

The newsletter of the Goose & Swan Monitoring Programme

goose news

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Pinkfeet reach half a million!

**Changes in Greylag Goose population
management in the Faroe Islands**

**Is poor productivity behind the
Bewick's Swan population decline?**

Latest results from 2015/16 GSMP surveys



Editorial

In this edition of *GooseNews* we report on the number of Greenland/Iceland Pink-footed Goose passing the half a million mark. Milestones such as these are fairly arbitrary, but one wonders what the future brings for increasing migrant goose populations. The article on page 6 details how non-breeding Pink-footed Geese can now be found moulting on the most northerly land area on earth. A consequence of a changing climate or a response to increasing numbers forcing some birds further north? The increase in number of some goose populations has led to calls for a flyway approach to management of numbers (see page 30).

The UK recently voted to leave the European Union (EU) and only time will tell what implications this will have for our migrant goose and swan populations. Our best protected area network – the Natura 2000 network of SPAs and SACs – was established to comply with EU legislation. It is currently unclear how legal protection for SPAs would be affected by our changing relationship with the EU.

This newsletter also contains up to date information on the status and annual reproductive success of most goose and swan populations in the UK, together with articles and project updates. Not all populations are increasing; whilst the latest results from the International Swan Census revealed that Whooper Swan numbers continue to increase, Bewick's Swans are still decreasing. The conservation measures needed to safeguard the Bewick's population should be applied at the flyway level and greater cooperation between countries is needed more than ever. In an effort to encourage such collaboration, WWT are leading an exciting and novel venture called *Flight of the Swans*, involving an ambitious expedition following the Bewick's Swan's migration route from Russia to Britain (see page 29).

WWT are leading an exciting and novel venture called *Flight of the Swans*

In July 2016, Hugh Boyd passed away in Canada and we lost a great biologist (see page 28). Most of the goose surveillance work reported on in *GooseNews* was pioneered and developed by Hugh during the 1950s and 1960s, when he worked at Slimbridge. Hugh was an inspiration to many and a great mentor and I owe him a personal debt of gratitude for the encouragement he gave to me over the years.

We thank all contributors to *GooseNews*. We are very appreciative of any articles/reports that you wish to submit and please also feel free to provide feedback on the content.

Carl Mitchell

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Photo: Richard Taylor-Jones / WWT

Survey dates for 2016/17

Icelandic-breeding Goose Census

The following dates were chosen for coordinated counts in autumn 2016:

Pink-footed Goose: 22/23 October and 19/20 November 2016

Iceland Greylag Goose: 19/20 November 2016

Please remember that, ideally, all sites supporting Pink-footed Geese should be covered during the October and November counts, whilst those holding Iceland Greylag Geese should be counted in November.

If you are unable to count on the above dates, please contact either your Local Organiser or Carl Mitchell (see back cover for contact details), so that we may try to arrange cover of your site by another counter.

As usual, we would like to encourage all counters to also carry out a count during September at those sites where British Greylag Geese occur alongside Icelandic migrants later in the winter. September counts are not strictly coordinated but should be carried out during the middle of that month, although any counts made during September will be of value.

IGC counts can be entered online at <http://monitoring.wwt.org.uk/recording/>. Counters will need to register to use the system and help pages are available on the site to guide users through the process of registering and entering counts.

Greenland White-fronted Goose Census

The counts for the coming season will be:

10–14 December 2016 and 11–15 March 2017

Other preferential dates for local site monitoring are:

12–16 November 2016, 14–18 January 2017, 11–15 February 2017 and 25 February–1 March 2017.

However, all your counts whenever, wherever are always very welcome!

The census is organised by the Greenland White-fronted Goose Study (<http://greenlandwhitefront.org/>). Please contact the organiser Tony Fox (see back cover for contact details) for further details about the census.

GSMP website

Much more information on the GSMP can be found on WWT's Waterbird Monitoring website at <http://monitoring.wwt.org.uk/our-work/>, including detailed survey results and all editions of *GooseNews*.

Details about all the GSMP surveys, including how to get involved, can be found on the website at <http://monitoring.wwt.org.uk/get-involved/>.

GooseNews – paper or download?

In an effort to be more sustainable, we would like to reduce the number of *GooseNews* printed each year. We are, therefore, keen to encourage as many readers as possible to download a pdf from our website. Last autumn, we asked readers to opt in to receiving a paper copy and if we haven't heard from you, we have assumed you are happy to download *GooseNews*.

The option to receive a paper copy is still open to all readers. If you wish to change your preference please let us know by emailing monitoring@wwt.org.uk.

If you didn't receive a copy of this edition and would like one, we may still have a few spare, although numbers will be limited. Please contact us to find out.

Age assessments

Age assessments will continue during 2016/17 as usual. The survey periods vary between species and are shown below. Data can be entered online at <http://monitoring.wwt.org.uk/recording/>.

Population	Period	Notes
Whooper Swan	Oct – Jan	focus on mid-Jan
Bewick's Swan	Nov – Feb	focus on Dec and mid-Jan
Iceland Greylag Goose	Oct – mid-Nov	care needed with age identification
British Greylag Goose	Aug – Sep	
Pink-footed Goose	mid-Sep – mid-Nov	
Bean Goose	Oct – Nov	
European White-fronted Goose	Oct – Jan	focus on Jan
Greenland White-fronted Goose	Oct – Jan	focus on Dec
Dark-bellied Brent Goose	Sep – Mar	focus on Oct – Nov
Light-bellied Brent Goose (both populations)	Sep – Mar	focus on Oct – Nov
Barnacle Goose (both populations)	Oct – Dec	

Waterbird Monitoring Online

Enter your IGC and age assessment counts online!

The second phase of our new online recording system 'Waterbird Monitoring Online' was successfully launched last year, with forms for entering Icelandic-breeding Goose Census (IGC) and age assessment records added to the site (see *GooseNews* 14:15 for further information).

A big thank you goes to everyone who has already used our new system – at the end of the 2015/16 season it was rewarding to find that almost 50% of IGC and age assessment counters had successfully entered data online.

As well as being able to enter records, counters can view data they have already submitted. There is also an area for IGC Local Organisers (LO), with reports providing details about their counters, sites and the current season's data; we are in the process of making this a more interactive area, which will enable LOs to provide updated information about their region.

Counters can register to use the system at <http://monitoring.wwt.org.uk/recording/> and help pages are available on the site. If you need any further information on how to use the site, please contact us at monitoring@wwt.org.uk.



Reporting sightings of colour-marked birds

To report a sighting of a colour-marked bird, please first refer to the European Colour-ring Birding website (<http://www.cr-birding.org/>) where a list of project coordinators can be found, including for all WWT projects. Observations of marked birds can be submitted directly to the relevant project coordinator or in some cases by submitting sightings into online databases. If you are unable to find a project that matches the bird you observed, please submit your details to the EURING Web Recovery Form (<http://blx1.bto.org/euring/main/index.jsp>).

If you would like to report a sighting of a colour-marked bird that has been ringed as part of a WWT project, please email your sighting to colourmarkedwildfowl@wwt.org.uk.

Further information about submitting a sighting of a colour-marked bird can be found on the WWT monitoring website at <http://monitoring.wwt.org.uk/our-work/uk-waterbirds/goose-swan-monitoring-programme/colour-marking>.

A Call for Help

Help needed with age assessments

Each year a network of GSMP volunteers undertake age assessments of wintering goose and swan populations in the UK. Age assessments provide an indication of breeding success, an important demographic factor that affects the status of a population and is vital for understanding population changes. Dark-bellied Brent Geese, Whooper and Bewick's Swans are found at numerous locations throughout the UK and the counter network does a great job of covering many of the key areas. Inevitably, however, gaps in coverage appear from time to time. Therefore, in order for this important work to continue we would like to expand the counter network and coverage of sites.

For Dark-bellied Brent Geese, we are particularly looking to build on coverage at Chichester and Langstone Harbours (Hampshire/West Sussex), Hamford Water and the Dengie Estuary (both Essex).

Currently, Whooper and Bewick's Swans are mainly surveyed at their key wintering sites at or near WWT centres, as well as at a small number of other locations. However, we are keen to obtain age assessments of flocks that regularly occur elsewhere.

To carry out age assessments, counters need to be confident in their ability to age geese or swans and understand how to collect data from a flock of birds. For those of you who are beginners, information on how to age birds is available on request, as are details of the survey methodology. If you choose to take part, our online recording system makes it easy to submit and view any data that you collect; and in turn, these data feed into the overall assessment of goose and swan breeding success that we report about here in *GooseNews* and on the GSMP website.

If you are interested in contributing to the survey it would be great to hear from you. Please get in touch by emailing monitoring@wwt.org.uk for further information.

Local Organisers needed for Icelandic-breeding Goose Census



We are looking for Local Organisers (LO) in Scotland to help with coordinating IGC counts in Fife, Lothians and Borders. If you are interested in being a LO for these regions, please get in touch with Carl Mitchell (see back page for contact details) for further information.

Photo: Steve Nicholls / WWT

On top of the world

David Boertmann
& Carl Mitchell



Photo: Graham Catley

The Greenland/Iceland population of Pink-footed Goose has been the subject of demographic studies since the middle of the twentieth century. Population estimates began in the early 1950s, based on early autumn counts on the wintering grounds in Britain, and numbers have increased from c. 50,000 birds in the 1950s to c. 535,000 in 2015 (see page 20).

The geese breed predominantly in Iceland and, in smaller numbers, in east Greenland. However, east Greenland is also well known as a moulting area for non-breeding Pink-footed Geese (often one and two years old) and geese that have failed to breed in Iceland.

Systematic assessments of the abundance and distribution of Pink-footed Geese are not carried out with any regularity in Iceland – the area used by the geese is large and remote – although occasional assessments have been made, for example during the 1994–1997 breeding atlas survey (<http://en.ni.is/zoology/birds/breeding-distribution-icelandic-birds/>). In east Greenland, environmental monitoring due to interest in mineral exploitation has provided contemporary assessments of the avifauna there. DB undertook two aerial surveys, using a Partenavia P-68 Observer plane, between 16 July and 2 August in 2008 and 2009, at a time when non-breeding geese were

flightless due to their wing moult and any breeding geese remained with their flightless young (Boertmann *et al.* 2015).

The surveys covered the region from Kap Dalton (69°N) on the Blossville Kyst in the south to Nansen Land at 82°N 43°W in the northwest, including the world's northernmost land areas at 83° 40'N. However, the region between 77° and 80°N was excluded because of the endurance limitations of the aircraft – the area was too far away from the two airfields to be surveyed safely. When the results from the two years were combined and corrected for overlapping routes, the total number recorded in north Greenland (to the north of 80°N) was 30,653 Pink-footed Geese (Table 1 shows counts without corrections; Figure 1). No evidence of breeding geese was recorded north of 80°N.

Studies by Jesper Madsen in 1983–1984 suggested that the carrying capacity of the habitats in Jameson Land (71°N 23°W) had almost been reached for moulting Pink-footed Geese, yet the surveys in 2008–2009 found three times as many geese there as in 1983–1984. This may be due to a warming climate allowing greater vegetation productivity or the geese may now be using sub optimal habitats.

An earlier survey in 1988 (also by DB) had already confirmed a northward range expansion by moulting Pink-footed Geese compared to earlier observations in 1969–1971. This expansion has continued, with large concentrations found up to 550 km north of the northern distribution limit found in 1988. In 1988, Pink-footed Geese were only recorded north of 80°N

Table 1. Counts of Pink-footed Geese above 80°N in Greenland 2008–2009.

Region	Effort (km flown)		Pink-footed Geese	
	2008	2009	2008	2009
Kronsprins Christian Land	890	646	345	30
Skjoldungeelv	156	-	2,199	-
Mylius Erichsen Land	-	133	-	1,376
Herluf Trolle Land	203	316	1,506	10,142
Frigg Fjord	-	70	-	1,027
Johannes. V. Jensen land	132	317	3,220	2,977
Nansen land	-	144	-	8,517

as accidental stragglers, despite relatively high ornithological activity in the areas associated mainly with geological research.

The first reports of large aggregations of moulting Pink-footed Geese in the far north of Greenland were from 1998 when the Dutch ornithologist Ko de Korte found several thousand moulting birds in the Constable Bugt area of Johannes V. Jensen Land. Since then, reports of moulting Pink-footed Geese have been frequent and increasing from this part of Greenland. In 2008–2009, high numbers were located in all the major lowland areas surveyed and, surprisingly, also along the almost barren north coast. Ideally, the geese need lush vegetation to sustain them through their wing moult, but some areas where the geese were recorded had very limited vegetation growth. Along the north coast of Johannes V. Jensen Land almost 3,000 geese were moulting on a barren coastal plain with dispersed vegetation dominated by purple saxifrage *Saxifraga oppositifolia* and Arctic poppy *Papaver radicum*.

