUMFRIES & GALLOWAY										
Loch Ken		19	112	108	68	105	120	79	120	4
Stranraer		65	139	138	138	96	111	137	137	
WALES										
Dyfi Estuary			14	14	14	14	14	14	14	
Cors Ddyga, Cefni Valley, Anglesey			8	4	4	19	19	16	16	
ENGLAND										
Grindon Lough, Northumberland										
OTHER IRREGULAR SITES										
England combined				0					0	
Scotland combined				0					11	
Wales combined				0					0	
TOTALS				**8455**					**9435**	
Rest of GB less Islay				3741					4509	
Rest of Scotland less Islay				3723					4479	
England				0					0	
Wales				18					30	

Table 3. Summary counts of Greenland White-fronted Geese at irregular sites in Britain 2023/2024

	SEP	OCT	NOV	AUTUMN CENSUS	DEC	JAN	FEB	MAR	SPRING CENSUS	APR
OTHER IRREGULAR SITES										
Scotland										
Loch of Spyggie, Shetland			1							
Foula, Shetland								10	10	
Unst, Shetland						1				
Fair Isle								1	1	
Loch of Strathbeg, Aberdeenshire			1							
Murton Farm Nature Reserve, Angus			1							
Gargunnock, Stirlingshire							1			
Killian, Kyle, Argyll							4			
England										
New Grounds, Slimbridge, Glos										1
TOTALS										
Scotland		**0**	**3**	**0**	**0**	**1**	**5**	**11**	**11**	**0**
England		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Wales		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

White-fronts feeding in heavy rain at Keills, Argyll (Ian Francis)

COUNTS FROM IRELAND

Despite good coverage of almost all flocks during 2023/2024, wintering numbers in Ireland were very seriously down everywhere on the previous winter (Table 4). In addition, geese often proved elusive during the nominated December and March count periods, necessitating substituted counts for these periods. For instance, on Lough Foyle/Swilly, the November count located 741 birds, likely swollen by migrants continuing elsewhere, yet the December count yielded just 47 geese, requiring the replacement of the autumn count with 437 counted in January, thought more reflective of true numbers present. This correction effect resulted in substituted counts for 11 wintering sites, comprising 12.7% of the autumn total and at 10 sites affecting 13.6% of the Irish total in spring.

The total numbers counted in Ireland in winter 2023/2024 were depressingly less than in the previous winter at all but one of the regular wintering sites. The continued decline, especially among flocks in the south and west where there have also been noted site desertions in recent years, makes for a gloomy picture. Numbers on Rathlin fell from 17 to 11, although it was far from clear if there was a group of geese regularly using the island in 2023/2024. There were certainly between one and 11 geese seen on various parts of the island between 25 October and 21 November and 11 were on Ushet Lough on Christmas Day. However, none were seen on the island in early 2024 until late March when migrating flocks passed over (see above).

Numbers at Loughs Foyle and Swilly combined also declined from 861 in spring 2023 to 306 in 2024. Numbers reduced from 87 at Dunfanaghy to 81, at Sheskinmore from 23 to 18, at Pettigo from 72 to 37, at Stabannon from 20 to 12. In County Mayo, the challenges of finding the bog feeding flocks especially likely led to reductions there, with the Loch Conn flock also falling from 55 last spring to 47 in spring 2024. No birds were reported from the Errif and Derrycraff flock range, which held 115 in January of 2023 and no geese were found in the Connemara peatlands despite two attempts to find them, but in both areas, geese can be notoriously difficult to find deep in the boglands.

Numbers in the Rostaff and Killower flock fell from 63 to 54, but Rahasane numbers uniquely increased from 52 in spring 2023 to 53 in 2023/2024, while 10 were seen at Lower Loch Corrib in February 2024 after intensive monthly counts failed to find any birds last winter. Numbers also fell at Tullagher (9 to 3), North County Clare (55 to 44), Lough Gara (112 to 109), River Suck and Glenamaddy combined (229 to 149) Little Brosna (181 to 71) and Midland Lakes (230 to 198).

Numbers at Wexford were also very seriously down despite an encouraging 5,569 counted in autumn 2023; the spring count of 4,283 was the lowest there since records began in 1968, with a remarkable reduction of 22.6% on the previous spring count. However, this does pale when compared to the 41.4% decline in numbers counted at all other sites in Ireland (outside Wexford) from spring 2023 to 2024. While there is absolutely no doubt that geese are missed in the surveys of especially upland, extensive bogland and peatland feeding flocks, the dramatic scale of this annual change in the Irish wintering Greenland White-fronted Geese gives considerable cause for concern.

