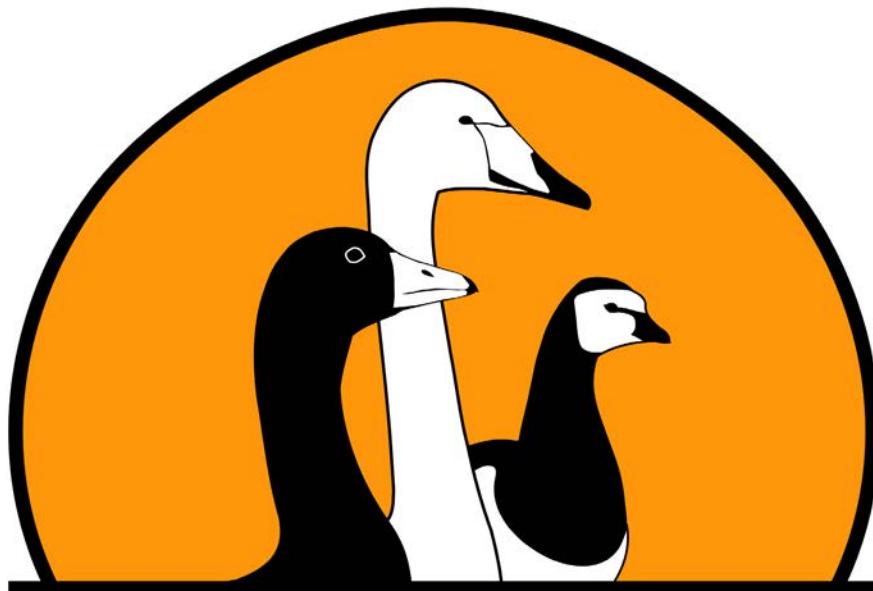


# The Goose & Swan Monitoring Programme (GSMP)

Guide to the surveys



# GSMP

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# About the GSMP

The 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.

The UK supports 14 native goose and migratory swan populations, of which 13 are monitored through the GSMP network. It is vital, therefore, that we have up to date information on their status and health. The GSMP is a suite of species specific surveys, outlined in this manual, which monitors the different populations of six species of geese throughout the United Kingdom and Ireland to provide data for the conservation of their populations. The scheme also includes a quinquennial International Swan Census.

Scheme participants, both non-professional and professional surveyors, visit sites in the autumn and winter months to count numbers of migratory geese and swans and, where possible, do age assessments on the number of young birds present to monitor breeding success.

The GSMP network is comprised of a variety of organisations, groups and individuals involved in goose and swan monitoring throughout the UK, and in other countries within the flyways of the UK's goose and swan populations.

The GSMP is funded jointly by the British Trust for Ornithology, Joint Nature Conservation Committee and NatureScot. Specialist goose study groups and other ornithological organisations in the UK and overseas take a lead on a number of surveys.

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# SWAN AND GOOSE AGE ASSESSMENTS

Field-based age assessments were initiated in the 1940s, initially for European White-fronted Geese. This was extended to most other populations between the 1960s and 1980s and currently the two migratory swan species and eleven goose populations native to the UK are all assessed.

The aims of the surveys are to determine the annual reproductive success of each goose or swan population and are mostly carried out at wintering and autumn stop-over sites. Age assessments of geese and swans 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.

Due to differences in plumage characteristics, swans and geese in their first winter are usually easily separated from adult birds, at least for part of the non-breeding season. In many swans and geese, young birds remain in family units with their parents throughout their first winter, and thus it is also possible to measure the number of young produced by successful breeding pairs. Counters, therefore, record the number of young birds present in a flock and also identify family groups making a note of the number of young within each family.

The timing of migration and post-juvenile moult differs between species, meaning that the time period in which data can be collected also varies between species (see below). Plumage differences also vary between species and are more subtle for some species than others, meaning that the level of experience required by the observer is greater.

## **Survey periods for age assessments:**

**Bewick's Swan:** November – February (focus on December and mid-January)

**Whooper Swan:** October – January (focus on mid-January)

**Taiga Bean Goose:** October – mid November

**Pink-footed Goose:** mid September – mid November

**European White-fronted Goose:** October – January (focus on January)

**Greenland White-fronted Goose:** October – January (focus on December)

**Iceland Greylag Goose:** October – mid November (care needed with age identification)

**British Greylag Goose:** August – September

**Barnacle Goose (both populations):** October – December

**Dark-bellied Brent Goose:** September – March (focus on October and November)

**Light-bellied Brent Goose (both populations):** September – March (focus on October and November)

A count form and guidance notes are available to download from the GSMP website.