The increase in numbers and range expansion to the 'top of the world' mirrors the increase in the flyway population (Figure 2) and, at current levels of increase,

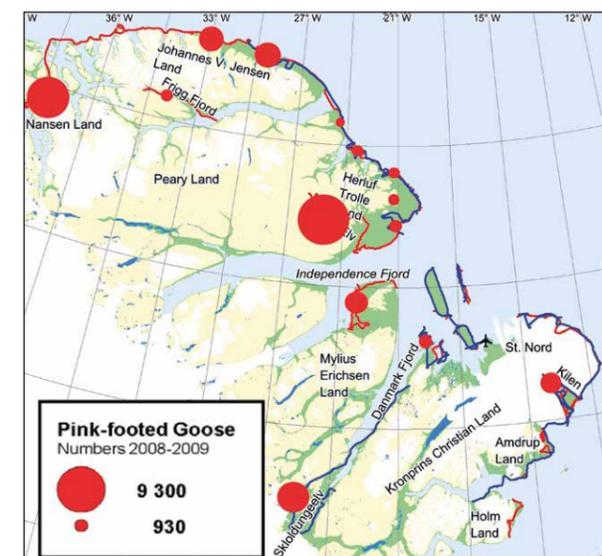


Figure 1. Routes flown and summary of locations of Pink-footed Geese found during aerial surveys of north Greenland in 2008 (blue route) and 2009 (red route).

shows no sign of stabilising. The population, as recorded in the early autumn counts through the Icelandic-breeding Goose Census (IGC), has doubled in the last twenty years.

It is unclear whether the move north within Greenland for large numbers of moulting birds has been because the geese are remarkably good at exploiting new habitats as the population increased, or because the geese were forced there due to diminishing resources further south (see Madsen *et al.* 2011). The northward expansion of the summer moult range is into a vast new area. Some areas remain un-surveyed, but potentially, the far north and northeast of Greenland could support continued increases in numbers well into the future at this critical time in the annual cycle of the population. This begs the question, at what point does the natural habitat begin to limit the current population growth?

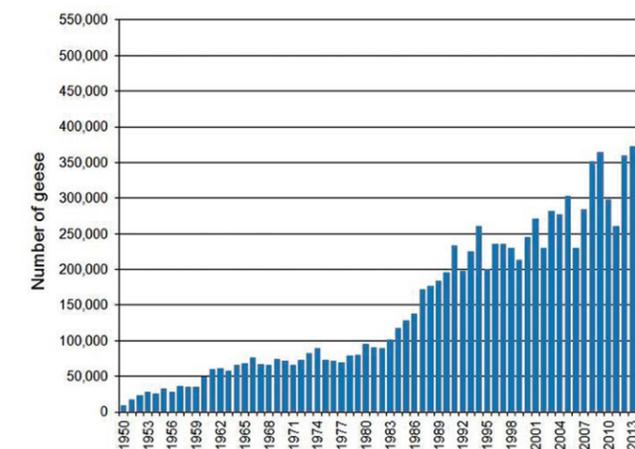


Figure 2. Population estimate of Greenland/Iceland Pink-footed Geese 1950 to 2015 based on autumn IGC counts carried out in Britain.

References

- Boertmann, D., K. Olsen & R.D. Nielsen. 2015. Geese in Northeast and North Greenland as recorded on aerial surveys in 2008 and 2009. *Dansk Ornitologisk Forenings Tidsskrift* 109: 206–217.
- Madsen, J., C. Jaspers, M. Tamstorf, C.E. Mortensen & F. Rigét. 2011. Long-term effects of grazing and global warming on the composition and carrying capacity of graminoid marshes for moulting geese in Northeast Greenland. *Ambio* 40: 638–649.



Photo: Nick Cottrell / WWF

Changes in Greylag Goose population management in the Faroe Islands

Helga Bára Mohr Vang & Jens-Kjeld Jensen

Recently the conservation and legal status of the Greylag Goose in the Faroe Islands has changed. Formerly protected all year around, Greylag Geese can now be shot on agricultural land. But why have the changes been implemented and what effects might they have on the recently restored Faroese Greylag Goose population?

The original Faroese breeding Greylag Goose population became extinct in the 19th century (Müller 1862, Olsen 1994). It is not known what caused the rapid decline of this population; however, some sources claim that in the 18th and 19th century, hunting pressure increased considerably, especially during the moulting periods (Svabo 1783, Landt 1800).

The geographical location of the Faroe Islands places them in the middle of the flyway of the Iceland Greylag Goose population. For this reason, it was not uncommon to see Greylag Geese in the spring or

autumn on migration; however, breeding birds were not reported again until the mid- 20th century. At that time, Greylag Geese were being bred in captivity in Tórshavn and these geese started to spread around the town with and without human help.

In 1977, goslings were released outside Tórshavn, at Eiðisvatn, and again in 1986, 1987 and 1989 at both Eiðisvatn and Fjallavatn, lakes on the islands of Eysturoy and Vágoy. This new Faroese Greylag Goose population increased slowly and, in 1981, it was estimated that only 2–10 breeding pairs were present

in the Faroe Islands, outside Tórshavn (Bloch & Sørensen 1984). By 1989, the population was estimated to consist of 20–30 pairs (Jensen *et al.* 1989) and in 2005 it was estimated to have increased to around 300 pairs (Jensen 2005).

This successful re-establishment has, however, given rise to some conflict with Faroese agriculture, as many farmers state that goose grazing resulting from this increase in numbers has adversely affected the hay yield. This conflict mirrors that experienced elsewhere in Europe, since Greylag Goose populations have been increasing all over Europe since the middle of the 20th century and seem to adjust well to feeding on agricultural land wherever they occur (e.g. Tombre *et al.* 2005).

During the re-colonisation of the Faroe Islands, efforts to track changes in the distribution and population size of the geese were minimal. No annual counts were organised by the responsible government departments or the Faroese Museum of Natural History and no birds were ringed since the release of the goslings in 1980s (a total of 85 birds; Hammer *et al.* 2014). Thus, knowledge about this population is sparse and it is difficult to estimate how much damage these geese are causing on agricultural land.

In 2014, a MSc project (involving cooperation between Aarhus University, the Museum of Natural History and The Faroese Agricultural Centre) investigated the effects of Greylag Geese on Faroese agriculture. By comparing plots grazed by geese with plots where goose grazing was prevented using exclosures, it was concluded that the geese contributed to some reductions in hay yield. However, these results were based only on a one year study and did not take into account annual variation in environmental variables (Vang 2014). The MSc thesis

underlined the importance of deriving an annual assessment of population size and reproductive success as well as understanding the movement and possible migration patterns of these geese. Without this information, it is difficult to see how the population can be effectively managed and the effects of management actions on between year changes in population size (Vang 2014). Moreover, it is clear that a management plan for the Faroese Greylag Goose population is required to effectively achieve the maintenance of a sustainable population whilst minimizing the adverse effects on agriculture.

Despite these recommendations, in 2014 the Faroese Parliament accepted a change in the Faroese bird hunting law which changed the legal status of the Greylag Goose on the Faroe Islands. This change entitles every commercial agricultural landowner to apply for written consent to shoot geese on their cultivated land. This law is implemented by the Faroese Agricultural Centre and it is stated that this consent will only be granted if adverse effects of goose grazing can be demonstrated. The law does not, however, state explicitly how adverse effects will be demonstrated and it is, therefore, up to the Faroese Agricultural Centre to evaluate this for each application. Consent to kill geese can be granted at any time of the year, making it possible for Faroese farmers to control geese on their land, both during pre-nesting time in spring and during the flightless moult in late summer. This new hunting law was enacted from 1 June 2014 and will run until at least 1 June 2017. In 2014, 47 geese were officially reported shot in Faroe Islands under consent from the Faroese Agriculture Centre.

Whether this change in legislation will be beneficial to the goose-agricultural conflict is open for debate. Studies elsewhere have shown that uncoordinated

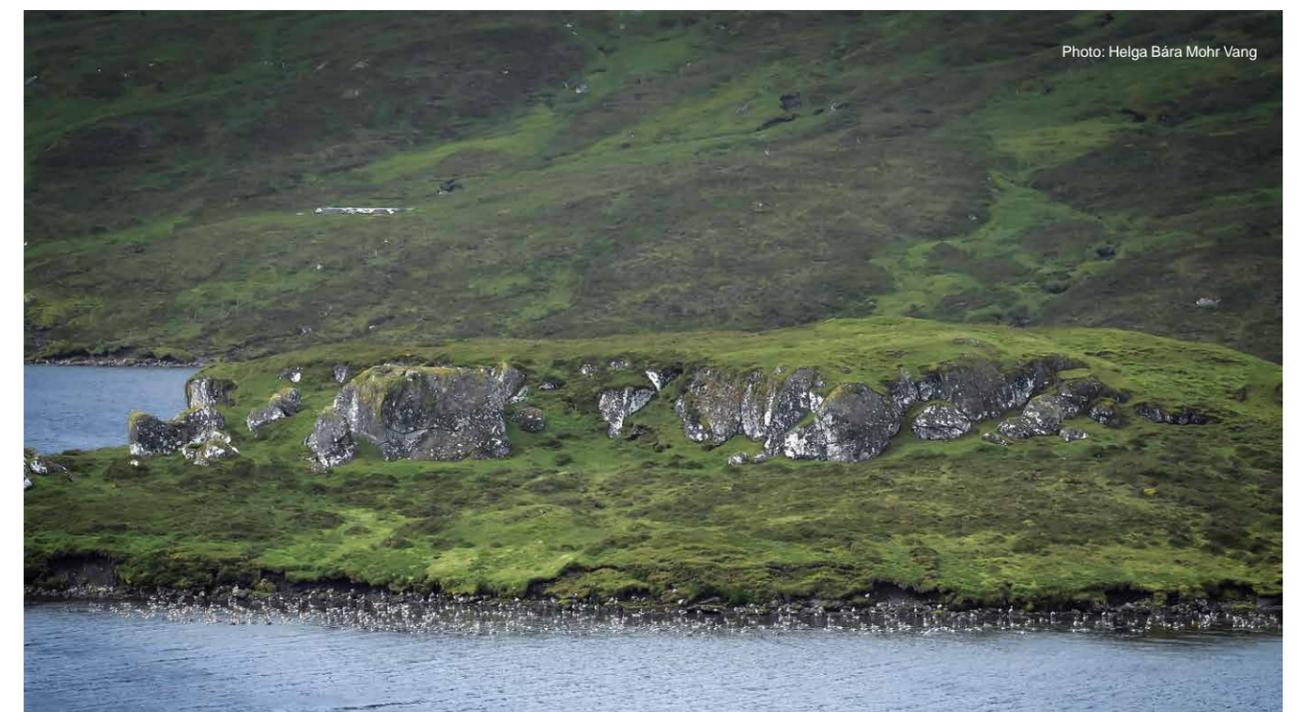


Photo: Helga Bára Mohr Vang



Photo: John Anderson

shooting and scaring can be at best ineffective and in other cases devastating for goose populations (Middleton *et al.* 1993). Active management schemes where alternative feeding sites have been combined with other strategies (e.g. coordinated scaring and shooting) have been shown to be much more effective, because the geese will prefer sacrificial crops with less disturbance over an agricultural site subject to intensive scaring (Percival 1993, Kristiansen *et al.* 2005).

In the absence of information about the population size, trends, survival rates and reproductive success of Faroese Greylag Geese, it is impossible to assess the effectiveness of shooting geese in reducing the extent of agricultural losses. Furthermore, it is worrying that the law does not include any seasonal restrictions, instead allowing hunting throughout the year, during both the nesting and moulting periods (which goes against the Bern Convention which requires protection of birds in the breeding season). The law also does not require that farmers and landowners take account of other similar goose species that occur on the Faroes, running the risk that other goose species that are passing through during migration times will be shot (e.g. Pink-footed Geese).

A management plan for the Faroese Greylag Goose, that combines the aims of maintaining a sustainable goose population and minimizing adverse effects on agriculture, is long overdue.

In 2017, when the hunting law will be reviewed in the Faroese parliament, the assessment and recommendations will hopefully demand that a Faroese Greylag Goose Management Plan is developed. This will require collection of data on annual population size, reproductive success and migration patterns, and the individual marking of geese, to provide information on annual survival, reproductive success, migration and distribution. If studies of movements indicate that this population migrates to other countries at any point in their annual cycle then

there may be a need to develop an internationally coordinated approach to Greylag Goose management over a wider area. There is also a need for the plan to provide information to farmers and landowners to help guide their activities to make their fields less attractive to geese and thus to minimize conflict as much as possible.