Table 4. Summary counts of Greenland White-fronted Geese in Ireland 2023/2024

shaded values are estimates for sites where no counts were received within the nominated periods for the international censuses

	OCT	NOV	AUTUMN CENSUS	DEC	JAN	FEB	MAR	SPRING CENSUS	APR
Rathlin Island			11	11				11	
DONEGAL									
Loughs Foyle & Swilly	165	741	437	47	437	175	306	306	
Dunfanaghy			46	11	46	47	81	81	
Sheskinmore Lough	4	11	18	18	18	18	18	18	
Pettigo		29	29	20	0	17	0	37	37
NORTH CENTRAL									
Bunduff									
Lough Macnean			108	108	108			108	
Caledon									
Lough Oughter									
Stabannon			12			12		12	
Kilcoole Marshes									
MAYO									
Lough Conn		26	35	35		50	47	47	
Bog of Erris									
a. Mullet		0				0			
b. Carrowmore			14				14	14	
c. Owenduff		0			0				
MAYO/GALWAY UPLANDS									
Errif & Derrycraff		0			0				
Connemara									
GALWAY LOWLANDS									
Rostaff & Killower		40	42	42		23	54	54	
Lower Lough Corrib	0	0	10			10		10	
Rahasane turlough		53	53					53	
CLARE/LIMERICK									
Tullagher			3	3	3	3	3	3	
North County Clare			41		41	44		44	
SHANNON HEADWATERS									
Lough Gara	60	96	112	66	112	109	0	109	
MIDDLE & LOWER SHANNON									
River Suck	4	40	40	5	0	149	113	149	
Little Brosna			71		71	4		71	
MIDLANDS									
Midland lakes		150	156	156	165	198		198	
River Nore	0								
SOUTH WEST									
Killarney valley									
SOUTH EAST									
Wexford North Slob	800	4450	5569	5569	4028	4724	4068	4068	58
Wexford South Slob		18				25	215	215	
Tacumshin		0			0	0	0	0	
Cahore					0	0	0	0	
COUNT TOTALS			**6807**					**5608**	
Ireland without Wexford			1238					1325	
Wexford			5569					4283	

THE INTERNATIONAL TOTALS

The Irish totals comprised 4,283 counted at Wexford added to the 1,325 geese counted elsewhere in the rest of Ireland. In Britain, 4,926 were counted on Islay and 4,509 at sites elsewhere in Scotland, Wales and England, giving a global total of 15,043 Greenland White-fronted Geese in spring 2024, a very alarming 16.6% decrease on 18,027 counted in spring 2023. This major decline in numbers, throughout the winter quarters but most marked at Irish sites away from Wexford, may have been in some small measure due to challenges in finding down-country flocks in the Republic. However, it is more likely to be due to the record low breeding productivity in the population in summer 2023 following on from low productivity in the last decade or so (see below). Consequently, the global population size has hit its lowest level since counts began in 1982/1983 (Figure 2), following the long decline from the peak population total of 35,573 in 1999. Numbers are therefore now close to the lowest ever figure of 14,300 estimated for the late 1970s (see above).

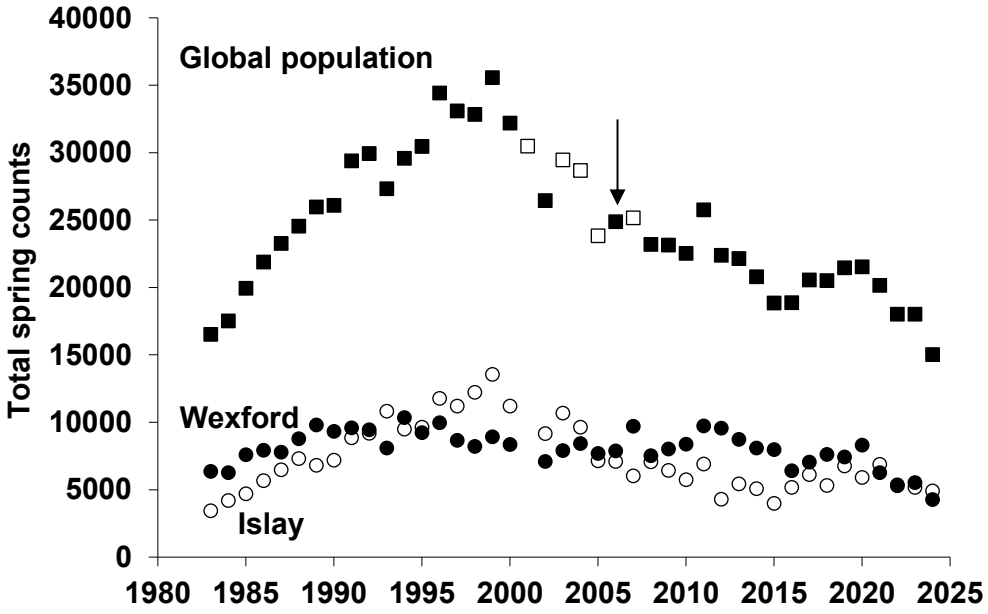


Figure 2. Spring counts of Greenland White-fronted Geese from Wexford Slobs (filled circles) and Islay (open circles) and the global population count (squares), 1983-2024. Values for the total population size are missing in some years when complete coverage could not be achieved (open squares, for which 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

Grateful thanks as ever to everyone who sampled age ratios and brood size data in Britain during 2023/2024 for the excellent cover achieved at many flocks (Table 5).