## GETTING INVOLVED

The skill level required to conduct age assessments varies considerably with the species concerned and most age assessments are conducted by a small network of experienced observers. An observer must be confident in identifying juvenile (first-winter) geese or swans of the particular species and have some experience of counting birds. The survey requires at least one count per month during the priority period (see above).

Taiga Bean Goose age assessments are also regularly undertaken at the Slamannan Plateau, Central Scotland where counters record the number of first-winter geese present as well as brood sizes (i.e. the size of family groups). The later arrival of Bean Geese at the Yare Valley, Norfolk, compared with Slamannan, makes it difficult for age assessments to be undertaken there because the young birds have typically completed their post-juvenile moult making it difficult to tell them apart from adults.

Age assessments of East Atlantic Light-bellied Brent Geese are undertaken annually at Lindisfarne, Northumberland, with counts carried out between September and March. Counters record the number of first winter birds present within a flock and individual brood sizes (i.e. how many young in each family group).

If you would like to participate in age assessments, please contact the GSMP Organiser ([gsmp@bto.org](mailto:gsmp@bto.org)).

# ICELANDIC-BREEDING GOOSE CENSUS (IGC)

Counts of the Greenland/Iceland Pink-footed Goose and Iceland Greylag Goose populations began in Britain in 1960. The census initially involved one coordinated count in November at various key locations throughout the country, in order to provide national population estimates for both species. They were timed to take place after the geese had arrived back in Britain, with the Greylag Geese usually arriving later than the Pink-footed Geese.

In 1990, a second coordinated count, in October, was introduced, following evidence from Scotland that suggested that November was no longer the best time to count Pink-footed Geese. This count has remained part of the census, though peak counts of Pinkfeet have been found to occur in either October or November, depending on the timing of their departure from Iceland.

Spring counts of both populations have also been undertaken periodically to determine the distribution of geese at this important time of year, when they are feeding vigorously to store nutrient reserves for successful migration and breeding. These counts do not provide a way of censusing the whole population, but it does identify the key sites being used by the geese, thereby providing a means of ensuring these sites are as protected as possible.

## AIM AND METHODS

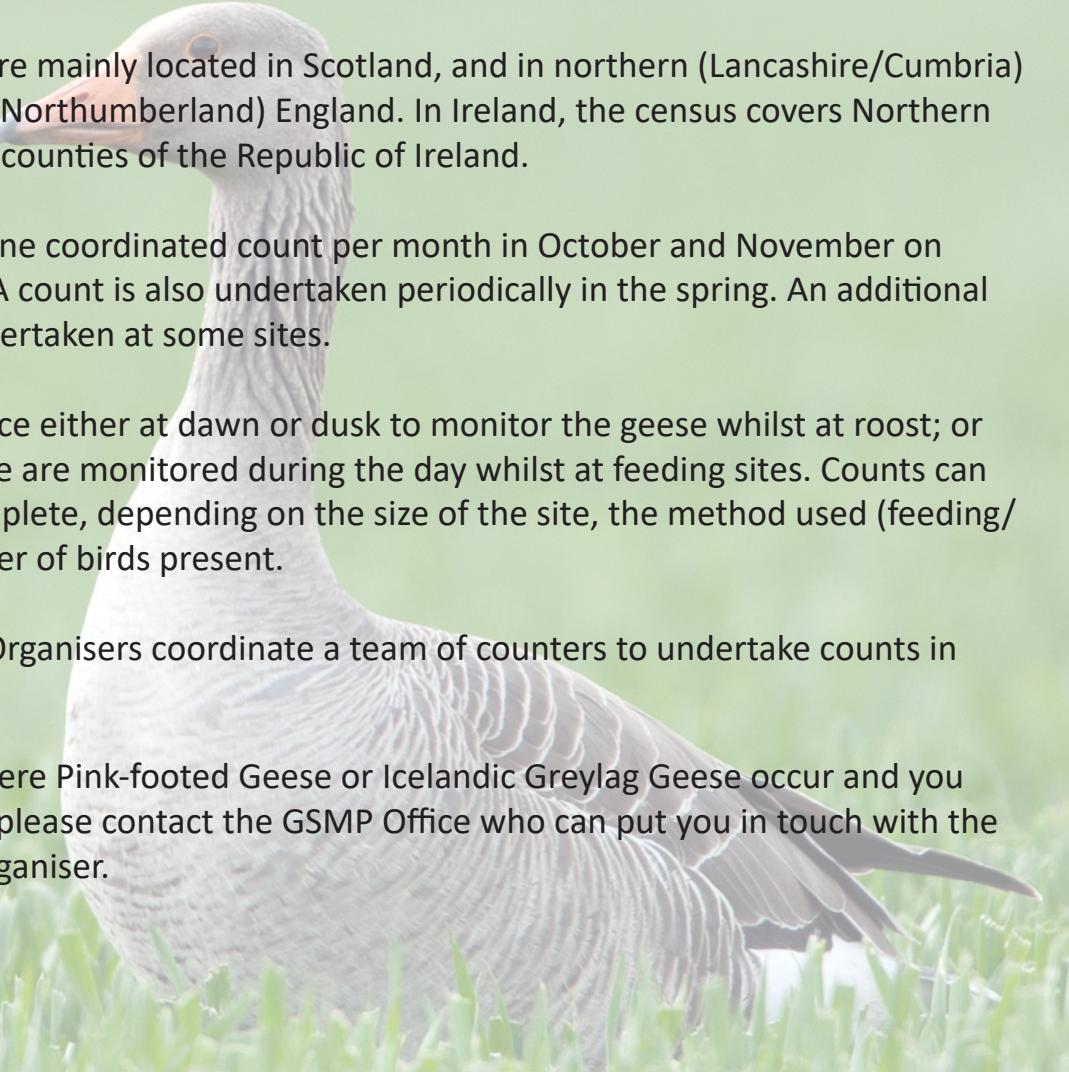
The aim of the IGC is to determine the population size of the Greenland/Iceland Pink-footed Goose and the Iceland Greylag Goose, and provide information on the distribution of the geese during the autumn and early winter, thus identifying important sites for each species. The IGC is an annual survey that consists of two coordinated counts: one in October and one in November. Sites holding Pink-footed Geese are covered in both October and November, whilst those at sites holding Greylag Geese are mainly covered in November. Spring counts of both populations are undertaken every three years.