References

- Bloch, D. & S. Sørensen. 1984. *Yvirlit yvir Føroya Fugla / Checklist over Faroese Birds*. Tórshavn: Føroya Skúlabókagrunnur.
- Hammer, S., J.-K. Jensen, K.T. Petersen & D.B.K. Thorup. 2014. *Færøsk Trækfugleatlas. The Faroese Bird Migration Atlas*. Tórshavn: Faroe University Press.
- Jensen, J.K. 2005. Greylag Geese in the Faroe Islands. *GooseNews* 5: 7
- Jensen, J.K., E. Mortensen & B. Olsen. 1989. Støðan hjá búfuglinum. *Frágreiðing frá Føroya Fuglafrøðifelag* 3: 9–11.
- Kristiansen, L.H., D.K. Mogstad, P. Shimmings & A. Follestad. 2005. *Evaluering av forvaltningsplaner for gås i Norge*. Tjøtta; Norsk institutt for planteforskning.
- Landt, J. 1800. *Forsøg til en beskrivelse over Færøerne*. Tórshavn 1965. Einars Prent.
- Middleton, D.A.J., R.M. Nisbet & A.J. Kerr. 1993. A mathematical model of the effect of shooting Barnacle Geese wintering on Islay. *Journal of Applied Ecology* 30: 1–12.
- Müller, H.C. 1862. Færøernes Fuglefauna med Bemærkninger om Fuglefangsten. *Videnskabelige Meddelelser Dansk Naturhistorisk Forening* 1: 1–78.
- Olsen, B. 1994. Er grágásastovnurin vorðin ov stórur? *Frágreiðing frá Føroya Fuglafrøðifelag* 1: 20–25.
- Percival, S.M. 1993. The effects of reseeded, fertilizer application and disturbance on the use of grasslands by Barnacle Geese, and the implications for refuge management. *Journal of Applied Ecology* 30: 437–443.
- Svabo, J.C. 1783. *Indberetninger fra en Reise i Færøe 1781 og 1782*. Selskabet til udgivelse af færøske kildeskrifter og studier / C.A. Reitzels Boghandel A-S. København.
- Tombre, I.M., J. Madsen, H. Tømmervik, K-P. Haugen & E. Eythorsson. 2005. Influence of organised scaring on distribution and habitat choice of geese on pastures in Northern Norway. *Agriculture, Ecosystems & Environment* 111: 311–320.
- Vang, H.B.M. 2014. *Faroese Greylag Goose Population: Population Status and Effects on Faroese Agriculture*. Unpublished MSc thesis. Aarhus University.

Is poor productivity behind the Bewick's Swan population decline?

Kevin Wood, Julia Newth, Geoff Hilton, Bart Nolet & Eileen Rees

In the northern hemisphere many species of waterfowl breed in the Arctic and migrate to spend the winter at lower latitudes. A growing number of these species are declining in numbers (based on counts undertaken on their wintering grounds), including Red-breasted Goose, Dark-bellied Brent Goose, Greenland White-fronted Goose, Taiga Bean Goose, and Bewick's Swan. Currently, it is unclear for many species whether these population decreases have been caused by lower productivity, lower survival, range shifts, or a combination of all three. To help conserve these declining populations, we need to understand what is causing decreases in numbers. In particular, we need to understand how demographic rates (breeding success and survival) are influenced by environmental variables, and how such rates have changed over time and thus whether they could explain the observed declines.

Numbers of one such Arctic-breeding migrant, the Northwest European population of Bewick's Swan, have fallen from around 29,000 birds in 1995 to fewer than 18,000 at present (Rees & Beekman 2010). As a result, Bewick's Swan has recently been classified as Endangered on the European Red List of Birds (BirdLife International 2015). Ongoing conservation efforts aim to halt the decline and restore the population to at least 23,000 individuals (Nagy *et al.* 2012). However, key gaps in our understanding of Bewick's Swan biology have been hindering our ability to understand and address the ongoing population decline. Two key unanswered questions are (1) whether there has been a decline in breeding success that might account for at least part of the population decline, and (2) how Bewick's Swan productivity has responded to environmental drivers including climate variables and predation pressure.



Photo: WWT

WWT has monitored annual productivity of Bewick's Swans wintering in Britain since the early days of Sir Peter Scott, and consequently information is available on breeding success from the 1960s to the present. Each winter the proportion of juvenile Bewick's Swans in the population and the mean number of young per brood have been recorded at key overwintering sites around Britain. Bewick's Swans are well-known for their prolonged parental care of cygnets, as the cygnets migrate and remain with their parents throughout their first winter, which allowed us to assess breeding success from the numbers observed on the wintering grounds.

In a recent paper in *Journal of Avian Biology* (Wood *et al.* 2016), we found no evidence for a long-term change in the proportions of juvenile Bewick's Swans in the population, or in the mean number of cygnets per family group. Together, these findings suggest no long-term change in Bewick's Swan breeding success. Statistical analyses indicated no trends in either of our two measures of swan breeding success over the 1988–2013 (all UK sites) or 1964–2014 (WWT Slimbridge, southwest UK) time periods considered in our study (**Figure 3**). Bewick's Swans showed considerable inter-annual variation in the two measures of breeding success between 1988 and 2013. The percentage of the wintering population that were juveniles ranged between 4.1% and 24.1%, whilst the mean number of cygnets per family ranged between 1.5 and 2.5.

More Bewick's Swan cygnets arrived on the wintering grounds in years in which there had been fewer Arctic Foxes and warmer temperatures on the breeding grounds. The warmer temperatures likely increased the availability of key food plants, and decreased both nest abandonment and cygnet mortality. Arctic Foxes are well known as a key predator of birds in the Arctic; they eat swan eggs and cygnets, although the adult swans are likely to be too large and well-defended to fall prey to an Arctic Fox. However, the abundance of other predatory species such as Pomarine Skuas and Rough-legged Buzzards had no detectable effects on Bewick's Swan breeding success. Bewick's Swan breeding success was lower in years when higher total numbers of swan were counted, suggesting that productivity was reduced by competition between Bewick's Swans for resources such as nest sites and food. Finally, swan productivity was higher in years in which the mean pair bond duration was higher, which corresponds with earlier findings that experience has a positive influence on the breeding success of a pair (Rees *et al.* 1996).

Our findings suggest that there has been no long-term decrease in breeding success that might account for the ongoing population decline. Despite the declining numbers of Bewick's Swans arriving in northwest Europe each winter, productivity has remained relatively constant. Moving beyond our analysis of trends, future population modelling work will allow us to quantify the effects that individual poor breeding years have had on population size. Thus, whilst further research is needed on the consequences of years with low productivity it is clear that other

factors are likely to be involved in the observed population decline. With the recent increase in the numbers of Bewick's Swans wintering at the Evros Delta in Greece, some of the decrease in numbers seen on the wintering grounds of NW Europe might reflect changes in distribution and a shift of some individuals to the Caspian population flyway: additional ring-resighting efforts will help to resolve the identity of the birds at the Evros Delta. As a next step to improve our understanding of the demographic causes of the northwest European Bewick's Swan population decline, we will examine temporal trends in survival rates of adults and cygnets.

References

- BirdLife International. 2015. *European Red List of Birds*. Office for Official Publications of the European Communities, Luxembourg.
- Nagy, S., N. Petkov, E.C. Rees, A. Solokha, G. Hilton, J. Beekman & B. Nolet. 2012. International Single Species Action Plan for the Northwest European Population of Bewick's Swan (*Cygnus columbianus bewickii*). AEWA Technical Series No. 44. Bonn, Germany.
- Rees, E.C. & J.H. Beekman. 2010. Northwest European Bewick's Swans: a population in decline. *British Birds* 103: 640–650.
- Rees, E.C., P. Lievesley, R. Pettifor & C. Perrins. 1996. Mate fidelity in swans: an inter-specific comparison. Pages 118–137 in *Partnerships in Birds: the Study of Monogamy* (J.M Black, ed.). Oxford University Press, Oxford, UK.
- Wood, K.A., J.L. Newth, G.M. Hilton, B.A. Nolet & E.C. Rees. 2016. Inter-annual variability and long-term trends in breeding success in a declining population of migratory swans. *Journal of Avian Biology*. DOI: 10.1111/jav.00819.

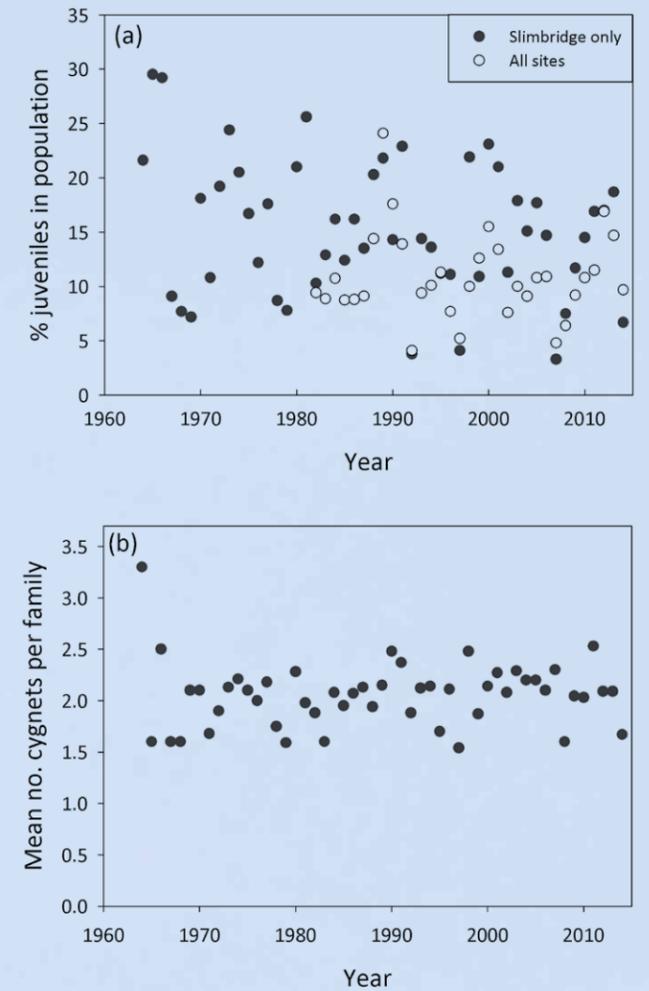


Figure 3: We found no evidence of changes over time during the earlier period of population growth and the more recent period of population decline, in either of our two measures of Bewick's Swan productivity.

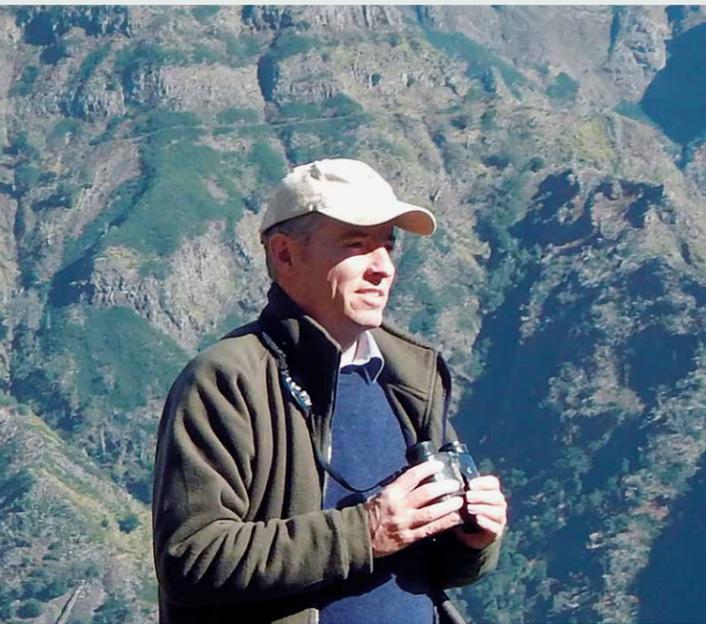


Counter profile

Dr John Bowler, RSPB Scotland, Island Officer for Tiree

How and when did you get involved in goose and swan monitoring?

I first started counting waterbirds informally during birding trips to my local patches of Staines Reservoir and Wraysbury Gravel Pits in my teens, whilst my first organised counts were hedgerow bird surveys undertaken for RSPB in southern England. However, I didn't start formal goose and swan monitoring until I began working for WWT at Slimbridge in the late 1980s.



I worked in the Swan Office there for nine years and almost my first job upon arrival was to conduct a migratory swan survey throughout Ireland with Paul Shimmings, focussing on finding Whooper Swans that had been ringed the previous summer in Iceland. It was great fun, even doing all the driving in a rather dodgy Vauxhall Nova without a decent map! We found several ringed Bewick's Swans in Wexford and many ringed Whooper Swans around Lough Neagh, which was very satisfying and I've never looked back. Trips to Iceland and Arctic Russia followed, working on the breeding grounds of both Whooper and Bewick's Swans with a host of WWT and international colleagues, whilst I also managed a stint working on Hawaiian Geese and some endangered honeycreepers in Hawaii. There were also regular trips to Ireland for more winter swan counts and to conduct some of the very first I-WeBS counts. Much credit must go to Eileen Rees who oversaw much of the swan work and who encouraged me to complete a PhD on Bewick's Swans through the University of Bristol.

My focus switched to seabirds in 1998, when I moved to Seychelles to work with my wife Janet as wardens of Aride Island for The Wildlife Trusts. The demanding job, albeit in paradise, involved a vast amount of monitoring work, particularly on the c. one million breeding seabirds of ten species, several endemic landbirds, passage and wintering shorebirds, as well as non-bird species such as sea-turtles, endemic lizards and reef-fish. After three rewarding years in Seychelles, we moved to the Isle of Tiree, where I took up the position of Island Officer for RSPB Scotland helping to conserve the island's rich biodiversity. Tiree is the outermost of the Inner Hebrides and its shallow lochs, sheltered bays and fertile crofted grasslands are home to a rich array of breeding and wintering birds including the largest population of Corncrakes in the UK, very high densities of breeding waders, internationally important numbers of wintering geese from Greenland and Whooper Swans.

How easy is it to count geese on Tiree and have there been any particular changes in their status or distribution in recent years?

I have been counting the geese on Tiree since 2001. The island is blessed with a good network of roads and tracks but complete counts of Tiree are not easy as geese can lurk in hidden dips and on offshore islets, so each count takes me a full two days, including walks to strategic vantage points. This is easy enough for the post-breeding Greylag Goose count in late August but time is of the essence on the mid-winter counts, when usable daylight for counting can be gone by 3.30 pm! Choice of counting days is also critical. Tiree has the reputation for being the sunniest place in Scotland, if not the UK, but it is also one of the windiest places and winter storms can leave the island gale-bound for days on end. Geese are much harder to find on wet and windy days, so a bit of leeway is given to official count-dates in order to find suitable weather-windows for counting. Coordination with shooting parties run by Argyll Estates on the island is also important, since shooting activities can have a profound effect on the distribution of the geese.

I typically begin a count by driving at dawn to the easternmost part of the island at Caoles and then count my way west using a standardised driving route and set of counting points devised in the mid-1990s by Clive McKay. A north-south road across the centre of the island marks the boundary between day one of the count in the east of the island and day two in the west. For such a small island (c.11 miles long x 3–6 miles wide), it is perhaps surprising that a full count typically notches up over 140 miles on the clock! A Land Rover helps considerably as it gives elevation over roadside



Photo: John Bowler

dykes and fences and allows access to tracks that can get flooded and muddy in wet weather. I record all goose flocks I come across on a field-map of the island, recording flock size, habitat, brood sizes (in season) and any ringed birds.

Greylag Geese are the only resident goose species on the island. Formerly just winter visitors from the Uists, they began nesting on Tiree in the early 1980s and their numbers increased rapidly to a peak of around 4,000 birds in 2004–2007. Management measures have been in place since the mid-1990s, as the geese conflict with farming and crofting practices on the island. Management has taken the form of crop protection measures, as well as shooting and egg-gelling, and current numbers are around two-thirds of what they were at their peak (see **Figure 4**).

I monitor the Greylag Geese monthly during the winter from November to March, whilst counting the other wintering geese and conduct a separate post-breeding count in late August in which I record brood sizes. Greylag Geese focus their feeding on the greener more improved grasslands, but large numbers also occur on the lochs. More birds use the machair ground in late winter as grass becomes scarcer, whilst birds start moving out into the poorer moorland ("sliabh") areas in March prior to nesting. I also record any brood sizes seen on the lochs in May–July to get a handle on annual productivity.

A long-term ringing study of the Tiree birds has seen 1,470 birds individually neck-collared or darvic-ringed (smaller goslings) since 1998 to investigate movements, breeding success, longevity and other life history parameters to inform population modelling. The geese appear rather sedentary but re-sightings of a handful of ringed birds stretch north up through Rum, Skye, Barra and Uist to Achiltibuie in Wester Ross and south and east through Ardnamurchan, Mull, Colonsay and Islay, as well as a lone bird that moved to the north of England and bred for several years on a Lancashire gravel pit! There's always one exception to the rule.

Tiree holds internationally important numbers of Greenland White-fronted Geese and Greenland

Barnacle Geese throughout the winter and I count these monthly as part of coordinated monitoring across the wintering range of these species. I conduct age counts on both species in the first half of the winter and check for individually coloured-ringed birds.

Both Greenland geese typically start arriving in mid-October and depart in early April, so counts run from November to March. As elsewhere, numbers of Greenland White-fronted Geese have declined steadily in recent years on Tiree, dropping from a peak of 1,400 birds in the late 1990s to just over 600 in the 2014/15 winter (**Figure 5**), largely as a result of poor breeding success. Tiree sometimes sees additional passage birds in March including ringed individuals from Islay and the Wexford Slobs stopping off for a few days before heading north once more. Greenland White-fronted Geese feed around the lochs when they first arrive and spend much time feeding on less improved wet grasslands, although some move out into the more improved pastures later in the winter.

Numbers of Greenland Barnacle Geese on the other hand increased steadily on Tiree from around 1,500 birds in the late 1990s to around 4,500 in 2011/12 (**Figure 6**), although numbers have since levelled out as a result of recent poor breeding success. Ringing studies have revealed that most of the Tiree Barnacle Geese head first to Islay in October before moving to Tiree later in the winter and monthly counts tend to rise on Tiree as the winter progresses reaching a peak in February. In some years, Tiree sees even larger numbers for a few days in March/April as passage birds stop off before heading on north. Most ringed birds seen on Tiree have been ringed on Islay, but we also see odd birds that have been ringed in northwest Ireland and at Durness in Sutherland, together with one, perhaps a Svalbard bird, that was ringed at Caerlaverock on the Solway. Barnacle Geese are rather traditional in their use of feeding sites with major concentrations associated with off-shore roosting islands at Ruaig,

Vaul and Balephetrish. However, their range on the island has spread in recent winters as numbers have increased.

Favourite moments and what motivates you most about your role in GSMP

I'm always excited at the start of every count as each is different and you never quite know what you might see. Obviously I always want to know how many of the main goose species are present on Tiree and to see how well the Greenland species have bred each year. Seeing the proportion of juvenile Greenland White-fronted Geese rise above 10% in winter 2015/16 for the first time on Tiree in over a decade was particularly good.

Finding and reading rings can also be very rewarding, as it reveals so much more about the particular birds you are watching in terms of their age and where else they have been seen. However, counts are also a great way of covering the island systematically, which means that I often bump into other unexpected things that might be missed on casual birding trips. Thorough checks of the goose flocks invariably pick out the odd unusual goose.

Scarcer geese that occur annually on the counts include small numbers of Pink-footed, Pale-bellied Brent and Canada Geese (both feral birds from the mainland and presumed wild birds from the Nearctic), whilst the odd Snow, Bean and European White-fronted Goose has occurred from time to time to keep me on my toes. In addition, I usually record flocks of Lapwing and Golden Plover that winter on the island in nationally important numbers, as well as all other birds of note where time allows. Over the years, I've come across all sorts of unusual birds whilst out goose-counting, ranging from Glossy Ibis and Cattle Egret, to American Golden Plover and Little Bunting – which all adds to the excitement of the count.

Many thanks for all your help

The greatest strength of the GSMP lies in the tremendous volunteer input from you, the counters, ring-readers and other participants. We hope that you will continue to support the GSMP and, through it, the conservation of swans, geese and wetlands throughout the UK and beyond.

GooseNews is the newsletter of the GSMP. It is published each autumn and is available to download from the WWT Waterbird Monitoring website at <http://monitoring.wwt.org.uk/our-work/goose-swan-monitoring-programme/reports-newsletter/>. If you would prefer to receive a printed copy of *GooseNews*, please contact the Monitoring Unit at monitoring@wwt.org.uk.

How would you encourage others to get involved?

I seem to have been lucky in that I have always had an interest in birds and from an early age have wanted to count them and help conserve them. I am not sure where that initial spark comes from but if you have started counting the birds in your garden, you're probably halfway there!



Figure 4. Peak counts of Greylag Geese on Tiree, 1982/83–2015/16.

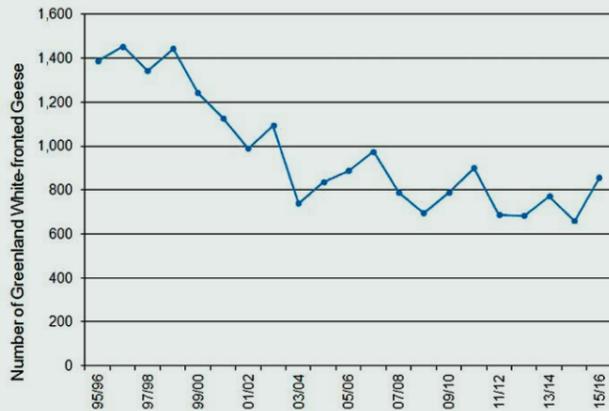


Figure 5. Peak counts of Greenland White-fronted Geese on Tiree, 1995/96–2015/16 (excluding March passage counts).

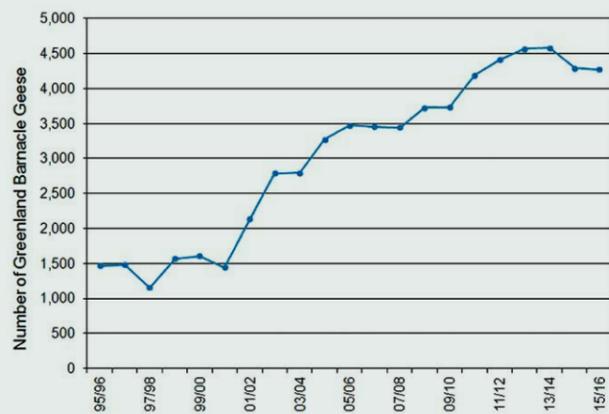


Figure 6. Peak counts of Greenland Barnacle Geese on Tiree, 1995/96–2015/16 (excluding March passage counts).

Latest news from GSMP surveys



Photo: James Lees / WWT

Latest results from GSMP surveys show further increases in the Greenland/Iceland Pink-footed Goose and Svalbard Barnacle Goose populations, whilst the Greenland White-fronted Goose population has suffered a further decline. Dark-bellied Brent Geese and European White-fronted Geese both had poor breeding seasons, whilst there were mixed fortunes for the two swan populations. Results from the 2015 International Swan Census indicate a continued growth in the Iceland Whooper Swan population, whilst numbers of Bewick's Swans wintering in Britain and Ireland have fallen considerably.

More detailed results are available on WWT's monitoring website at <http://monitoring.wwt.org.uk/our-work/uk-waterbirds/goose-swan-monitoring-programme/species-accounts/>

Total counts and the breeding success (percentage young and mean brood size) of goose and swan populations recorded during various surveys in 2015/16; except the results for Greenland White-fronted Goose which are for 2014/15 and the total counts for the Bewick's and Whooper Swan populations, which are for January 2015. Surveys were undertaken at an international or national scale, or at a few key sites; see individual population reports for further details.

Population	Total count ¹	Percentage young	Mean brood size
Northwest European Bewick's Swan	4,392 ²	13.5	1.7
Iceland Whooper Swan	34,004 ³	13.2	2.0
Taiga Bean Goose	285 ⁴	4.6	2.3
Greenland/Iceland Pink-footed Goose	536,871 ⁵	18.8	1.9
European White-fronted Goose	-	16.3	2.2
Greenland White-fronted Goose	18,854 ⁶	12.9 (Britain) 6.1 (Ireland)	2.73 (Britain) 2.59 (Ireland)
Iceland Greylag Goose	95,403 ⁵	20.4	2.7
British Greylag Goose	-	27.0 (Orkney) 29.7 (Tiree) 24.8 (Uists) 16.8 (Harris/Lewis)	3.38 (Orkney) 2.53 (Tiree) 2.83 (Uists) 2.65 (Harris/Lewis)
Greenland Barnacle Goose	-	5.6 (Islay) 4.6 (Tiree)	1.51 (Islay) 1.21 (Tiree)
Svalbard Barnacle Goose	41,000 ⁷	7.8	1.9
Dark-bellied Brent Goose	-	0.9	1.57

1 The official UK population estimates (e.g. for calculation of national 1% thresholds) remain those of the Avian Population Estimates Panel (Musgrove, A.J., N.J. Aebischer, M.A. Eaton, R.D. Hearn, S.E. Newson, D.G. Noble, M. Parsons, K. Risely & D.A. Stroud. 2013. Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 106: 64–100). The official flyway population estimates (e.g. for calculation of international 1% thresholds) are those published by Wetlands International at <http://wpe.wetlands.org>.

2 Total for Britain and Ireland, recorded during the January 2015 International Swan Census. From; WWT. 2016. *Goose & Swan Monitoring Programme: survey results 2015/16 Bewick's Swan Cygnus columbianus bewickii*. WWT/JNCC/SNH, Slimbridge. <http://monitoring.wwt.org.uk/our-work/goose-swan-monitoring-programme/species-accounts/bewicks-swan/>

3 Flyway total. From; Hall *et al.* In press.

4 Combined total from Slamannan Plateau and Yare Valley. From; Maciver, A. & T. Wilson. 2016. *Population and distribution of Bean Geese in the Slamannan area 2015/16*. Report to the Bean Goose Action Group and Ben Lewis (RSPB) in litt.

5 Flyway total. From; Mitchell, C. 2016. *Status and distribution of Icelandic-breeding geese: results of the 2015 international census*. Wildfowl & Wetlands Trust Report, Slimbridge.

6 Flyway total. From; Fox, A.D., I.S. Francis, D. Norris & A.J. Walsh. 2015. *Report of the 2014/15 international census of Greenland White-fronted Geese*. Greenland White-fronted Goose Study report.

7 Flyway total. WWT data.



Results of the January 2015 International Swan Census

Photo: Ernest Duscher

Whooper and Bewick's Swan breeding success in 2015

Julia Newth

Coordinated age assessments of Whooper and Bewick's Swans were carried out in Britain and Ireland in January 2016. A total of 1,441 Bewick's and 9,458 Whoopers were aged, of which a similar proportion of each were found to be cygnets: 13.5% and 13.2%, respectively. Mean brood sizes were recorded as 1.7 cygnets per successful pair for the Bewick's and 2.0 cygnets for the Whoopers.

These results suggest that the Whooper Swans had a below average breeding season in 2015, and it is likely that the weather conditions on their breeding grounds in Iceland had impacted on their success - Iceland experienced a very cold spring in 2015, with some areas still covered in snow in mid-May making conditions unfavourable. Nonetheless, the Ouse Washes (Norfolk/Cambridgeshire), the key site for Whooper Swans in Britain and Ireland, held the highest numbers recorded there to date, with over 8,000 swans seen in January 2016 (WWT/RSPB data).

This continues the ever increasing numbers recorded at the site in recent decades - see results from the 2015 ISC opposite for more about the growing Whooper Swan population.

Comparatively, the results suggest that the Bewick's Swans had a reasonable breeding season:

weather conditions at their breeding sites in arctic Russia had been relatively good with spring temperatures above average for the time of year. The Northwest European Bewick's Swan population, to which the birds in Britain and Ireland belong, is declining and questions have been raised as to whether this may relate to a decrease in the swans' breeding success. Kevin Wood's article on page 11 provides an insight into long-term trends in breeding success and explores the relationship between Bewick's Swan productivity and environmental and ecological conditions in the Arctic.

Photo: WWT

Colette Hall

In January 2015, counters across northwest Europe took part in the International Swan Census, which was organised overall by the Wetlands International / IUCN SSC Swan Specialist Group and covered the three migratory populations that occur there: the Northwest Mainland Europe Whooper Swan, the Icelandic Whooper Swan and the Northwest European Bewick's Swan.

WWT, in partnership with BirdWatch Ireland, the Irish Whooper Swan Study Group and colleagues in Iceland, coordinated the census of the Icelandic Whooper Swan population and Britain and Ireland's contribution to the Bewick's Swan census. Thanks to the marvellous efforts of the volunteer counter networks, local organisers, census coordinators and additional helpers, excellent coverage of Britain, Ireland and Iceland was achieved, and our gratitude goes to everyone involved.

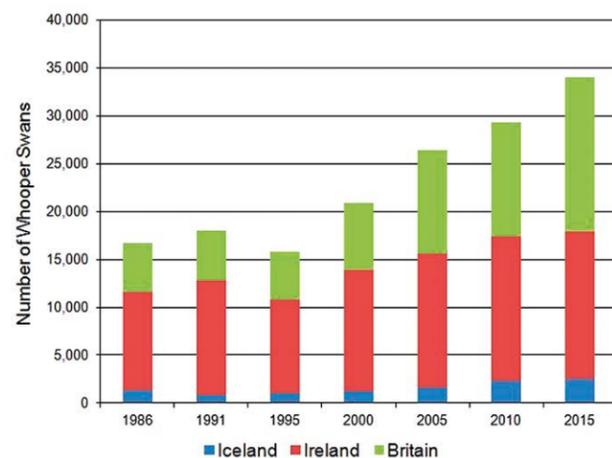


Figure 7. Number of Whooper Swans recorded in Iceland, Ireland and Britain during the International Swan Censuses, 1986–2015 (Hall *et al.* In press).

Results from the census clearly show a continued growth in the Icelandic Whooper Swan population, with the 2015 census yielding the highest count to date (Hall *et al.* In press; **Figure 7**). A total of 34,004 birds was recorded, representing an increase of 16% compared to the 2010 total. There are also indications of a shift in the population's distribution, with Britain holding an increasing proportion, whilst Ireland has recorded a gradual decline.

The biggest change has been recorded in England, where numbers have increased five-fold in the last ten years, whilst the proportion of the population the country supports has grown by 21% over the same time period. In comparison, the Republic of Ireland, which previously held the majority of birds, has seen a two-fold increase in numbers but has recorded a drop of 10% in the proportion of the population occurring there. The main reason for this shift is the increasing number of Whooper Swans at the Ouse Washes, Norfolk/Cambridgeshire, with the count in 2015 (7,171) being the highest recorded up to then and represents a seven-fold increase in the number of Whooper Swans recorded at the site since 1995.

There has also been an increase in the number of Whoopers wintering in Iceland. However, as a proportion of the population, numbers have only risen slightly; hence, at present, there is little evidence to suggest a shift in overall distribution, whereby more birds are choosing to over-winter closer to their breeding grounds.

The story for the Bewick's Swan is contrary to that of the Whooper Swan, with the 2015 census revealing a large decline in the number wintering in Britain and Ireland. A total of 4,392 birds was recorded, which is 38% lower than in 2010 and the lowest census total to date (**Figure 8**). Ireland has seen the largest decline, with numbers continually falling from a peak of 2,004 birds in 1990 to just 21 in 2015. Comparatively, results

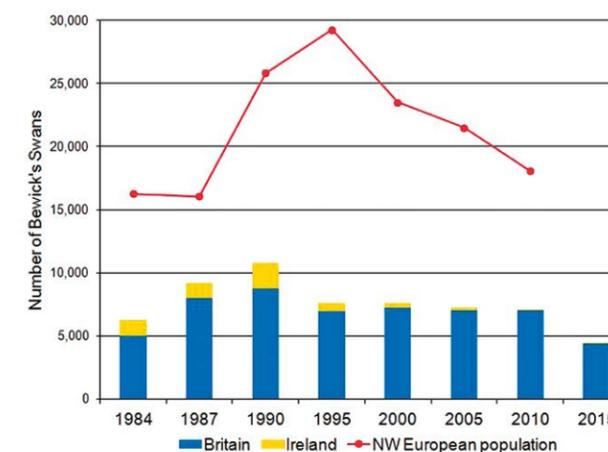


Figure 8. Number of Bewick's Swans recorded in Britain and Ireland during the International Swan Censuses and the Northwest European population estimates (Beekman *et al.* In prep), 1984–2015.

from 1995 to 2010 indicated some stability in the number of birds wintering in Britain, despite the overall decline in the Northwest European population; and interestingly, Britain has also seen a gradual increase in the proportion of the total population it supports since 2000, this being the first census year in which a decrease in the population was recorded. However, given the large decline observed in Britain during the 2015 census, it will be interesting to see whether numbers elsewhere along the flyway also fell so markedly - at the time of writing, results from other countries are still being collated, but early indications suggest that numbers were lower than those recorded during the 2010 census.



Icelandic-breeding Goose Census 2015 – Pinkfeet reach half a million!

Carl Mitchell

Autumn 2015 saw Pink-footed Goose numbers reach a record high. A total of 536,871 geese was counted in mid-October through the IGC, the highest count on record and a 36% increase on the census-based estimate in 2014. Census coverage was excellent and the count date in mid-October appears to have been well chosen, since the bulk of the birds had arrived in the UK from Iceland and Greenland. In previous years, but notably so in 2010 and 2011, a coordinated count earlier in October led to undercounts, as large numbers of (uncounted) geese were known to be still in Iceland at the time.

Breeding success was about average at 18.8% young with a mean brood size of 1.9 goslings per successful pair. The unremarkable breeding success suggests that the censuses in the most recent years, in addition to 2010 and 2011, have been significant undercounts. As in 2014, some notably large counts were reported, as might be expected with such a large population total. Montrose Basin led the field with a count of 85,632 Pink-footed Geese counted on 18 October, followed by West Water Reservoir (82,920) and WWT Martin Mere (32,290) but 27 sites held over 5,000 geese and 15 sites held over 10,000 geese. As recently as 1979, the entire Greenland/Iceland Pink-footed Goose population stood at 80,000 individuals. By 2015, two roosts each held that number.

In 1969, Hugh Boyd and Malcolm Ogilvie, in a review of Pink-footed Goose numbers up to that year, speculated on the population trajectory over the next six years: '... will it now fluctuate about a November level of, say, 70,000 birds, or will it decline substantially? The safest answer is just to wait and see ...' (Boyd & Ogilvie 1969). At the then rate of increase in numbers, the authors also speculated that the population could continue to grow at a steady rate, to reach 90,000 birds by 1975. To some extent this was a good estimation, since, in 1974, numbers had reached 89,000 birds. However, the rate of change in this population increased, noticeably so in the 1980s.

The more recent rate of increase has been maintained and since 1987 has been increasing at about 3.0% per annum.

As mentioned in previous annual reports and in *GooseNews*, an increasing number of British Greylag Geese now reside in the wintering areas of the migrants from Iceland. Separating the two, at a time when both populations are present is never going to be easy and a combination of late summer and early winter counts are needed so that the former can be deducted from the latter. The November 2015 count population estimate was 95,403 Iceland Greylag Geese, 6.4% higher than the figure for autumn 2014. At the time of the census, in mid-November, an estimated 35,000 Greylag Geese remained in Iceland and 56,151 geese were counted in Orkney (although an estimated 18,050 of these were British birds). The population level of Iceland Greylag Geese has decreased by c.10,000 birds in the last five years to levels of 80,000–100,000 birds, similar to that recorded in the late 1990s and early 2000s. However, the trajectory of the population needs watching carefully since c. 40,000 birds are shot in Iceland every year and, as part of SNH's attempts to reduce the number of British Greylag Geese on Orkney, many thousands of both British and Iceland Greylag Geese are shot there each winter.

Trying to estimate annual breeding success for this population is also fraught with difficulties for the same reasons; however, estimates of 20.4% young and a mean brood size of 2.7 young per successful pair were obtained in Caithness, an area where the Iceland migrants far outnumber British birds. In Orkney, it has become increasingly difficult to reliably separate the Iceland and British Greylag Geese since their distribution in the archipelago overlaps.

Reference

Boyd, H. & M.A. Ogilvie. 1969. Changes in the British-wintering population of the Pink-footed Goose from 1950 to 1975. *Wildfowl* 20: 33–46.



Photo: John Anderson

Taiga Bean Geese wintering in Britain in 2015/16

Carl Mitchell

During winter 2015/16, monitoring of Taiga Bean Goose was undertaken at the Slamannan Plateau, Falkirk, by members of the Bean Goose Action Group and at the Yare Valley, Norfolk, by RSPB reserve wardens.

A peak count of 263 birds was recorded at Slamannan on 14 January 2016, 26 birds higher than the previous year (237) although the wintering flock appeared to arrive in two distinct phases with a late arrival in the early part of the winter.

At the Yare Valley, where the number of wintering Bean Geese has been declining since 1993/94, the peak count of 22 geese on 26 November was just over half that recorded during the previous winter (36) and the lowest since 1954/55. The Yare flock is demonstrating 'short-stopping', as geese winter further east, probably choosing to over-winter at staging areas in Denmark.



Photo: Angus MacIver

Breeding success was estimated from a sample of 152 birds at Slamannan in late October and only seven birds were aged as first winter (4.6% young) with a mean brood size of 2.3 young per successful pair. The number of Bean Geese wintering at Slamannan has remained at 200–300 birds since 2002/03 and low annual productivity may help explain why the numbers there are not increasing.

A successful catch of seven Bean Geese that was made at Slamannan in mid-October included a bird that had been caught there in October 2012. Four of the geese were marked with GPS tags and their movements can be followed here (<http://scotlandsbeangeese.wikispaces.com/home>). Mike Thornton (Scottish Natural Heritage) started a study looking at factors affecting the distribution of the geese at Slamannan.

Thanks to Angus MacIver, Larry Griffin and Ben Lewis for providing data reproduced here.

Monitoring of British Greylag Geese in key areas of Scotland in 2015

Carl Mitchell

Scottish Natural Heritage are now controlling the numbers of British Greylag Geese in four pilot areas in an attempt to alleviate agricultural economic damage (see *GooseNews* 12: 5). Geese are now being shot in Lewis/Harris in addition to the existing trial areas of Orkney, Tiree and the Uists. These areas are monitored and provide the basis for annual reporting.

On Orkney, a survey in late August 2015 found 21,354 geese, a 6.8% decrease on the previous year, despite nearly 10,000 geese being shot there in the previous 12 months. The birds shot from mid-November onwards will include a mix of British and Iceland Greylag Geese. Breeding success was estimated at 27% young from a sample of 1,085 birds aged, with a mean of 3.38 young per successful pair. Between 2012 to 2015, c. 20,000 to c. 23,000 British Greylag Geese have been counted in Orkney suggesting that the rapid increases in numbers up to 2012 has stopped and that, due to increased shooting of the summering stock, the population trend has stabilised.

On Tiree, the late August count was 1,903 geese, a 32% decrease compared with 2014; however, it was initially thought that the count in 2015 was an underestimate due to late silage cutting in wet weather,

which meant that there were many more long-grass silage fields around than normal during the count, in which geese could potentially hide unseen. However, the peak winter count was of 2,047 birds in mid-January 2016, suggesting that the late August count may not have been that far out. Breeding success was once again high with 1,587 birds aged and, of these, 29.7% were young with a mean brood size of 2.53 per successful pair. This was the tenth year in a row that breeding success was over 25% young, the highest recent value being 40.3% young recorded in 2008.

On the Uists, 6,188 Greylag Geese were counted in September 2015, a decrease of 24.8% on the previous year, and 4,293 birds were counted in February 2016, a decrease of 23.0% on the previous year. In late summer 2015, 1,244 birds were aged there and 24.8% were young.

On Harris/Lewis, 819 birds were aged and 16.8% were young – quite a difference to the high productivity shown in the other three areas.

Thanks to John Bowler (RSPB Scotland) for providing counts and breeding success data from Tiree and to SNH and Jamie Boyle for providing counts from the Uists.

Greenland White-fronted Goose population monitoring in 2014/15

Tony Fox, Alyn Walsh, Ian Francis & David Norriss

Winter 2014/15 represented something of a landmark for the Greenland White-fronted Goose population, even if the geese themselves were totally oblivious to our cause for concern. That winter was the first time since 1985 that the global population fell below 20,000 birds and when annual productivity dropped below the 7% alert limit at Wexford after three consecutive breeding seasons. Both these triggers represent grounds for a meeting of the Range States under the AEWA International Single Species Action Plan for the Conservation of the population (Stroud *et al.* 2012), to consider responses to the continued deterioration of population status.

The international coordinated count in spring 2015 generated a global total of 18,854 Greenland White-fronted Geese, the lowest spring count since 1985 and down 9.3% on the last world population estimate of 20,797 in spring 2014 (Fox *et al.* 2015). In Ireland, 7,984 were counted at Wexford (compared to 8,110 in spring 2014) and 2,284 in the rest of Ireland (*i.e.* down on last year's 2,512 in spring 2014). Missing spring counts were substituted for 15 Irish regular wintering resorts, contributing 5.5% of the Irish total. The British spring 2015 total was 8,588, compared with 10,175 in the previous season, comprising 32 birds reported in England, 25 in Wales, 3,995 on Islay (compared to 5,093 last season) and 4,536 in the rest of Scotland (compared with 5,044 respectively last season). Missing spring counts were substituted at six resorts, amounting to 4.1% of the British total.

Following the 2014 breeding season, the overall percentage of first winter birds returning in winter 2014/15 amongst British flocks was 12.9% ($n = 6,563$ aged, compared to 14.2% in 2013/14), including 14.7% on Islay, (just above the average of 14.0% for 1962–2014 inclusive, but down on last season's 17.0%). In Ireland, the percentage young amongst aged flocks returning in winter 2014/15 was again low: 6.1% (based on 4,092 aged individuals) compared to 6.9% last season. There were 5.8% young amongst 3,578 aged at Wexford (the second lowest production on record, down on 6.8% last year). Elsewhere in Ireland, reproductive success was poor but modestly better than at Wexford, with 8.2% young ($n = 514$).

Although poor reproductive success seems to continue to characterise a long-term decline amongst the Irish wintering flocks, it does seem to be the case that the percentage young returning in Scottish flocks is beginning to increase after hitting an all-time low in 2005. A series of mild springs with less snow in central west Greenland has been followed by winters with more than 10% first-winter birds returning to Islay and other Scottish resorts in all of the last ten years, suggesting the potential for some recovery, but until the Irish flocks



show similar increases, it is premature to look forward to any recovery in the global population. If the reproductive success in the population as a whole were to return to the heady levels of averaging 15% young per annum in the 1980s, under the annual growth rate of 4.3% of that time, it would only take two years for the population to come back to exceed 20,000 individuals. Alas, whilst reproductive success amongst the Irish flocks in particular continue to fall well below 10%, there seems little prospect of such a rapid recovery.

This information all makes for a somewhat gloomy prognosis, because while poor reproductive success continues to be the reason for the decline in abundance, there seems little we can do in practical terms to restore the population to its former levels. It would appear that greater precipitation in spring just before geese arrive back to the breeding grounds continues to be a major factor depressing reproductive success. In addition, a recent aerial survey of some parts of the nesting areas in Greenland found increased numbers of summering Canada Geese, especially on Disko and Nuussuaq Peninsula in the face of declining White-fronted Geese in the same area (Boertmann & Petersen 2016). Although there is little hard evidence for direct competition between the two goose species, if the Canada Geese were also in some way affecting the reproductive success of Greenland White-fronted Geese, like the weather, there is very little practically we could do from Europe to change this. Nevertheless, it is important that the Range States respond to the double triggers of (i) the global population falling below 20,000 and (ii) annual productivity falling below the 7% alert limit at Wexford following three consecutive breeding seasons and meet to discuss possible actions under the plan (Stroud *et al.* 2012) as the situation continues to deteriorate.

References

- Boertmann, D. & I.K. Petersen. 2016. *Aerial survey of geese, seaducks and other wildlife in the Disko Bay area, West Greenland, July 2015*. Aarhus University, DCE – Danish Centre for Environment and Energy Report No.78. Aarhus University/DCE, Aarhus. Accessible at: <http://dce2.au.dk/pub/TR78.pdf>
- Fox, A.D., I.S. Francis, D.W. Norriss & A.J. Walsh. 2015. *Report of the 2014/2015 international census of Greenland White-fronted Geese*. Greenland White-fronted Goose Study and National Parks and Wildlife Service, Rønde, Denmark.
- Stroud, D.A., A.D. Fox, C. Urquhart & I.S. Francis (compilers). 2012. *International Single Species Action Plan for the Conservation of the Greenland White-fronted Goose *Anser albifrons flavirostris*, 2012–2022*. AEWA Technical Series No. 45. Bonn, Germany.



Another poor year for European Whitefronts

Kees Koffijberg & Kane Brides

European White-fronted Geese from the Russian tundra experienced another poor breeding season in 2015. Age ratio assessments made at wintering sites in the UK, The Netherlands and the western part of Germany revealed a juvenile percentage of 11.4% overall.

During January 2016, geese were aged at two locations in England: WWT Slimbridge in Gloucestershire and RSPB's Church Farm in Suffolk. Overall, 270 birds were aged of which 44 (16.3%) were goslings. At WWT Slimbridge, 117 birds were aged of which 22 were juveniles (18.8%) and a sample of 153 birds aged at Church Farm also contained 22 goslings (14.3%). Brood size counts were carried out by the reserve wardens at Slimbridge, with a mean brood size of 2.2 goslings per successful pair recorded for the ten broods assessed.

As seen in previous years, these first-year ratios in the UK are slightly higher than those in the core wintering regions in The Netherlands and Germany; here, 11.3% of the 196,330 individuals checked overall were first-year birds and figures for the two countries were very similar (11.6% and 11.2% young, respectively). Not all of

the data from the 2015/16 season has been processed but these initial results will represent the overall breeding success very well.

Over a longer-term, the age ratio data from 2015/16 confirm the overall decline in breeding performance in European Whitefronts that has been recorded from the early 1990s onwards (see *GooseNews* 14: 22). The proportion of first-winter birds in 2015/16 was amongst the lowest recorded since the start of the assessments in 1960. Recent studies in The Netherlands have shown that the lower reproductive output is probably the result of density-dependence on the breeding grounds. As a result, the flyway population has stabilized since 2000. The tendency for milder winters has initiated a long-term decline in numbers wintering in the UK and an increase in wintering numbers along the northern fringe of the wintering range in Denmark and Sweden.

A big thank you goes to Martin McGill (WWT) and David Thurlow (RSPB) for records from the UK and to all other observers submitting data in The Netherlands and Germany.

Greenland Barnacle Geese wintering in Scotland in 2015/16 bounce back

Carl Mitchell

On Islay, the most important wintering site in the UK for Greenland Barnacle Geese, four coordinated counts were undertaken during winter 2015/16. These revealed 48,568 birds in November, 43,883 in December, 41,736 in January and 37,166 in March. The mean of these four counts was 42,800 birds which represents a 13% increase compared to winter 2014/15 (37,758 geese); however, the November 2015 count was 4,685 birds higher than the December figure and the former presumably included transient geese that did not stay to winter on Islay. Breeding success in 2015 in east Greenland was again low (see below) and SNH shot just under 2,000 birds on Islay during the winter (see *GooseNews* 14: 10–11).

Not all sites holding Greenland Barnacle Geese were counted in winter 2015/16, since complete coverage of all known wintering haunts is only checked once every five years (see *GooseNews* 12: 9 for results of the census in 2013); however, winter peak counts of 4,282 birds on North Uist, 1,610 birds at South Walls, Orkney, 4,268 on Tiree, 902 on Coll, 2,184 on Colonsay/Oronsay, and 807 on Danna were recorded.

Breeding success is measured annually on Islay and counts in autumn 2015 revealed another poor breeding season. Just over 7,500 birds were aged and showed

that 5.6% were young with a mean brood size of 1.5 young per successful pair. This continues a run of low productivity estimates for this population with less than 10% young being recorded in eight out of the last ten seasons. On Tiree, a sample of 500 birds held 23 young (4.6%) with a mean brood size of 1.2 young per successful pair.

There has been a recent increase in the number of birds, which are assumed to belong to this population, breeding in areas other than East Greenland. Barnacle Geese began to breed in southern Iceland from the early 2000s and, in 2014, numbered about 500 pairs (Stefánsson *et al.* 2015). Ring recovery information suggests that some of these birds winter on Islay. In the Faroes, first breeding was recorded in 1991 and in 2016 there were 50 pairs with 148 young and an additional 112 non breeding birds (JK Jensen pers. comm.).

Thanks go to Malcolm Ogilvie and John Bowler for providing age counts and to SNH and Jamie Boyle for providing goose counts.

Reference

Stefánsson, J.H., K. Hermannsdóttir & S. Guðmundsson. 2015. *Helsingjar í Austur-Skaftafellssýslu – stofnstærð og varpútbreiddsla 2014*. Náttúrustofa Suðausturlands. Höfn í Hornafirði. 17 bls.

Svalbard Barnacle Geese in 2015/16

Larry Griffin

Winters are often reasonably mild on the Solway due to the moderating influence of the Gulf Stream off the west coast and even in a local context when there is snow or frost lying in other areas roundabout, the small group of fields and marshes that the geese use just a few kilometres from their mud bank roosts tend to be thawed and green. Even so, it was notable this winter just how warm the conditions remained and it did not feel as though winter got going until about mid-February when Caerlaverock had its first periods of sustained ground frosts. This meant there was plenty of grass available for the geese and so they did not spread out much along the Solway coast until late in the season, probably making the census counts more consistent.

With this in mind it now seems safe to assume that the Svalbard Barnacle Goose population has surpassed the 40,000 mark as the counter network on the Solway recorded three counts greater than this in the period from October 2015 to May 2016, including a peak count of 42,017 recorded on 27 April when over 70% of the population had gathered on Rockcliffe Marsh, Cumbria,

prior to migration. Due to the very real possibility of double counting some flocks of geese – particularly in the hubbub of horse riders, microlights and heat haze at Rockcliffe on some days in April and May and where three counters try and synchronise their efforts across this massive area of saltmarsh with few lofty vantage points – an average population total is adopted.

Based on the counts within 10% of the maximum, this winter the adopted total was 41,000 birds. The geese probably had a slightly better breeding season in 2015 than 2014, with nearly 8% young recorded in the population this winter compared to just 5% last winter, and a mean brood size very close to the ten-year average of two goslings per successful pair.

The passing of this 40,000 threshold is a remarkable example of population recovery considering the counts of fewer than 400 birds just 70 years ago. The continued medium- and longer-term growth of this population can probably be attributed to the dedicated conservation actions implemented across the length and breadth of its international flyway, though in large

part it will simply be the natural response of a population freed from shooting. As such it would be tempting to think that there are plenty of Barnacle Geese on the Solway and that they are no longer vulnerable, but as I write this I know that the England Euro game is just two days away and I see that the entire Svalbard Barnacle Goose population would only just half fill the 'Stade de France' and I am aware that on the Solway they are still very reliant on just five main mud bank roosts, so depending on your perspective, they are still neither common nor invulnerable.

Seventy years sounds like quite a long time, but of course in the last issue of *GooseNews* we reported on a bird – orange ANS – that was at least 30 years old and again this winter, although we have not seen this bird, there have been reports of other birds that are at least 28 years old, so considering only a very limited percentage of the birds have been ringed I guess it would not be a surprise if some reached the grand old age of 35 years in this protected population.

This sort of understanding about the age structure or how many young a typical bird might produce during its lifetime is only possible to obtain through the use of the coded darvic leg rings. The number of birds ringed in the population has received a tremendous input after the efforts of Jouke Prop last summer up on the breeding grounds in Nordenskiöldkysten, Spitsbergen with many hundreds of new birds, including goslings, being ringed with new white or yellow two-digit rings and with the continued efforts of Maarten Loonen up in Ny Aalesund and Longyearbyen. A small catch was secured at Caerlaverock in late April when some further orange rings were fitted.

Ring readers Val & Bob Smith operating in the Southernness area who turned up orange ANS last winter spotted a real favourite this winter; orange DAD. This bird, otherwise known as 'Magnar', was one of an original group of four that were the first Barnacle Geese to be satellite tagged by WWT back in 2006. It has not been seen for a few years so it was great to get news of it. At Mersehead, staff and volunteers also collected a good number of rings and associated information.

At Caerlaverock, Rosie Rutherford again collected over 1,000 ring records and associated information on the brood sizes which was greatly appreciated; especially because she then

diligently typed them all into the database!

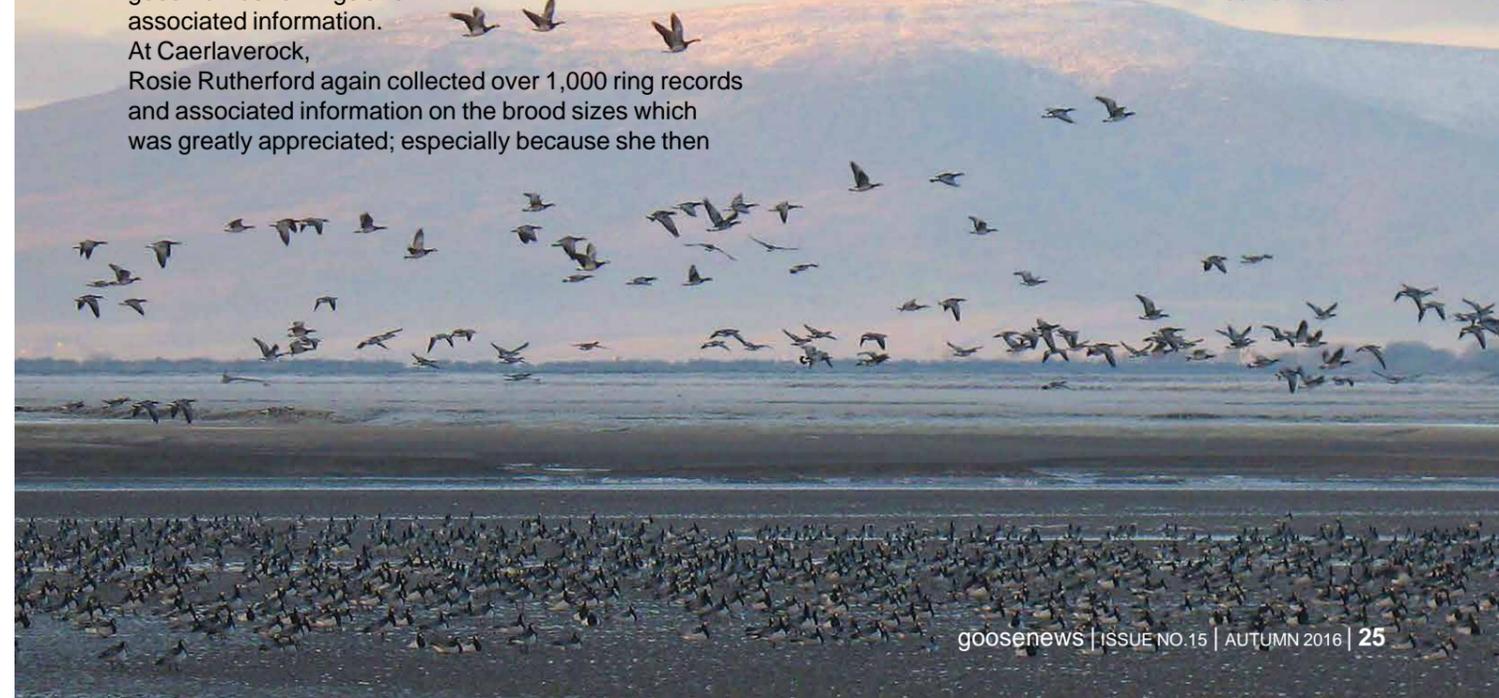
Over the last few decades as the population has grown there has been an increasing tendency for Barnacle Goose numbers to remain higher at some of the east coast locations beyond the traditional October passage period. Around Lindisfarne, for example, where sightings of green and yellow rings suggest that Svalbard birds make up a significant proportion of the birds present, increasing numbers of birds are lingering for much of the winter.

Our satellite tracking studies have shown that many tagged birds drop into sites such as Lindisfarne and Budle Bay especially during the autumn migration from Norway. Some of those tagged birds stay for a few days or weeks feeding on stubbles in those areas before returning to the Solway. This winter, Derek Forshaw kindly reported on the status of the flock in the Budle Bay area on many dates close to the Solway census periods and up to 9 February was still finding about 1,000 Barnacle Geese in that area; a similar number to what he recorded from the end of October by which time the passage numbers of many thousands had declined as birds continued their journey to the Solway.

By 22 February, however, after the cold period recorded at Caerlaverock, numbers at Budle Bay had dropped abruptly to 40 or less and remained low through until 7 April when 15 birds were recorded. If this c. 1,000 geese from Budle Bay had finally moved to the Solway this may have accounted for the late peak in numbers to over 42,000 reported above. Of course the only way to truly know whether or not these birds had moved from Budle Bay to the Solway would be to read the rings seen in that flock and aim to re-sight them on the Solway and/or to catch and colour-ring birds at the Budle Bay wintering site to quantify whether or not the same birds short-stop there each year.

Many thanks to Derek for these counts from Budle Bay and for the sustained commitment of the Solway census team including Dave Blackledge, Mike Carrier, David Charnock, Rowena Flavell, Bob Jones, Marian & Dave Rochester and Paul Tarling.

Photo: Brian Morrell / WWT



Poor breeding season for Dark-bellied Brent Geese

Kane Brides

The 2015 breeding season proved to be a poorer breeding year for Dark-bellied Brent Geese than in recent years. During the 2015/16 winter season, 40,060 geese were aged at 69 locations within 12 estuaries or coastal locations in the UK. This showed that wintering flocks held 0.9% young and that the mean brood size was 1.57 young per successful pair. Indeed, many counters remarked on how few young they were seeing in the Dark-bellied Brent Goose flocks that they were assessing. Reports from monitoring stations in the breeding grounds in Arctic Russia suggest that rodent abundance was relatively low in 2015 and predator abundance, mainly Arctic Fox, were seen in record numbers in some areas. Together, these factors are likely to have had a negative impact on the breeding success of Dark-bellied Brent Geese in summer 2015.

The winter season of 2015/16 marked the 31st consecutive year in which annual age assessments for Dark-bellied Brent geese have been collected by experienced volunteers in the UK. As always our thanks go to the network of dedicated GSMP volunteers who collected age assessment data. Your continued efforts are very much appreciated.



Photo: Graham Catley

Capture and marking round-up

Kane Brides, Graham McElwaine, Alan Lauder & Lee Barber

Capturing and ringing Whooper Swans on the summering grounds in Iceland during 2015 marked the 35th year in which Sverrir Thorstensen has been working on the species. During the summer, Sverrir managed to catch 80 individuals of which 52 were newly ringed (including 41 cygnets) and 28 were recaptures from previous years. On the wintering grounds in February 2016, annual catches took place at WWT Martin Mere in Lancashire with 101 swans being captured, of which 71 were newly ringed and 30 were recaptures. At WWT Caerlaverock in Dumfriesshire, 92 Whoopers were caught; 41 newly ringed and 51 recaptures. At the time of writing, sightings of marked Whooper Swans during the 2015/16 season stands at 10,797 re-sightings of 639 individual swans, gratefully received from 106 observers within the UK, Ireland and Iceland.

Mention of the oldest known Whooper Swan was made in *GooseNews* 14, then in its 29th year since being ringed as a cygnet in Iceland in 1986. We are delighted to report that Sverrir once again re-sighted 'BXN' in spring 2015 making this bird now 30 years of age! At this age, this bird continues to hold the longevity record for this species.

We are very grateful for the support that we receive from our dedicated team of volunteers who help to ensure WWT's long-term swan studies continue. Many thanks go to all ring readers who submit ring sightings. Special thanks go to Steve Heaven, Alison Bloor and Ailsa Hurst for their help with computerising ring sightings and to David and Estelle Walsh, Emma James and Sheila Stubbs for their help in compiling sightings of colour-marked Whooper and Bewick's Swans at WWT's Martin Mere, Caerlaverock and Slimbridge.

Although no catches of Bewick's Swans took place during the last year, a good number of re-sightings were sent to WWT of birds marked at WWT reserves and also in Russia. It is well worth scanning flocks of Bewick's Swans for colour-marked birds as there remains a good number in the population.

The first arrival of Light-bellied Brent Geese was noted at Strangford Lough at the end of August 2015, with the first family, which included four juveniles, being recorded on 5 September. This is an early date and was the initial indication that the 2015 breeding season had been much better than recent years. Cannon-netting during the 2015/16 season at Strangford Lough was limited to a small inter-tidal catch of 11 birds in early November. In the Dublin area, two concentrated series of catches were held, one at the start of February, the other at the start of April. In the first period, a number of sites were used, and included the



Photo: WWT

first ever catch at Malahide. April saw catches concentrated on the salt-marshes to either side of the North Bull causeway. In total, 145 geese were caught, including 20 birds that were fitted with GPS collars as part of a research project led by University of Exeter.

On the staging grounds in Iceland, a joint team of University of Exeter, the Irish Brent Goose Research Group (IBGRG), and Icelandic colleagues caught a further 88 geese in ten catches, where individual birds were being targeted. These included a further 11 birds which were fitted with GPS collars and a couple of small, more northerly catches at Kolgrafarfjörður, Snæfellsnes. These were the first successful attempts on the peninsula since a catch at a nearby site in 2008.

At the time of writing, with many records still to be entered, sightings of marked Brent Geese during the 2015/16 winter period stood at 14,375 records of 1,749 individuals, received from 175 observers along the flyway. A regular team from IBGRG visited Iceland to augment the annual ring-reading effort there during the recent spring staging. Many thanks go to the cannon-netters, Stuart Bearhop and Kerry Mackie, and to all the support teams of volunteer helpers and ring-readers in Ireland, Iceland and further afield.

Greylag Geese across Ireland have been receiving attention of late. The composition of wintering flocks is a key focus of the marking efforts being carried out. In addition to two small catches in 2014/15, the winter of 2015/16 saw four catches undertaken. The season kicked off with a catch of 32 presumed naturalised birds caught at Blanket Nook, Co. Donegal in mid-August. The catch there was timed to target naturalised birds prior to the arrival of larger numbers of migratory Icelandic Greylag Geese. Later in the winter, two catches of presumed Icelandic birds were made near Poulaphouca Reservoir, Co. Wicklow, where 14 were collared in December and a further 29 in March.

A small catch of five Greylags (presumed naturalised) was made at Strangford Lough in late April. All birds ringed as part of this project carry orange neck collars with a three-character code and a dividing bar between the first and second characters. Re-sightings of marked birds so far have shown some interesting movements and connections between key flocks.

The Irish Greylag project is supported by funding from National Parks & Wildlife Service, Inch Wildfowling Club and BirdWatch Ireland. Cannon-netting is led by Alyn Walsh (Donegal), Alan Lauder (Wicklow) and Kerry Mackie (Strangford). Andrew Speer, Boyd Bryce (Donegal), Anne Fitzpatrick, Mick Wallace and John Rossiter (Wicklow) have been instrumental in facilitating catches.

Seven new Greylags were rounded up in Thetford by the BTO, which were neck collared as part of a study looking into movements of geese within Norfolk. With these and the previously collared birds, 1,268 sightings were received during 2015. A total of 247 Greylag Geese were rounded up as part of moult catches on Lake Windermere in Cumbria in 2015: 212 new birds and 35 recaptures, with over 300 birds in total now neck collared as part of this project.

On Islay Carl Mitchell, Larry Griffin and Ed Burrell caught 27 Greenland White-fronted Geese in two catches, marking birds as part of the long-term study on this species. At Slamannan, near Falkirk, Carl, Larry and Angus Maciver caught seven Bean Geese as part of a telemetry study there. Four were fitted with GPS neck collars. At WWT Caerlaverock, Larry cannon-netted five Svalbard Barnacle Geese in April 2016 as part of a study that is trialling neck collars on this species. Raymond Duncan, Rab Rae and members of the Grampian Ringing Group caught 12 Pink-footed Geese by cannon-net at Rashierievie in Aberdeenshire.

Conservation and research news

In memoriam: Hugh Boyd (1925–2016)

Tony Fox

On 3 July 2016, we lost one of the truly great wildfowl ecologists of our time when Hugh Boyd passed away in Ottawa at the age of 91. His outstanding global contribution spanned six decades of active work in conservation, starting as warden of Lundy Bird Observatory in 1948 and followed by 16 years at Slimbridge, two years in Scotland, with the majority of his career subsequently spent in Canada where he made a massive contribution to ornithology on the North American continent.

Hugh established the scientific study of waterbirds in the UK through his early work with Peter Scott, as the first resident biologist at the Severn Wildfowl Trust (now WWT) based at Slimbridge, where he was recruited in 1949. Their pioneering work established citizen science as a means of motivating networks of volunteers to undertake annual counts of Greylag and Pink-footed Geese to track annual changes in their population abundance. Hugh also introduced to Britain the use of aerial surveys of wildfowl from North America to track changes in annual abundance, most notably in the case of the Greenland Barnacle Goose, which in winter are scattered in large and small flocks from Orkney to County Kerry, a survey that continues to this day. Peter, Hugh and colleagues were also quick to realise that to understand annual changes in overall goose abundance they would also need to know the relative contributions made by the annual numbers of young birds entering the population and the annual survival of adults from the previous year. To fulfil these needs, they initiated what in retrospect we can see were ground-breaking studies, namely the sampling of age ratios amongst autumn flocks of grey geese and the mass capture and ringing of Pink-footed Geese to generate annual estimates of survival based on their subsequent recoveries. The latter involved the incredible mass rounding up of flightless moulting Pink-footed Geese in Thjórðarver in central Iceland in 1951 and 1953 and the subsequent use of annual rocket netting of grey geese on the wintering grounds to enable ring marking of large numbers of individuals. Hugh was the first researcher to utilise the data from these studies to generate robust assessments of annual survival and hunting kill and the contribution of the latter to overall mortality. Nowadays, such monitoring mechanisms are all fundamental monitoring devices which are recognised as the basis for the conservation management of all migratory waterbird populations. Indeed, the scientific monitoring methods that Hugh

developed back then continue to underpin our conservation of waterfowl populations to the present day and which we take so much for granted now under the present Goose & Swan Monitoring Programme. In that sense, Hugh played a pivotal role in developing what we now know as 'integrated population monitoring' which is applied universally to the conservation of a very wide range of organisms.

When he moved to work for the Canadian Wildlife Service in 1967, he revolutionised ornithology in Canada, establishing major research and monitoring programmes for shorebirds, seabirds and migratory passerines. However, he is perhaps most remembered for his contributions to promoting continent wide mechanisms for the effective conservation of migratory waterfowl which now live on in the form of the North American Waterbird Management Plan and the many Joint Ventures which that plan has spawned. Even after his retirement in 1991, Hugh remained incredibly active, especially in his study of the effects of climate change on wildfowl species. He continued to undertake fieldwork and was regularly returning to study geese in his beloved Iceland and throughout the Arctic into his late 70s. Hugh also believed in the importance of the written word and sustained a prolific written output throughout his life, contributing over 180 scientific publications, but was also enormously supporting of others, being an invaluable supporter as well as prompt and efficient mentor and editor for so many early and mid-career waterbird biologists.

A most private and humble gentleman, Hugh nevertheless maintained a steely determination to gather scientific support for the development of evidence-based nature conservation policy which shines as a beacon for us today. Whilst those of us fortunate enough to have known him will miss him sorely, there is no doubt that the legacy of this remarkable man will continue to contribute to our understanding of waterbird population dynamics for decades to come.



Photo: Malcolm Ogilvie

Flight of the Swans

As a result of an almost 40% decline since the mid-1990s, the Northwest European Bewick's Swan has been classified as Endangered in Europe. Twenty years ago, some 29,000 birds wintered in Europe, but worryingly, numbers have now declined to fewer than 18,000 individuals. Amid these concerns, a Bewick's Swan Action Plan was prepared by experts across the migratory flyway and was adopted by the African-Eurasian Migratory Waterbird Agreement (AEWA) in 2012, aiming to halt the decline and restore the population to 23,000 birds.

International cooperation and collaboration are essential for conservation of migratory species but this can often be challenging because of geography and language barriers. In autumn 2016, WWT's Head of Media, Sacha Dench, will set out to link up and stimulate conservation efforts across the flyway by flying a paramotor along the route followed by Bewick's Swans as they migrate from the Russian arctic to the UK. Flying at the same speed and height as the swans, Sacha will emulate their feat using the same sites as the swans and contending with the same conditions. This epic journey is called 'Flight of the Swans'. Along the way, conservation workshops will take place in Estonia, Lithuania, the Netherlands, and Russia to coincide with the flight. These will help to gather new information on possible reasons why the Bewick's



Swan population is declining, identify existing threats and help plan future conservation activities.

The expedition will also support a robust package of work to reduce the illegal shooting of Bewick's Swans in their Arctic breeding grounds. This will involve interviewing people from five communities in the Nenets Autonomous Okrug to determine the motivations for illegal shooting. This information will be discussed at a stakeholder workshop on hunting and will be used to identify solutions to reduce illegal shooting in this region.

Above all, 'Flight of the Swans' will use its immense originality to attract attention and shine a spotlight on Bewick's Swans and wetlands throughout their flyway. Community events and activities are also being arranged in the UK, Belgium, the Netherlands, Denmark, Germany, Poland, Latvia, Lithuania, Estonia and Russia to maximise opportunities for raising awareness of, and connecting people with, swans and wetlands. The novelty and ambition of 'Flight of the Swans' will bring together people from very different cultures and backgrounds across a large geographical area to help save the Bewick's Swan. And for that reason, it will make a real difference.

You can follow the journey of Sacha and the swans this autumn online at www.flightoftheswans.org or via social media: Facebook – [Flightoftheswans](https://www.facebook.com/Flightoftheswans), or Twitter – [@WWTswanflight](https://twitter.com/WWTswanflight)

Celebrating 50 years of the International Waterbird Census



INTERNATIONAL WATERBIRD CENSUS
LET'S MAKE IT COUNT

January 2016 saw the International Waterbird Census (IWC) enter its 50th year, making it one of the longest running waterbird monitoring schemes in the world. The IWC was launched in 1967 and has grown to cover over 25,000 sites in over 140 countries with 15,000 people across the globe counting 30–40 million waterbirds every year. So far, the census has supported the identification of almost five million km² of critically important areas for waterbirds including nearly one million km² of Ramsar Sites. The IWC data are a vital component of these assessments, which help detect changes in population status and direct and prioritise conservation action at both the site and flyway level.

The 50th anniversary is the perfect opportunity to celebrate the magnificent achievements of the thousands of people who make the IWC possible, including all the agencies, organisations and individuals who give their time and support to the scheme. The success of the IWC is underpinned by the enormous effort of a vast network of coordinators and counters, many of which are volunteers, who give their valuable time to carry out waterbird counts.

Many counters may not even be aware that they are contributing to counts on an international scale as, essentially, data are collected through separate national schemes, such as the WWT/JNCC/SNH Goose & Swan Monitoring Programme (GSMP), and feed directly into the IWC.

To celebrate the 50th IWC count, Wetlands International has launched a year-long global campaign 'Let's make it count' aimed to inspire and promote action for the conservation of wetlands and waterbirds along the world's flyways. The campaign is designed for anyone to get involved, from individuals interested in nature to national coordinators, governments and businesses, and aims to encourage people from around the world to work with Wetlands International and other IWC partners to conserve wetlands for waterbirds.

For further information see Wetlands International's website at <http://www.wetlands.org/news/press-release-conserving-wetland-birds-for-50-years-lets-make-it-count/>.

New AEWA goose management initiative

Richard Hearn

It is now 20 years since the African-Eurasian Migratory Waterbird Agreement (AEWA) was first signed and in the time that has elapsed it has grown to become one of the most important and successful mechanisms for waterbird conservation in the region. Parties to AEWA celebrated the 20th anniversary when they met for the 6th Meeting of Parties (MoP6) in Bonn last November to discuss the latest status of migratory waterbird populations and adopt plans and guidelines that help to address issues of concern. These included a number of important issues for goose conservation and management. Underpinning these was the sustainable management of harvests (*i.e.* hunting) and the need to reduce unnecessary mortality.

Currently, the harvests of only a few huntable waterbird populations are managed at a population (or flyway) scale in order to ensure they are sustainable. Despite many agreements and directives requiring population scale management of hunting, this has not happened because national bag monitoring schemes are not in place in all countries and there is no mechanism for coordination. As a result, for most huntable waterbirds we do not know how many individuals are being harvested each year and, therefore, have no sound way of determining whether the harvest is sustainable.

Another important issue for goose conservation is the resolution of conflict with agriculture and other human interests, such as aviation, from growing goose populations. As a result of changes to the landscape, most importantly the provision of nutrient rich foods by modern agricultural practices, the abundance of some goose populations has increased to unprecedented levels in recent decades, *e.g.* the Russian / Northwest European Barnacle Goose population has increased from 120,000 in the late 1980s to over one million birds by 2012, and the White-fronted Geese from the same flyway also now number over one million birds. This is causing concern in a number of sectors, including the environmental and conservation sector due to possible negative impacts on the wider environment from over-abundance of these goose populations. This perceived over-abundance has already led to the implementation of uncoordinated and in some cases poorly designed management practices, including large culls.

Contributions welcome!

We're always looking for new stories to tell, as well as photographs and relevant news items to fill future editions of *GooseNews*. Therefore, if you have any ideas or if you would like to contribute to the newsletter, please contact Carl Mitchell (see back cover for contact details).

In order to ensure all stakeholders understand what is required for the sound and effective management of huntable waterbirds and conflicts with geese, AEWA has significantly revised its guidelines on sustainable harvest and these were adopted by Parties at MoP6. Much of the content that relates to European goose management comes from the experience gained from the adaptive harvest approach to managing the Svalbard Pink-footed Goose population, which was causing conflict with agriculture in Norway as a result of its increasing abundance. This was set up in 2012 and was the first example in Europe of the adaptive management of a waterbird population.

Such an approach is not without controversy as it requires stakeholders to agree on a target population size that will be used to help determine management decisions; in other words, how many geese should be shot. However, the success of the Svalbard Pink-footed Goose scheme and adoption of the harvest guidelines by AEWA Parties means that this approach is now likely to be implemented for some other European goose populations. A meeting recently took place in Paris to establish a European Goose Management Platform – an international system that will develop management plans (which may incorporate an element of harvest) and manage the data required for sound decision-making of this system. There are four populations that will be the initial focus for management planning – the Northwest European Greylag Goose (breeding in Scandinavia and wintering from Netherlands to Spain) and the three populations of Barnacle Goose, two of which winter primarily in the UK.

Parties at MoP6 also adopted the Taiga Bean Goose Action Plan – the first AEWA conservation plan for a declining species that is still open for hunting. Taiga Bean Geese had a wintering population estimated at 100,000 birds in the mid-1990s, but this decreased to 63,000 by 2009, mostly due to legal and illegal hunting. Despite this, there is a desire to continue to sustainably hunt this population and so this Plan sets out the training, monitoring and hunting control requirements that can help restore and maintain a viable and sustainably harvested population. This is a very different situation to that of the Svalbard Pink-footed Goose and should, therefore, provide further invaluable experience that will hopefully contribute to the sustainable management of all huntable waterbirds in the near future.

Further information about MoP6 can be found at <http://www.unep-awea.org/en/meeting/6th-meeting-parties-awea>.

The final declaration from the Goose Management Platform meeting is available at <http://goo.gl/kVVgZS>.

The AEWA International Working Group for Svalbard Pink-footed Geese is at <http://pinkfootedgoose.awea.info/>.

International Conference on the Waterfowl of Northern Eurasia

Salekhard, Russia
30 November – 5 December 2015

Eileen Rees and Peter Glazov

Waterbird experts from 13 different countries, ranging from Japan, China and Korea across Eurasia to the USA, travelled to the Russian arctic in mid-winter to attend the international conference on 'Waterfowl of Northern Eurasia: conservation and sustainable use'. The meeting was the 5th Conference of the Goose, Swan and Duck Study Group of Northern Eurasia (GSDSG) and the 17th Conference of the Wetlands International / IUCN SSC Goose Specialist Group (GSG), and was made possible by the support and hospitality of the Yamalo-Nenets Autonomous Okrug (YaNAO) government. The meeting featured presentations that covered a range of issues facing the conservation and sustainable use of waterfowl in the Russian Federation and along international flyways.

Following welcoming addresses from Mr A.L. Titovskiy (from the Department of Science and Innovations at the YaNAO), Evgeny E. Syroechkovskiy (for the GSDSG), Bart Ebbinge (for the GSG) and Mr A.P. Mezhev (Department of Game Management in the Ministry for Natural Resources, Russia) we heard interesting talks about the research and management of waterfowl in the YaNAO, including in relation to the development of oil and gas fields in the region. Presentations then extended to cover studies of goose populations within Russia and more widely, with special sessions on the status of Common Pochard and also on the decline of the NW European Bewick's Swan population.

A common theme of the conference was the continued decrease in abundance of a range of waterfowl populations across Eurasia – with climate change, degradation of arable land, biotope changes on the wintering grounds and spring hunting considered to be the main reasons for these declines. There was, therefore, a call from the meeting for more systematic monitoring and scientific study of goose populations within Russia, plus international cooperation for the conservation of these species. There was a particular focus on the Taiga Bean Goose, for which there are still knowledge gaps regarding the status and migration routes for birds breeding in Russia, and which continues to decrease in numbers throughout much of its range. The many discussions were synthesised into a valuable set of recommendations, and the Conference Resolution is now available online: http://onlinereg.ru/salekhard2015/resolution_eng.pdf.

At the end of the meeting, Bart Ebbinge stood down as Chair of the Goose Specialist Group, a role he has served in to great effect for 19 years, since the 2nd meeting of the GSG held at WWT Martin Mere in 1996. He passed the baton to the very able hands of Peter Glazov (Russian Academy of Sciences, also an active member of the Swan Specialist Group), who has worked with Bart as Co-Chair of the GSG over the past two years.

Latest *Birds of Conservation Concern* report

Birds of Conservation Concern 4 (BoCC4) is the latest assessment of the UK's 244 bird species and shows that 67 are now of 'highest conservation concern' and have been placed on the assessment's Red List: each species having been assessed against a set of objective criteria and placed on the Green, