



Monitoring migratory geese in the UK through the Goose & Swan Monitoring Programme (GSMP) and other schemes

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Winter populations of geese in the UK (including residents)



510,000
1 population



100,000
3 populations



91,000
2-3 populations



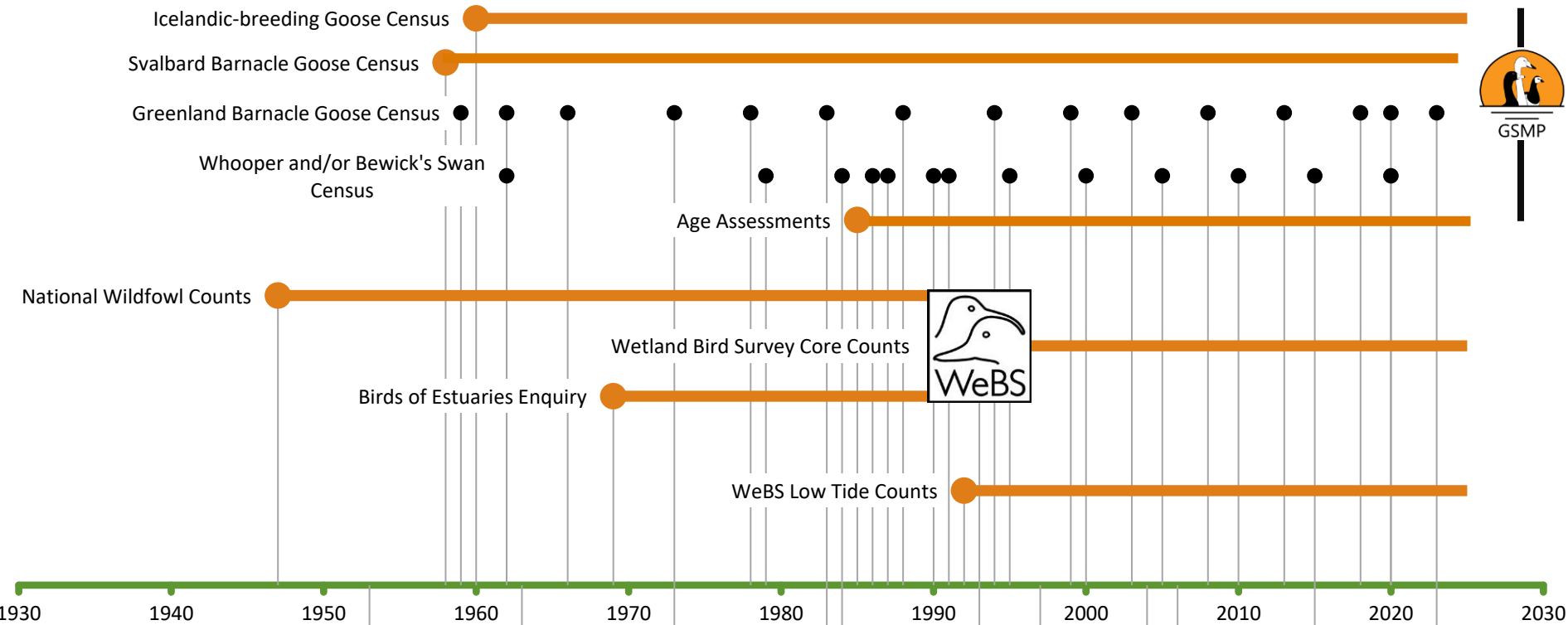
13,000
2 populations



137,000
3 populations



216
1 population (2 species)



- Data for wintering geese from long running UK surveys, mostly organized by the **Goose and Swan Monitoring Programme (GSMP)** and the **Wetland Bird Survey (WeBS)** partnerships of NGOs and government organisations.
- Most monitoring annual (orange bars), but some censuses run every few years (black dots).
- **WWT** ran the National Wildfowl Counts (1954-1993), WeBS (1998-2004) and main GSMP surveys (1950s-2022), but **BTO** is now responsible for coordinating both GSMP and WeBS. (WWT are no longer actively involved in the partnerships.)
- **NatureScot** are also particularly involved with the GSMP surveys for Icelandic Greylags, Svalbard Barnacles and Greenland Barnacles and extra monitoring.