Table 5. Summary of age ratio determinations and brood sizes for Greenland White-fronted Geese wintering in Ireland 2023/2024.

Flock name	Percentage young	Number aged	Number of first winter birds	Mean brood size	Number of broods	Number of first winter birds
Askernish	0.00	6	0			
Tiree	3.25	584	19	1.90	10	19
Coll	5.51	127	7			
Lorn	0.00	28	0			
Tralee, Benderloch	0.00	9	0			
Colonsay	14.95	107	16	4.00	4	16
Danna/Ulva	3.33	60	2			
Clachan	2.54	118	3	1.50	2	3
Rhunahaorine, Kintyre	1.20	250	3	1.50	2	3
Machrihanish, Kintyre	2.66	451	12	1.71	7	12
Islay	2.32	2,195	51	1.45	31	45
Loch Ken	3.33	120	4	4.00	1	4
Stranraer	1.64	122	2	2.00	1	2
Endrick Mouth	16.13	62	10			
Anglesey	10.53	19	2			
Dyfi Estuary	0.00	16	0			
Britain, excl. Islay	3.85	2,079	80	2.19	27	59
OVERALL	3.07	4,274	131	1.79	58	104

After the pretty disastrous numbers of young returning from Greenland in autumn 2022, summer 2023 proved again to be the least productive breeding season on record, especially among birds wintering on Islay. There, a sample of 2,195 birds contained just 51 first winter birds, a miserable 2.3% compared to 3.3% in winter 2022/2023 (Table 5), the lowest winter percentage young recorded there since records began in 1962. Age ratios away from Islay in Britain were also extremely low at 3.9% among 2,079 geese aged, but also well below average (Table 5, Figure 3). There continues to be no long-term trend in reproductive success on Islay back to 1962 ($P = 0.10$), nor for the annual compounded reproductive success at sites away from Islay elsewhere in Britain back to 1982 ($P = 0.07$, Figure 3). Mean brood size was 1.79 overall based on 58 families sampled from seven sites, compared to 1.68 the previous year, including 1.45 on Islay (n = 31) compared to 2.19 elsewhere (n = 27, compared to 1.34 and 2.22 respectively after the 2022 breeding season).

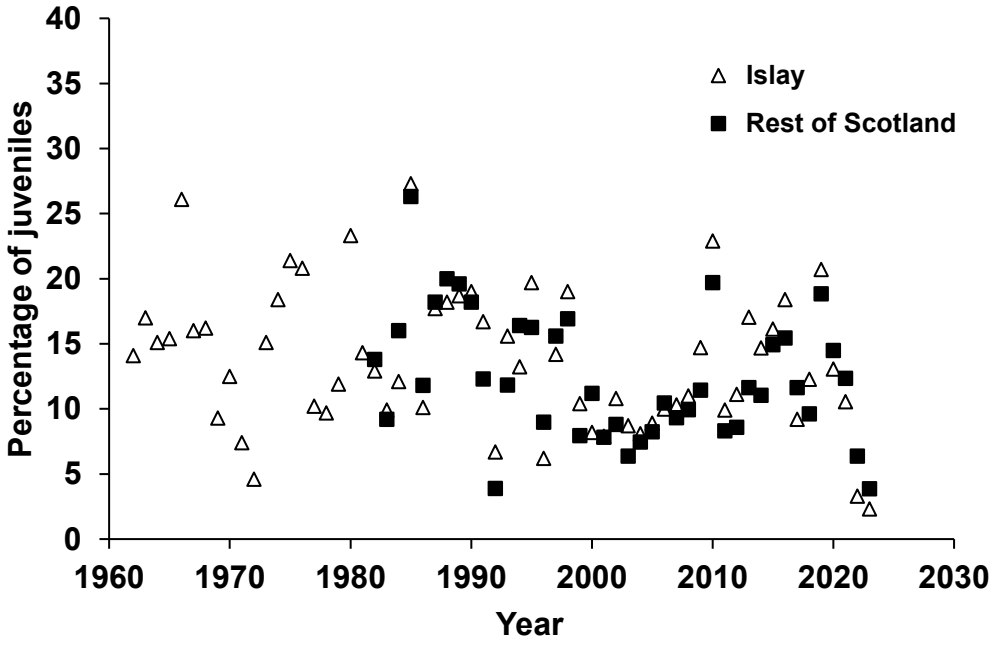


Figure 3. Age ratios sampled among Greenland White-fronted Geese at Islay 1962-2023 (open triangles) and compiled from other sites in Scotland and Wales, 1982-2023 (solid squares). Note the extreme low values of the last two summers compared to recent years.

AGE RATIOS FROM IRELAND

Breeding success following the 2023 summer among flocks returning to Ireland was again dismally low at 2.4% first winter birds among 3,327 birds sampled at Wexford (although very marginally higher than last year) and 18.2% from 99 sampled among relatively modest samples in two flocks elsewhere in Ireland (thus possibly not representative of those elsewhere), resulting in just 2.9% young overall (Table 6). There has been a significant decline in the percentage of young among birds returning in autumn to Wexford over the period 1970-2023 ($P < 0.001$) as was the case for the percentage young sampled at flocks elsewhere in Ireland over the period 1982-1996 and 2007-2023 inclusive ($P < 0.001$, see Figure 4). Mean brood size following the 2023 breeding season at Wexford was 1.7 (unusually low and compared to 2.7 last season) based on 16 broods and 2.6 from elsewhere in Ireland (n = 7, compared to 2.7 last winter, see Table 6).

Table 6. Summary of age ratio determinations and brood sizes for Greenland White-fronted Geese wintering in Ireland 2023/2024.

Flock name	Percentage young	Number aged	Number of first winter birds	Mean brood size	Number of broods	Number of first winter birds
Dunfanaghy	18.52	81	15	2.50	6	15
Sheskinmore	16.67	18	3	3.00	1	3
Wexford	2.40	3,327	80	1.69	16	27
Ireland, excl. Wexford	18.18	99	18	2.57	7	18
OVERALL	2.86	3,426	98	1.96	23	45

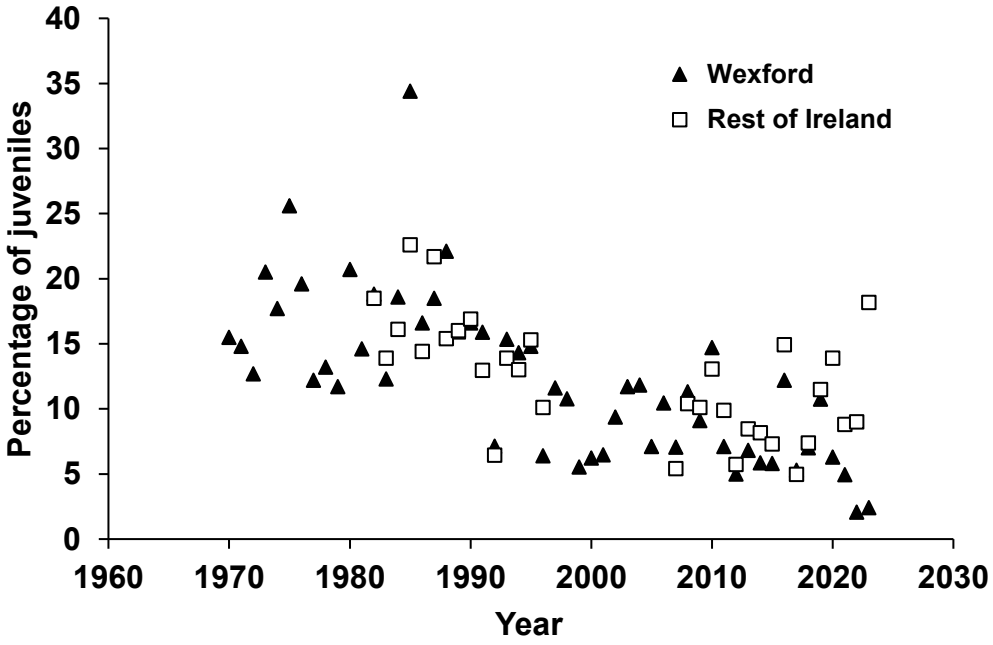


Figure 4. Age ratios sampled among Greenland White-fronted Geese at Wexford 1969-2023 (filled triangles) and compiled from other sites elsewhere in Ireland for years in which there exist sufficient data (open squares).

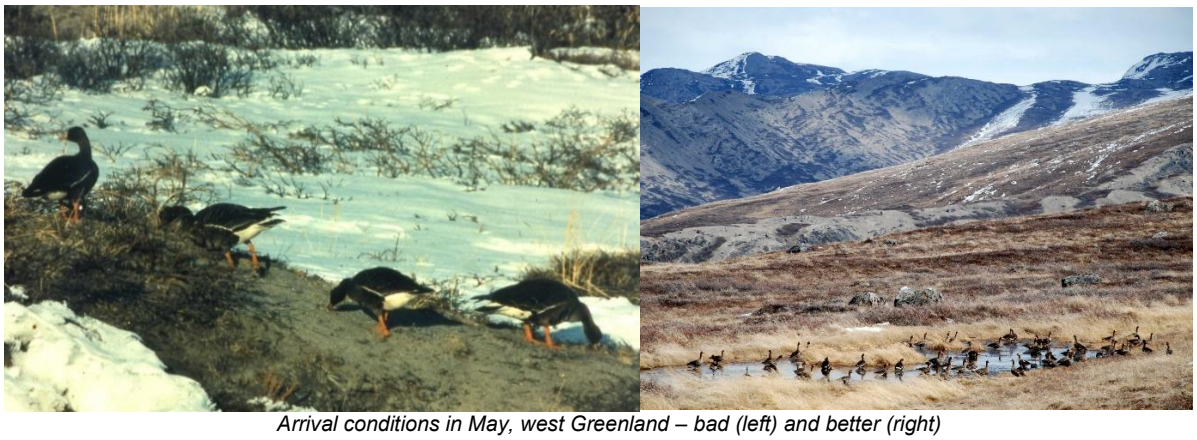
Greenland White-fronts on Danna (Ian Francis)