Counts are primarily of roosting birds which are ideally conducted at dawn as birds leave the roost, but dusk roost counts are made at some sites. Exceptionally, daytime counts of feeding birds are made in areas where roost sites are poorly known or inaccessible, or too few counters exist in order to provide coordinated coverage of roost sites.

An additional September count is undertaken at some sites to determine the number of British Greylag Geese present before the arrival of the Icelandic migrants. The results of these counts can then be deducted from the winter counts in order to estimate the number of Icelandic birds present.

## **GETTING INVOLVED**

Counters interested in taking part in the IGC must be able to identify Pink-footed and Greylag Geese and have reasonable experience of counting birds; for sites holding large numbers of geese, observers must be confident in their ability to estimate large numbers accurately. In some instances, counters must be able to count geese whilst in flight (for monitoring birds as they leave or return to their roost site).



In Britain, survey sites are mainly located in Scotland, and in northern (Lancashire/Cumbria) and eastern (Norfolk to Northumberland) England. In Ireland, the census covers Northern Ireland and the eastern counties of the Republic of Ireland.

The survey consists of one coordinated count per month in October and November on pre-determined dates. A count is also undertaken periodically in the spring. An additional September count is undertaken at some sites.

Surveys usually take place either at dawn or dusk to monitor the geese whilst at roost; or in some instances, geese are monitored during the day whilst at feeding sites. Counts can take a few hours to complete, depending on the size of the site, the method used (feeding/roosting) and the number of birds present.

In some regions, Local Organisers coordinate a team of counters to undertake counts in their area.

If you live in an area where Pink-footed Geese or Icelandic Greylag Geese occur and you would like to take part, please contact the GSMP Office who can put you in touch with the relevant GSMP Local Organiser.

# INTERNATIONAL CENSUS OF GREENLAND BARNACLE GESE

The aim of the census is to assess the population size of the Greenland Barnacle Goose and identify important wintering sites.

The census takes place in late March and covers sites in northern and western Scotland, and along the north and western coast of Ireland. It involves a combination of aerial and ground counts: the aerial surveys cover the remote areas whilst the ground counts cover several key sites.

Aerial surveys are made using a high-winged aircraft flying 150–200m above the sea. Counts are made as the geese are flushed by the approaching plane. One observer makes a visual count whilst a second attempts to take a photograph. If the photographs are of good enough quality they are used to derive a count. The visual count is used if the photograph quality was not good enough or a photo of the entire flock was not possible.