Goose & Swan Monitoring Programme (GSMP)



- Monitors the **abundance** and **breeding success** of the UK's native geese and migratory swans during the non-breeding season
- Suite of species-specific surveys which monitors the different populations of geese (including Pink-footed, Barnacle, Bean, Brent, Greater White-fronted and Greylag) throughout the United Kingdom
- Additional monitoring of resident Greylag and both Barnacle populations by NatureScot for goose management

Funded jointly by the British Trust for Ornithology (NGO), Joint Nature Conservation Committee (UK government) and NatureScot (Scottish government).



Surveys run by GSMP partners

- Icelandic-breeding Goose Census (IGC) of Pink-footed Goose and **Greylag Goose**
- International Census of **Greenland Barnacle Geese**
- **Svalbard Barnacle Goose** Census
- **Goose Age Assessments**
- International Swan Census (ISC)

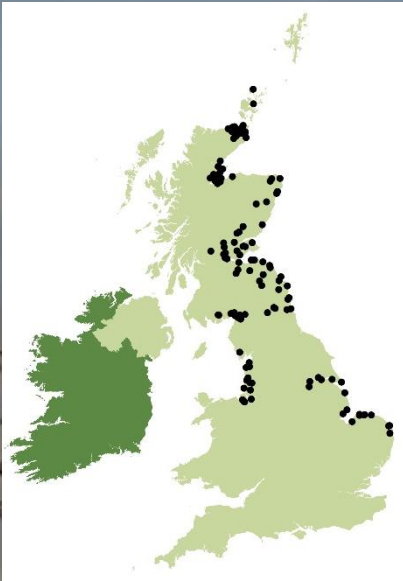
Surveys run by Collaborating Organisations

- Counts and age assessments of **Taiga Bean Geese**
- Greenland White-fronted Goose Census
- All-Ireland Light-bellied Brent Goose Census
- BTO/RSPB/JNCC Wetland Bird Survey (WeBS) Core Counts for abundance of other species/populations – other Brent and White-fronted Goose populations; Tundra Bean Goose; resident populations of Greylag and Barnacle Geese.

Analysis

- Method detail differs between species/populations, but are mostly treated as a census without modelling, except simple estimates for core sites with missing data
- Currently in a transition period for Age Assessments and Icelandic Greylag and Pink-footed Goose:
 - 2021/22 – Counts organised by WWT, analysis conducted by JNCC, published spring 2023
 - 2022/23 – Counts organised by BTO, analysis to be conducted by BTO using same methods, publication due spring 2024
 - Future – Similar timescales, but analysis methods will be reviewed and possibly updated.

Icelandic-breeding Goose Census (IGC) – Pink-footed Goose



Icelandic-breeding Goose Census (IGC)



Icelandic-breeding Goose Census (IGC)

Two counts annually in October and November

Additional September count for Greylag Geese

Coordinated regionally by 14 volunteer Local Organisers

~100 volunteer counters

Counts carried out predominantly at dawn or dusk but some daytime feeding flocks



Pink-footed Goose by Chris Knights/BTO

Icelandic Greylag Geese – resident overlap

UK also has a resident Greylag Goose population, which overlaps spatially with Icelandic birds in winter

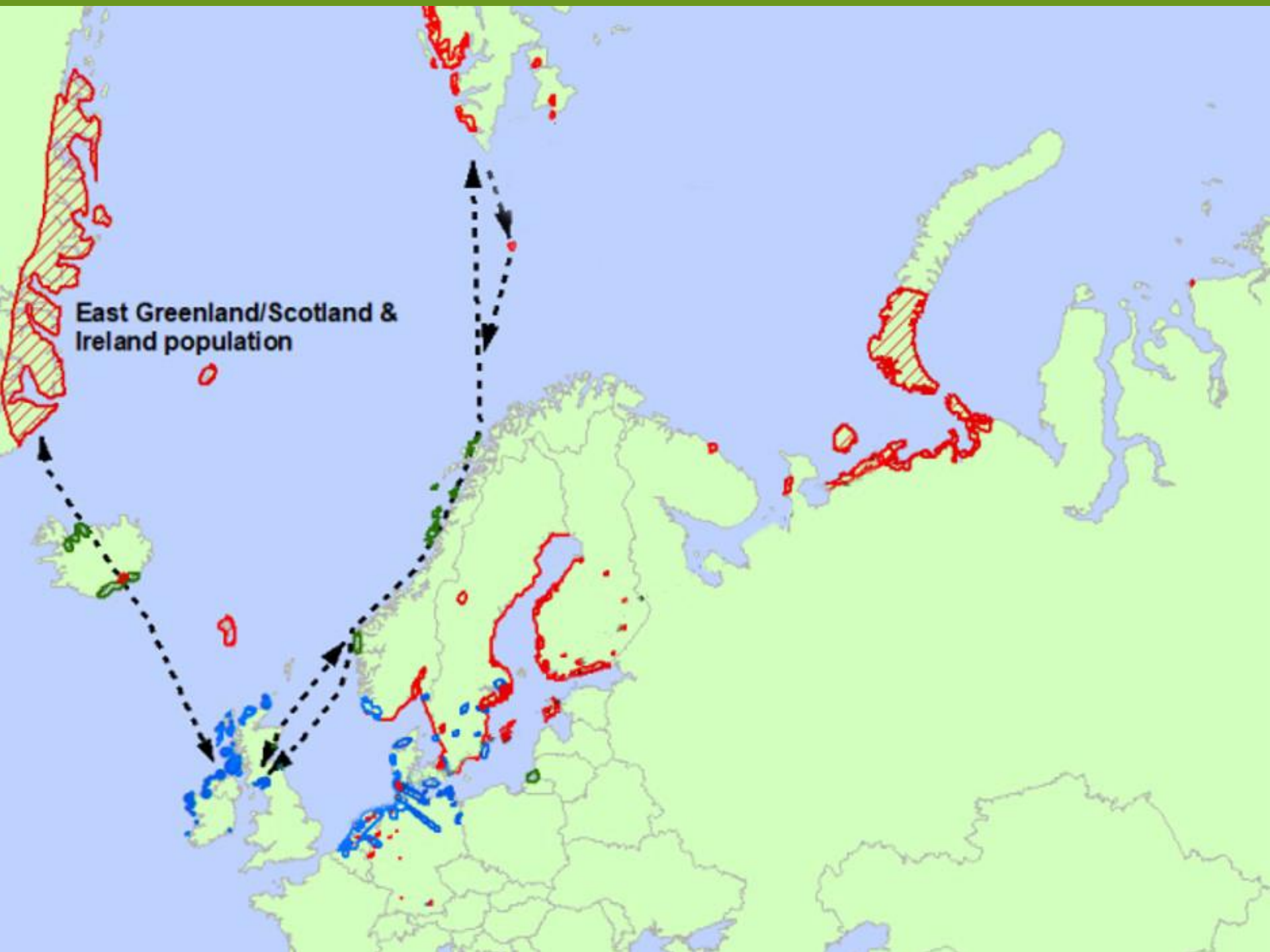
Residents counted annually for adaptive management pilot schemes in some island areas in recent years, including Orkney (Aug/Sept)

Corrections made in Icelandic Greylag Goose count around the Aberdeen-Bute line





Barnacle Goose by Philip Croft/BTO



East Greenland/Scotland & Ireland population

Greenland Barnacle Goose Monitoring - Scotland

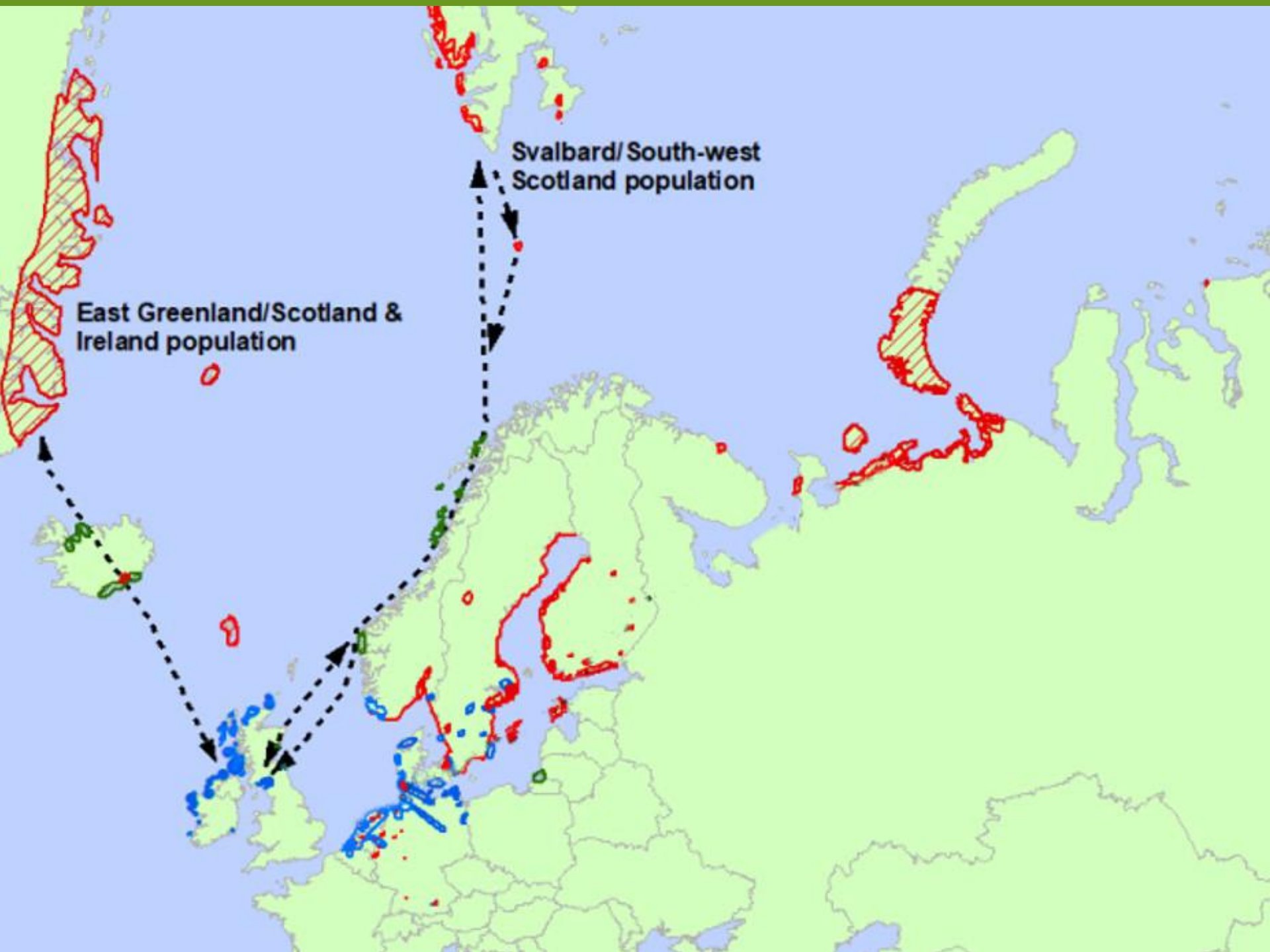
Monitored annually by NatureScot

- Daytime population counts
 - Islay since 1982 (main winter resort)
 - Uist, Tiree, South Walls more recently (2005)
 - Usually 4 counts/winter (over two days)
- Daytime fortnightly field counts (Islay)
 - Goose densities for payments since 1992
- Age assessments (Islay)
- Data available within weeks
- Satellite tagging on Islay 2019-2021 (n>30) – part of PhD

Greenland Barnacle Goose Monitoring - Flyway

Regular full spring census

- Every 5 years since 1959, now aim is every 3 years
- Combination of ground and aerial surveys, aim to synchronise
- Surveys commissioned by NatureScot (Scotland) and National Parks & Wildlife Service (Ireland)
- Data usually available by the spring/summer

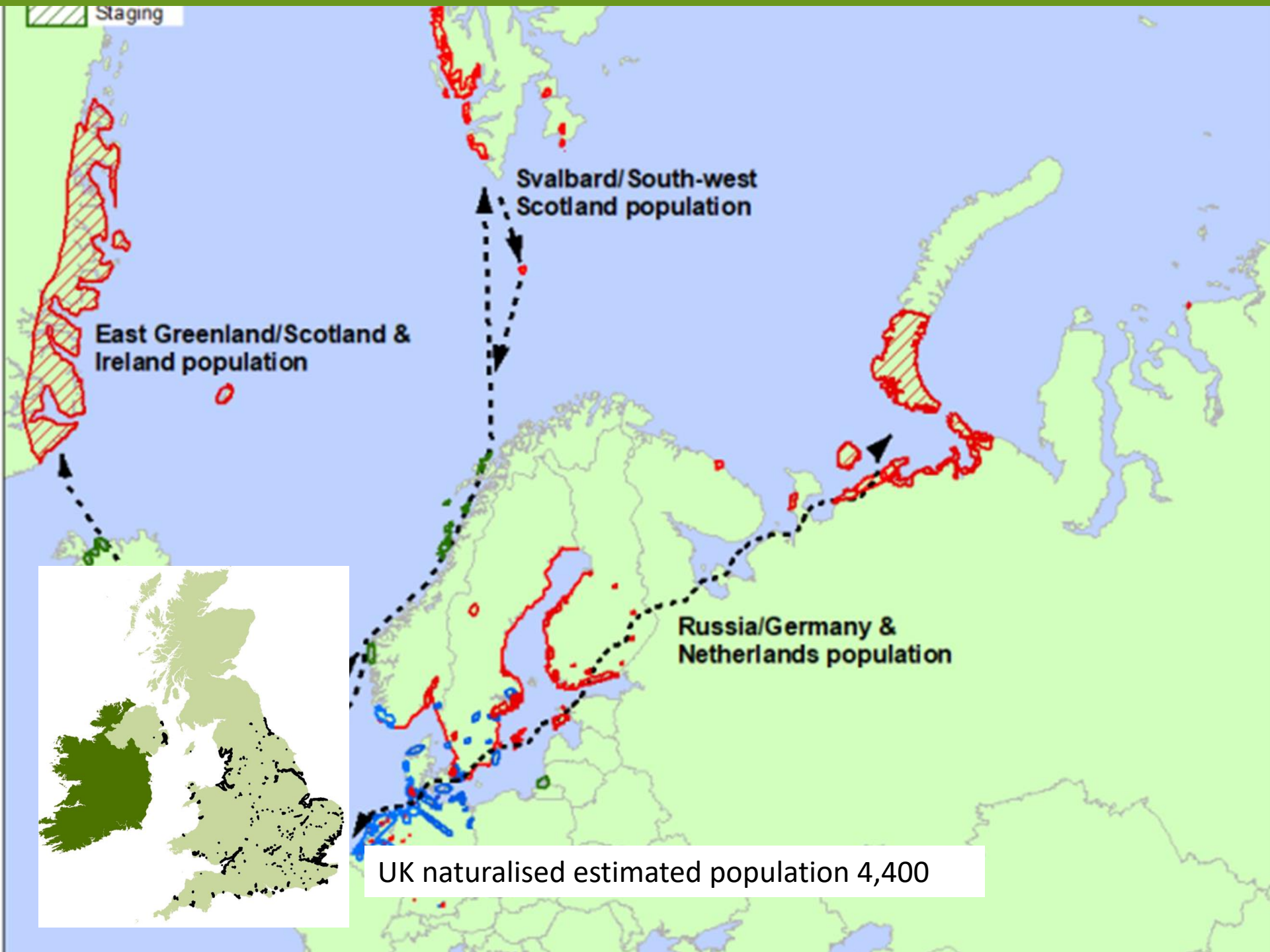


Svalbard Barnacle Goose Monitoring

Monitored annually

- Previously coordinated by WWT, currently by a subcontractor
- Daytime population counts
 - Volunteer counter network
 - Solway and Budle Bay, Northumberland
 - Usually ~14 counts/winter
 - Adopted peak count
- Age assessments
- Same subcontractor conducts daytime field counts of Solway Goose Management Scheme area
 - Goose densities for payments
- Report produced by summer