RECENT RESEARCH

In the past year, Alec Schindler has published two very significant chapters from his PhD thesis on Greenland White-fronted Goose population dynamics, highly relevant to the conservation of the population, which he successfully defended at the University of Saskatchewan in October 2024 under the supervision of Mitch Weegman. The first manuscript (Schindler et al. 2024a) attempted to understand why Greenland White-fronted Geese are, and to some degree always have been, so bad at producing offspring. This investigation used the data from tracking devices fitted to adult female Greenland White-fronted Geese to track their movements and calculate their behaviour (especially the amount of time they spent feeding) and their energy expenditure (based on accelerometers in the devices that measure the precise movements of the geese). In that respect, he was very hands on, being involved with catches and deployment of tracking devices on Greenland White-fronted Geese at Lough Swilly in November 2017.

Alyn Walsh and Alec Schindler gathering up Greenland White-fronts after a Lough Swilly cannon-net catch November 2017 (Alyn Walsh)

In this way, Alec was able to quantify how the geese prepared themselves for reproduction by recording feeding, activity and energy expenditure in the months immediately prior to breeding from the wintering grounds all the way through spring migration. This spring preparation for reproduction Alec could then relate to subsequent breeding outcomes of the observed individuals and then relate breeding outcomes to what he observed on autumn migration characteristics (for example: did parents suffer from having to accompany goslings on autumn migration compared to non-breeders?). He also attempted to relate autumn migration characteristics to subsequent parental survival.



Arrival conditions in May, west Greenland – bad (left) and better (right)

What Alec found was that weather and habitat-use affected time spent feeding and energy expenditure both in spring and autumn. Geese that expended less energy and fed longer in spring were more likely to successfully reproduce. Geese with offspring expended more energy and fed for less time during autumn, potentially representing adverse fitness consequences of breeding caused by their investment in their young. He found no clear effects on survival, but sample sizes were too small to conclude very much from this work. The high prevalence of females attempting to breed but failing (67%) showed the challenges to successful reproduction in this population, but did not help in identifying the direct causes.

Greenland White-fronted Goose FG nest with eggs (left)and successfully hatch clutch (right).

This work confirmed the importance of accumulation of energy and nutrient stores prior to breeding to invest in reproduction, underlining the need for access to optimal food resources and reductions in human disturbance on the wintering grounds and in Iceland on the staging areas there (where these can be managed) and potentially at the breeding areas (where management is not possible).

The second manuscript (Schindler 2024b) was also very heavily based on all of the vital information that you have been contributing for very many years. Alec used the count data from 59 geographically discrete Greenland White-fronted Goose wintering flocks to develop what is called a state-space abundance model in a Bayesian framework to quantify the effects of weather and land-cover conditions experienced throughout spring migration, summer breeding, autumn migration and wintering periods on variation in wintering site abundance. The analysis identified two main patterns in Greenland White-fronted Goose abundance trends. The first was that the wintering flocks that lie within the northeastern sector of the wintering range declined on average by 3% per year, while southwestern wintering sites declined on average by 14% per year. This very much confirms the patterns that we have seen, that show most flock extinctions/site desertions and the most serious flock declines have generally been occurring in southwestern Ireland, while Scottish flocks (which tend to breed further south within west Greenland than Irish birds) have fared relatively better, despite overall population declines. Differential responses to weather and habitat conditions likely explained variation among groups, as flocks from different parts of the wintering range breed in different areas. Geese at southwestern wintering sites

were more adversely affected by harsh weather conditions on their breeding grounds (e.g. low temperatures and high precipitation as snow, because they tend to breed further north in Greenland) and poor habitat conditions on their wintering grounds (i.e. low-quality grasslands and croplands). In addition, the earlier grass green-up in late winter may also result in earlier growing seasons for agricultural crops (including grasslands), which may affect forage quality and result in higher and more rapidly growing swards. These trends would also cause increased agricultural disturbance just prior to geese departing for spring migration (e.g. earlier release of grazing stock on site and earlier use of machinery to manure, plough, drill, etc.), which likely adversely affect geese wintering in the milder southern part of the wintering range, where the growing season is earlier and advancing more quickly due to climate changes. The analysis recommends future conservation efforts improve the suitability and nutritional quality of agricultural areas, especially cereal croplands in autumn and early winter and grasslands in late winter and early spring, could potentially improve local habitat conditions, especially in the southwestern wintering sites where abundance declines were steepest. However, while the most serious problem threatening the population is the low levels of reproduction due to adverse conditions on the breeding areas caused by climate, there is little to be done other than to make sure the geese maintain optimal body condition throughout the annual cycle (i.e. including wintering, staging and breeding grounds) to ensure the highest possible rates of survival and breeding fitness possible, while we do everything possible that we can to halt further global climate change.

Another important analysis by Luke Ozsanlav-Harris and Aimée Mackintosh (Ozsanlav-Harris et al. 2024) looked at the effects of shooting Greenland Barnacle Geese *Branta leucopsis* on Islay, Scotland as a means of controlling agricultural damage caused by this species. The study also looked at the effects of Barnacle Goose shooting and disturbance on Greenland White-fronted Geese (that were clearly not the target of such shooting and disturbance but were unavoidably affected). Both species were displaced by shooting, Barnacles more so that White-fronted Geese, but while daily distances moved were significantly greater for Barnacle Geese (1.18 km) they were unchanged for White-fronted Geese, which suffered no significant change in energy expenditure, behaviour or habitat selection following shooting disturbance, suggesting mitigation strategies have been effective at minimizing fitness impacts. These findings are some good news to those who felt the shooting and scaring of Barnacle Geese on the Islay would most likely have adverse effects on the associate Greenland White-fronted Geese there.

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CONSERVATION UPDATE: GREENLAND WHITEFRONT ACTION PLANS

Whilst Action Plans for critical species are currently commonplace, there were few models to follow when the first Action Plan for Greenland White-fronted Geese was being drafted in 1992. The only Action Plans for species then in existence were costed recovery plans for critically endangered species (such as the Takahe *Porphyrio hochstetteri* in New Zealand for example) or IWRB status reviews for wildfowl such as Marbled Duck *Marmaronetta angustirostris* and White-headed Duck *Oxyura leucocephala*. These latter were excellent summaries of knowledge but were not developed consensually involving consultation with all relevant stakeholders and had no mechanisms to implement any of the suggested conservation actions.

The first Greenland White-fronted Goose Action Plan was broadly structured following nature reserve

site management plans, which by that time were well-developed. The Plan was discussed and revised at a 1992 international workshop convened by the Irish National Parks and Wildlife Service and IWRB in Wexford. Unfortunately, although a diplomatic Memorandum of Understanding between the four Range States was drafted and discussed, political enthusiasm in Ireland to take the final diplomatic steps on this – which would have created implementation mechanisms – waned and the Plan was never formalised nor the MoU agreed. With the population still increasing in the 1990s, this was unfortunate but perhaps not critical.

In parallel with the development of the Greenland White-fronted Goose Action Plan, the International Wetlands and Waterbird Research Bureau had been working with the Dutch government to shape a new international mechanism for waterbird conservation. This eventually evolved into what came to be called the Agreement on the conservation of African-Eurasian migratory Waterbirds (AEWA). AEWA was finally agreed and constituted in 1995 after many international negotiations and came into legal effect four years later. One of the many things the Agreement does is provide a formal mechanism for the development and implementation of International Single Species Action Plans (ISSAP).

With Greenland White-fronted Geese in steady decline from the late 1990s onwards, developing an AEWA ISSAP became a priority and the opportunity to develop and agree such a plan came when the subspecies was added as one of four priority birds to Scottish Natural Heritage's Species Action Framework (https://tinyurl.com/5e7eupe6). This provided the funding for an international workshop on Islay in February 2009 which considered a draft Action Plan, by now following a standard format that had been developed internationally over previous decades. The draft ISSAP benefited from expert inputs from government representatives from all four Range States (Greenland, Iceland, Ireland and UK) and many other experts and interest groups, including the farming community on Islay.

Participants at the International Greenland White-fronted Goose Action Planning Workshop, Islay; 24-26 February 2009.

The Greenland White-fronted Goose ISSAP was formally adopted by all AEWA Contracting Parties at their 5th meeting (MOP) in May 2012 (available here). It has been valuable in internationally establishing the key conservation priorities, in particular – in the context of reduced productivity - the need to take *all* steps to minimise adult mortality from *any* source (not just hunting). However, its traction in delivering

other conservation actions has been reduced by none of the four Range State governments being willing to provide the necessary co-ordination over that last decade. Indeed, with the continued decline, two of the formal triggers for an emergency meeting of the Range States have been and gone without such a meeting occurring.

So: what of the future? The last AEWA MOP in 2022 recognised that the Plan had run to the end of its implementation period so Resolution 8.4 extended the ISSAP for another ten years and requested a Conservation Brief be drafted. This has a recognised format, taking the form of an update on developments since the Plan was first adopted. Key elements are to reaffirm (or re-prioritise) conservation actions in the light of developments since the ISSAP was adopted. Clearly looking at all the data presented in this census report, it is harrowing to see how things have changed with regard to breeding success and population size for this population since 2012.