Ground counts are undertaken at key sites where access is possible and are used to derive census totals for these sites as this method provides the most accurate assessment of large flocks.

The International Census of Greenland Barnacle Geese take place every five years. The next census is due to take place in 2023.

## GETTING INVOLVED

Due to the remoteness of wintering areas for this population, and the methods employed to count them, there are few opportunities for helping with this census. However, monitoring of abundance and productivity in years between international censuses is also very valuable, and observers who may be able to monitor sites in the years between censuses are welcome to take part in annual counts.

The census in Scotland is currently funded by NatureScot, and in Ireland by the National Parks and Wildlife Service.

# SVALBARD BARNACLE GOOSE CENSUS

The Svalbard population of Barnacle Goose breeds on the Svalbard archipelago, Norway, mainly in Spitsbergen, and winters predominately at the Solway Firth, which is on the border of Dumfries & Galloway, Scotland and Cumbria, England.

The wintering range of this population is small and the birds tend to remain within 5 km of their roost sites on the mudflats of the Solway coast, ranging along the firth to sites no more than 50 km apart.

Coordinated counts of Svalbard Barnacle Geese are undertaken at least once a month from September through to May, with weekly counts carried out during the arrival and departure periods. Age assessments are also made, during which counters record the proportion of first winter geese present within flocks as well as brood sizes (i.e. the size of family groups) to determine the breeding success of the population.

## GETTING INVOLVED

Surveys of Svalbard Barnacle Geese are organised by WWT as part of a long-term research programme on this population.

# INTERNATIONAL SWAN CENSUS

Prior to 1995, censuses of the Northwest European Bewick's Swan *Cygnus columbianus bewickii* and the Iceland Whooper Swan *Cygnus cygnus* populations were coordinated separately. Bewick's Swan censuses took place across Europe in January 1984, 1987 and 1990, whilst the first complete census of the Whooper Swan population, covering Britain, Ireland and Iceland, was undertaken in January 1986, with a second in January 1991. In January 1995, the Wetlands International / IUCN SSC Swan Specialist Group combined the two censuses and since then the International Swan Census (ISC) has been undertaken every five years. The census covers many non-wetland and/or temporarily flooded areas that are not routinely covered by other annual schemes.

Whooper and Bewick's Swan numbers in the UK and Republic of Ireland are monitored annually through the Wetland Bird Survey (WeBS) and the Irish Wetland Bird Survey (I-WeBS), respectively. Although these schemes provide good coverage of a high proportion of wintering sites used by Whooper Swans, a number of non-wetland or temporally flooded areas are not surveyed, hence a more comprehensive census, that focuses specifically on these species, is required to fully access the size of the population; such a survey is undertaken every five years.

## AIM AND METHODS

The main aim of the ISC is to estimate the size and distribution of each population, as well as identify important wintering sites. Age assessments are also made during the surveys, providing a coordinated estimation of breeding success. In addition counters are asked to record the type of habitat used by the swans during the census. These data are analysed to assess whether there has been any major shift in habitat use over time.

The ISC involves one co-ordinated site-based survey timed to coincide with the International Waterbird Census. In the UK, the census also coincides with the WeBS Core Count (see page 14), since this gives good general coverage. Counts at sites not covered through WeBS provide a more complete survey. Though the majority of counts are made on the ground, a number of sites in Ireland and Iceland are covered from the air due to difficulty in access.

## **GETTING INVOLVED**

To participate in the International Swan Census an observer needs to be confident that they can identify Bewick's and Whooper Swans and also have some experience of counting birds.

The census is undertaken at five-yearly intervals and each survey requires one count on a pre-determined date, usually in January. The census covers sites throughout Britain and Ireland.

The most recent census took place in January 2020. The next census is due to take place in January 2025.

To register your interest in taking part in future surveys, please contact the GSMP Organiser ([gsmp@bto.org](mailto:gsmp@bto.org)).



# COUNTS AND AGE ASSESSMENTS OF TAIGA BEAN GEESE

Counts of Taiga Bean Geese *Anser fabalis* in Britain are undertaken monthly during the autumn and winter at the Slamannan Plateau, Central Scotland, where they have been monitored since the mid 1980s.

## GETTING INVOLVED

The surveys are carried out by the Bean Goose Action Group and NatureScot. Monthly counts are also made at the Yare Marshes, Norfolk during the winter by the RSPB.



Taiga Bean Geese by Chris Knights/BTO

# GREENLAND WHITE-FRONTED GOOSE CENSUS

In winter 1982, the first complete census of Greenland White-fronted Geese *Anser albifrons flavirostris* in Britain and Ireland was undertaken in response to the concern over the decline in the population at that time. The survey was organised by the Greenland White-fronted Goose Study (GWGS) in Britain and the then Forest and Wildlife Service of the Department of Fisheries and Forestry in Ireland.

The GWGS first established a network of observers to undertake counts throughout Scotland and Wales, and through collaboration with the National Parks and Wildlife Service, RSPB and DoE in Northern Ireland achieved international coverage of the wintering range. International censuses have been made throughout the entire wintering range each autumn and spring since 1982/83

## AIM AND METHODS

The aim of the census is to estimate the size of the Greenland White-fronted Goose population as well as identify important wintering sites and estimate annual breeding success.

The census is undertaken annually and involves two site based counts: one in the autumn and one in the spring. The spring total is used for the population estimate. Counters record the number of birds present at a site and also the age structure of the flock, which involves recording the number of young (first-winter) birds present in the flocks, as well as brood sizes (i.e. the sizes of family groups).

## GETTING INVOLVED

Counters who are interested in taking part in the census must be confident in the identification of Greenland White-fronted Geese and have reasonable experience in counting birds. Some knowledge of aging geese may also necessary for sites where age assessments are undertaken.

It is an annual census that consists of two counts on pre-determined dates: one in autumn and one in spring. The census covers the whole of Ireland, the majority of Scotland (excludes some eastern and southeastern counties), northeastern England, Lancashire and parts of west and north Wales.

If you are interested in participating in this census please contact the GSMP Organiser ([gsmp@bto.org](mailto:gsmp@bto.org)) who will put you in touch with the GWGS Organiser. For more information see <https://greenlandwhitefront.org/>

# ALL-IRELAND LIGHT-BELLIED BRENT GOOSE CENSUS

The All-Ireland Light-bellied Brent Goose Census began in winter 1996/97 to monitor the East Canadian High Arctic Light-bellied Brent Goose *Branta bernicla hrota* population. The aims of the census are to determine the size of the population, assess annual breeding success and identify important wintering sites.

The census involves two coordinated counts, one in autumn and one in spring, at various sites in Ireland. Counters record the number of geese present and the age structure of the flocks.

## GETTING INVOLVED

Counters interested in taking part in the census need to be confident in identifying Light-bellied Brent Geese and have some experience in counting birds. Knowledge of how to age geese may also be required at sites where age assessments are undertaken.

The census is annual and consists of two counts (one in autumn and one in spring) undertaken on pre-determined dates and mainly covers coastal counties in Ireland.

If you are interested in participating in this census please contact the GSMP Organiser ([gsmp@bto.org](mailto:gsmp@bto.org)), who will put you in touch with the Irish Brent Goose Research Group.

# WETLAND BIRD SURVEY (WeBS) COUNTS

The Wetland Bird Survey (WeBS) monitors non-breeding waterbirds in the UK. WeBS surveyors monitor the UK's internationally important non-breeding waterbirds.

Over 3,000 volunteer counters contribute to the Core Counts survey, making over 40,000 visits each year to 2,800 sites. Each counter adopts a place to count monthly. Non-breeding waterbird numbers peak in different numbers for different species, so counting is done year-round where possible and reported on WeBS years running from July to June, although the core counting season is September to March. As non-breeding waterbirds can be very mobile, the Counts are nationally synchronised, with counters requested to visit during the day on priority Core Count dates (Sundays) if at all possible. At coastal locations, counting is done at high tide. At large sites, several counters will be working as a team. Each counter surveys the whole of their defined count area, known as a WeBS sector, identifying all the waterbird species present and counting the number of individuals of each species. Counters can also add supplementary data, such as evening roost counts of gulls, or casual counts of notable numbers of passage species that are higher than those present on their Core Count visits. There is also a Low Tide Counts scheme where extra counts at low tide are occasionally made on estuaries.

Dark-bellied Brent Geese and East Atlantic Brent Geese populations along with other goose species such as European White-fronted Geese and Tundra Bean Geese, which do not have specific censuses, are monitored in the UK through WeBS.

## GETTING INVOLVED

The Wetland Bird Survey (WeBS) is always in need of counters to cover vacant sites, or to provide cover for existing counters. For more information see [www.bto.org/webs](http://www.bto.org/webs) or email [webs@bto.org](mailto:webs@bto.org)

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