Staging



East Greenland/Scotland & Ireland population

Svalbard/ South-west Scotland population

Russia/Germany & Netherlands population

UK naturalised estimated population 4,400

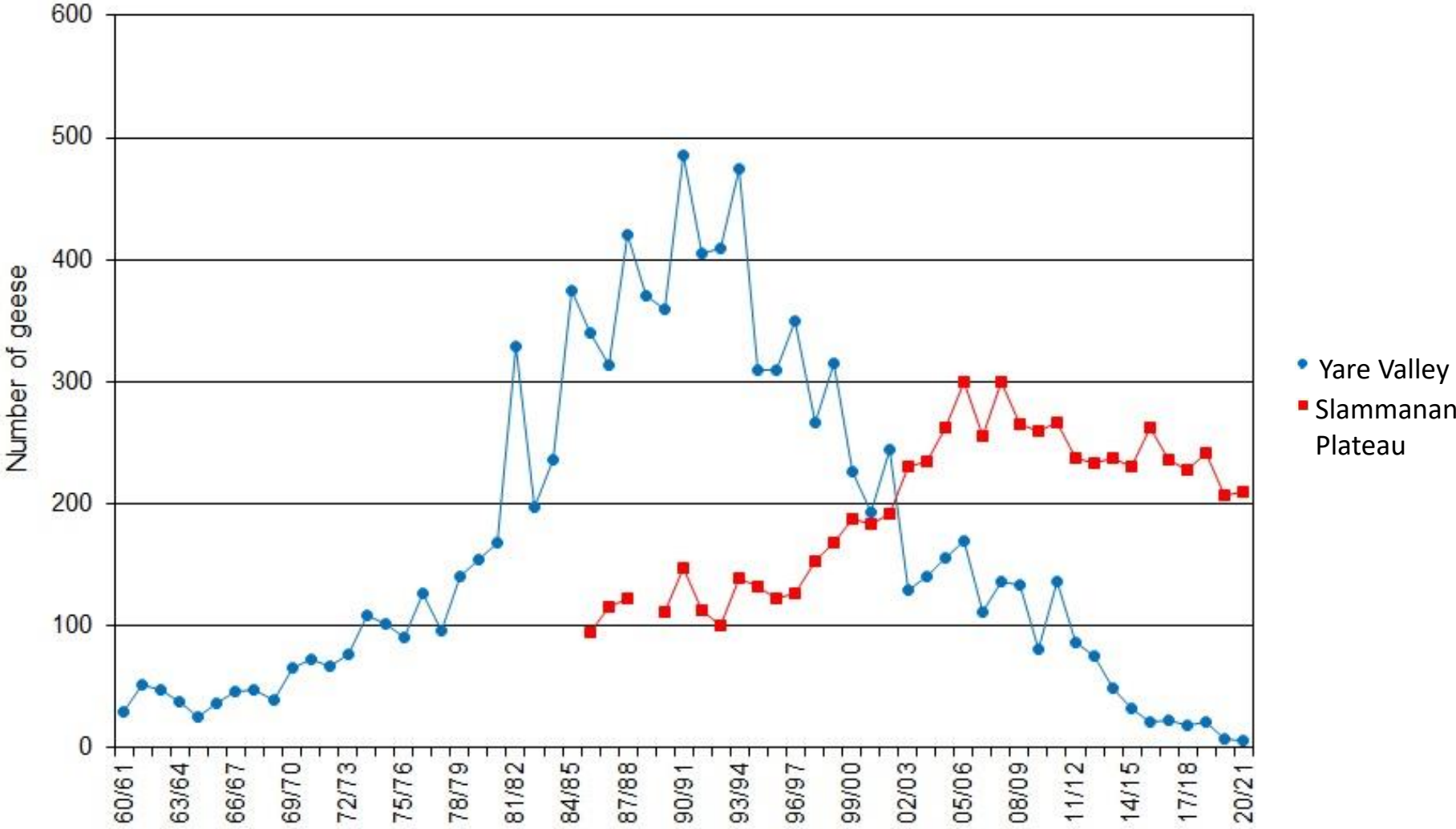


Taiga Bean Goose by Dave Appleton

Taiga Bean Goose locations



Taiga Bean Goose populations



Taiga Bean Goose Monitoring

Yare Valley population monitored by RSPB

Slammanan Plateau population monitored by Bean Goose Advisory Group (BGAG)

- Surveillance carried out late-September to mid-February
- Weekly field counts and monthly coordinated roost counts
- Satellite tracking has been carried out

Age Assessments

Determine the annual reproductive success of each goose or swan population and are mostly carried out at wintering and autumn stop-over sites.

Comprise two measures of annual reproductive success (or productivity):

- the proportion of young (first-winter) birds in non-breeding flocks
- and the average brood size.

- Many age assessments were carried out by staff at WWT and we now have coverage gaps. BTO plan to recruit volunteers to carry these out in future.
- Taiga Bean Geese Action Group, the contractor working on Svalbard Barnacle Geese and the NatureScot Greenland Barnacle survey continue to carry out age assessments
- However, Icelandic Greylag assessments are no longer carried out, due to the overlap with British population.

GSMP Online system for IGC and AA

Data Home

Welcome to **GSMP Online!** From here you can submit your Icelandic Goose Census and Goose and Swan Age Assessment counts.

The menus at the top of the page can be used to access other parts of the GSMP website. If you are unsure how to proceed please review the GSMP Online instructions.


This winter the Icelandic Goose Census dates are:

- 22nd/23rd October 2022
- 19th/20th November 2022

Full details of the relevant months for age assessments are giving in the instructions, but there is a focus on particular months for these species:

- September: Pink-footed Goose
- October: Dark-bellied Brent Goose; East Atlantic (Svalbard) Light-bellied Brent Goose; Svalbard Barnacle Goose; Icelandic Greylag Goose; Pink-footed Goose
- November: Dark-bellied Brent Goose; East Atlantic (Svalbard) Light-bellied Brent Goose; Svalbard Barnacle Goose; Icelandic Greylag Goose; Pink-footed Goose
- December: Svalbard Barnacle Goose; Bewick's Swan
- January: European White-fronted Goose; Bewick's Swan; Whooper Swan

YOUR OPTIONS

 [Icelandic-breeding Goose Census](#)

 [Age Assessment](#)

Contributions

Protocol	Site	Date/time	
GSMP Icelandic-breeding Goose Census	Wedholme Flow [NY2253]	20/11/2022 07:15	Delete View/edit
GSMP Icelandic-breeding Goose Census	Wedholme Flow [NY2253]	23/10/2022 07:15	Delete View/edit
GSMP Age Assessment	Wedholme Flow [NY224529]	23/10/2022 07:15	Delete View/edit
GSMP Icelandic-breeding Goose Census	Rockcliffe [NY341638]	20/11/2022 07:00	Delete View/edit
GSMP Icelandic-breeding Goose Census	Rockcliffe [NY341638]	23/10/2022 07:10	Delete View/edit
GSMP Age Assessment	R Wampool-Kirkbride east [NY238558]	20/10/2022 15:30	Delete View/edit

www.bto.org/gsmp

Data Flow and storage for BTO-led surveys

- Icelandic-breeding Goose Census Counts and Age Assessments are entered into GSMP Online over each winter survey season and stored in Oracle database.
- Validation checks carried out in following autumn, followed by annual WeBS and GSMP processing and analysis in the next winter.
- After quality assurance checks, Government Official Statistics published in *Waterbirds in the UK* report in the next spring, i.e. up to 18 months after field data collected.
- Some of the individual survey results are available sooner than this.

GSMP/WeBS Summary Report and Report Online

Waterbirds in the UK: 21/22

WeBS Report Online

Numbers & Trends | Site Totals | Low Tide Counts | Alerts | NEWS | WeBS home | Help

Location: Start typing... | Species: Greylag Goose (Icel...)

Species: Greylag Goose (Icelandic)

Anser anser (Icelandic)

Now displaying: Page 1 of 44

Include supplementary counts where available

Country/County: all (do not filter)

Habitat: all (do not filter)

International threshold: 980
 International threshold: 980
 Great Britain threshold: 910
 All-Ireland threshold: 35

Further information: Population details | Goose and Swan Monitoring Programme | Birdlife | BirdFacts

Annual Peaks

Site	17/18	18/19	19/20	20/21	21/22	Mon	Moving Svr avg	17/18-21/22 Svr avg
Forth Estuary	3,432	6,553	2,888	(3,238)	1,986	Sep	3,715	3,715
		107	279	4,780	4,500	Oct	1,981	1,981
		751	1,663	3,000	(54)	Nov	1,976	1,976
		655	2,093	2,953	1,351	Oct	1,709	1,709
			1,328	1,711	1,602	Mar	1,547	1,547
		1,293	1,121	1,310	1,366	Dec	1,281	1,281
		1,320	1,206				1,263	1,263
		624	1,248				1,237	1,237
		4,520	313	502	67	Nov	1,124	1,124
		600	1,107	(800)	(1,600)	Dec	945	945
				720	1,111	Dec	916	916
		644	1,151	901	(484)	Oct	843	843

Annual and Monthly Indices

UK annual: [Line graph showing annual index from 2017 to 2022]

UK monthly: [Bar chart showing monthly index for 2022]

Insufficient Data (NI) for GB annual and GB monthly indices.

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GSMP Surveys 2021/22

Censuses and age assessments of migratory goose and swan species were carried out in 2021/22.

By Kim Peck, JCC and Neil Calverley, BTO

GOOSE AND SWAN AGE ASSESSMENTS

Age assessments comprise two measures of annual breeding success (or productivity): the proportion of young (first-winter birds in non-breeding flocks), and the mean brood size (number of young produced by successful breeding pairs).

Table 7 shows the number of birds aged and the breeding success of geese and swan populations wintering in the UK, recorded during various surveys in 2021/22.

The timing of migration and post-juvenile results differs between species, meaning that the time period in which data can be collected also varies between species. Plumage differences also vary between species and are more subtle for some species than others, meaning that a high level of experience is required by observers.



Locations from where age assessments of geese and swans were received in 2021/22.

Table 7 Age assessments of geese and swans.

Population	Number aged	Percentage young (%)	Mean brood size (young per successful pair)
Dark-bellied Brent Goose	12,176	3.24	1.52
Svalbard Light-bellied Brent Goose	1,738	7.08 (Lindisfarne)	-
Svalbard Black-bellied Brent Goose	119,308	3.94	1.99
Taiga Bean Goose	151	11.3 (Sainsbury)	1.8
Pink-footed Goose	15,373	8	1.93
Greenland White-fronted Goose	5,337	11.22 (GB) 5.62 (Westford)	2.51 (GB) 2.21 (Westford)
European White-fronted Goose	654	32.26	-
Bewick's Swan	836	18.42	2.1
Whooper Swan	20,032	13.11	2.02

Goose & Swan Monitoring Programme 2021/22

ICELANDIC-BREEDING GOOSE CENSUS 2021/22

The Icelandic-breeding Goose Census (IGC) annually monitors two migratory goose populations: the Greenland/Iceland Pink-footed Goose and the Icelandic Greylag Goose, the results from which can be found in Table 8.

During the October census, 361,210 Pink-footed Geese were counted, whilst a total of 225,726 was recorded in November. Estimates were made for eight core sites from where counts were received in October, bringing the total to 418,801, which has been selected

as the population estimate for 2021. This represents a 13.8% decline on the previous year (478,509 birds). Age assessments of Pink-footed Geese were carried out in Scotland and England, with 11% young being found among those flocks sampled, the lowest proportion since 6.5% in 2011. The mean brood size of successful pairs was 1.93 goslings (see Table 7).

Counts of over 4,000 Pink-footed Geese were received from 32 sites in 2021/22, the highest count being 31,200 at Montrose Bays in October, representing 7.5% of the population estimate.

Table 8 IGC counts of Pink-footed and Greylag Geese.

Region/Area	Pink-footed Goose			Greylag Goose		
	Count	Sites	Estimates	Count	Sites	Adjustments
Overall	361,210	1	418,801	225,726	1	-
Wales	0	0	0	0	0	0
Farne Islands	0	0	0	0	0	0
Shetland	0	1	4,509	1	1	3,034
Shirley	5	1	1,195	1	1	17,740
Caithness	20,029	22	2,347	14	1,175	14
Highland	21,287	8	4,568	5	444	5
Wessex	8,295	5	25,200	57	10	459
Aberdeenshire	4,538	5	5,715	10,205	4	479
Angus & Dundee	47,039	2	5,863	2	0	2
Perth & Kinross	23,801	8	3,881	22,377	10	103
Upper Forth	220	2	8,887	4	47	3
Fife	10,338	5	3,779	4	354	4
Angle & Bute	0	0	0	0	0	0
Orkney & Caithness	1,262	4	741	8,645	4	0
Cumbria	11,289	4	10,840	3	0	3
Yorkshire	2,038	8	8,438	0	5	540
Scottish Borders	20,630	12	2,506	9,050	14	356
Northumberland	12,462	12	4,500	0	1	16
Lancashire	23,502	9	33,883	10	6	10
Lincolnshire	560	1	480	1	0	0
Cheshire	13,790	3	0	0	0	0
Humberside	38,588	8	25,241	8	0	8
Leicestershire	0	0	0	0	0	0
North Yorkshire	56,864	14	17,687	10	347	10
Non Total	361,210		225,726		96,076	
Adjustments	52,598		not available		90,305	
Estimated	413,808		418,801		186,381	
Total	413,808		418,801		186,381	



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ACKNOWLEDGEMENTS

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