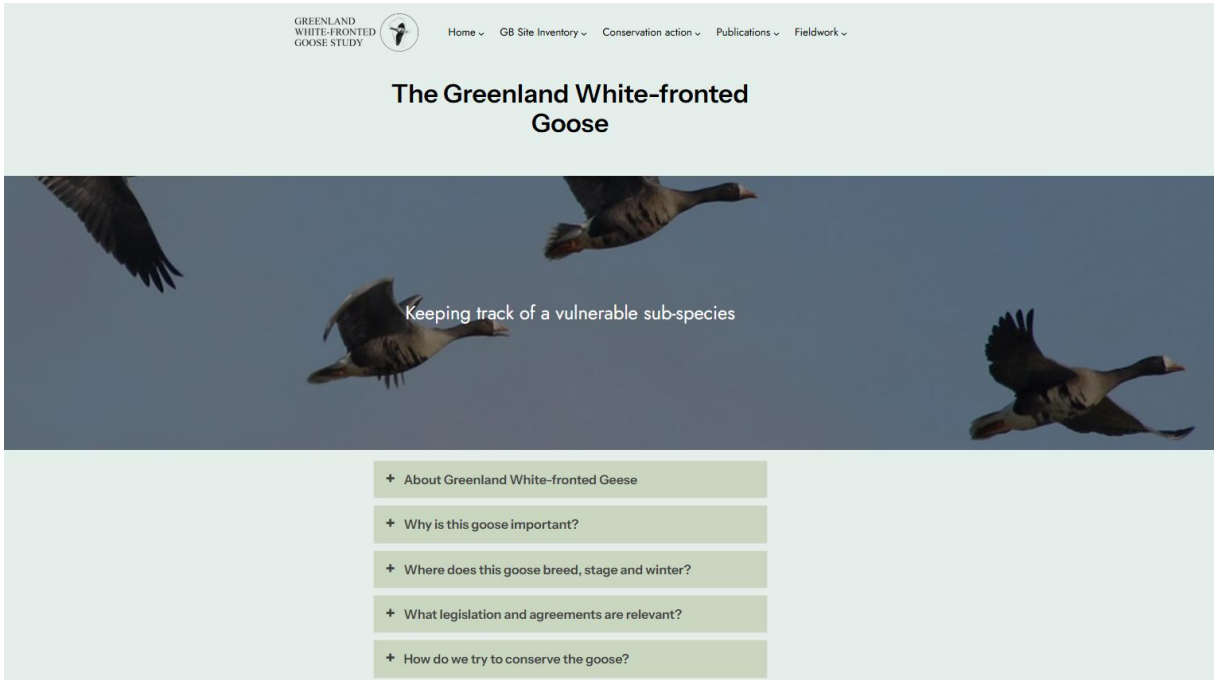
The development of the Conservation Brief is being undertaken by the Greenland White-fronted Goose Study for the AEWA Technical Committee. A first draft was circulated to all experts and agencies in all four Range States in July 2024. Following incorporation of comments and observations, the revised draft was sent again to the responsible administrative statutory authorities in the four Range States for formal responses and input to the document, which will then be developed for referral to the AEWA Standing Committee for action, hopefully going before the AEWA MOP9 for adoption (in autumn 2025).

We hope this will highlight to AEWA governments and their agencies that urgent action is needed now to identify possible ways to assist the geese in their rapidly declining state. It is to be hoped that at least, one of Range States will step up and co-ordination the necessary international actions agreed in 2012.

David Stroud

THE GREENLAND WHITE-FRONTED GOOSE STUDY WEBSITE

The Greenland White-fronted Goose has, for many years, maintained a website containing much information about the geese along with a GB site inventory (see https://greenlandwhitefront.org). Until recently, this had become somewhat neglected and outdated. Thanks to much effort from Anne Fox, we have recently made many changes and improvements.



We would be very grateful if you could have a look at the revised website and let us know how we could further improve it. Do you have any information, photographs or other items of interest we could use? Or let us know if you spot any errors or omissions. We hope to continue to develop the site so that it remains the principal web resource about Greenland White-fronts.

ACKNOWLEDGEMENTS

None of the information reported here would be possible without the incredible network of dedicated folk who so kindly give of their own time to check out their local flocks of Greenland White-fronted Geese. It is pure pleasure to thank you all for such a magnificent effort! We try and thank you every year, clearly words are not adequate, but we are supremely grateful to you all nonetheless and we are deeply apologetic if we have inadvertently forgotten to mention anybody.

In Britain, those people who have kindly contributed data and information during 2023/2024 include: Jack Barton, Dave and Pat Batty, Yvonne Benting, Eva Bonetti, John Bowler, Owen Browning, George Christie, Sue Clare, Andrew Dacre, Pete Dale, Steve Duffield, Rhodri Evetts, Carol Fielding, Ian Fulton, Larry Griffin, Ian Hawkins, Brian Henderson, Ian Hopkins, James How, Rob Hughes, David Jardine, Tracey Johnston, Ben Jones, Dave Jones, Russell Jones, Tom Kistruck, Catriona Laird, Ivan Lang, Morven Laurie, Mary Legg, Alan Leitch, Alison Leonard, Fiona MacGillivray, Callum McGregor, Sinclair Manson, Kay-Leigh Marais, Paul Massey, Rae McKenzie, Bob McMillan, Sandy McNeil, Mark Mitchell, Karen Munro, Brian Neath, Bill Neill, Alex Nichol, Alison and Donald Omand, Malcolm Ogilvie, Nicky Penford, Crystal Powell, Brian Rabbitts, Alan Reid, Nicola Ritchie, RSPB staff on Anglesey and the Dyfi, Andy Robinson, Hannah Sharratt, Mark Shields, Pete Skinner, Julian Smith, Andrew Stevenson, Robyn Stewart, Gareth Thomas, Rosie Thompson, Niall and Rachel Tierney, Morgan Vaughan, Luke Wake, Catriona White and Emily Wilkins.

For Ireland, these include: Joe Adamson, Grace Bettayeb, Ann Bingham, Christian Brennan, Brian Burke, David Cabot, Cian Cardiff, Vincent Carragher, Mary Coleman, Fionnbar Cross, Jack Cullen and family, Sinead Cummins, Hazel Doyle, Joe Doolan, Roisin Doherty, Robert Edge, Darren Ellis, Tom Fiske, Triona Finnen, Eugene Finnerty, Des Finnamore, Ciara Flynn, Frances and Michael Furlong, Michael Gately, Luke Geraty, Conor Goggins, Mike Gormally, Niamh Graham, Paul Grangel, Helen Greenhalgh, Emma Glanville, Kieran Grace, Niamh Graham, James Hegerty, Sean Holland, Brian Hughes, Noel Keogh, Paul Keogh, Andrew Kelly, Elaine Keegan, Jennifer Lynch, Kevin McCormack, Lee McDaid, Patrick McDaid, David McDonagh, Eibhlin McGeever, Andrew McKeever, Emer Magee, John McLaughlin, Eleanor Mayes, Michael Martin, C. Murray, Tony Murray, Doireann Nicholls, Irene O'Brien, Aonghus O'Donaill, Hannah O'Donoghue, Ronan Owens, Chris Peppiatt, Sammy Pooley, Andre Robson, Tim Roderick, Fergal Stanley, Alec Schindler, Sara Sheridan, Andrew Speer, Raymond Stephens, Sarah Stapleton, Dave Suddaby, David Tierney, Martin Toye, Eamonn Twomey, Nickey Walsh, Alice Walsh, John Wilson and Gordon Wycherley.

As in previous years, we are very grateful for permission to incorporate data from BirdTrack and WeBS, kindly provided by the British Trust for Ornithology (BTO), with our very grateful thanks to Elizabeth Tatum, Justin Walker, Neil Calbrade and other staff at the British Trust for Ornithology for prompt and efficient access to all records of Greenland White-fronted Geese lodged with them. BirdTrack is organised by the BTO for the BTO, Royal Society for the Protection of Birds (RSPB), BirdWatch Ireland, Scottish Ornithological Club and Welsh Ornithological Society. Data were provided by WeBS, a Partnership jointly funded by the British Trust for Ornithology, RSPB and Joint Nature Conservation Committee, with fieldwork conducted by volunteers. Although WeBS data are presented within this report, in some cases the figures may not have been fully checked and validated. Therefore, for any detailed analyses of WeBS data, enquiries should be directed to the WeBS team at the British Trust for Ornithology, The Nunnery, Thetford, IP24 2PU (webs@bto.org).

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, but also to Dave Tierney for his support. Thanks to NatureScot for site coverage throughout Argyll, especially to 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 under their UK Goose and Swan Monitoring Programme and we thank Kirsi Peck for her support and help during the past few months. Finally, our sincere thanks to Ailidh Barnes, Neil Calbrade, David Noble, Elizabeth Tatum and Justin Walker for their kind support at BTO under their Swan and Goose Monitoring Programme and hearty thanks to Lerry Griffin for proofchecking!

Please be aware that the international census periods to count Greenland White-fronted Geese in the coming winter will be as follows: **Autumn international census dates: 14-18 December 2024 and Spring international census dates: 15-19 March 2025.** However, as usual, we greatly welcome all counts from any dates, but the other monthly counts especially during these periods: 23-27 November 2024; 18-22 January 2025; 15-19 February 2025. Good luck and happy counting!

Dream Goose Catching Team (left to right) Alec Schindler, Martin Toye, Martin Burke, Lee McDaid and Mitch Weegman after a successful catch of Greenland White-fronted Geese at Lough Swilly, November 2017 (Alyn Walsh)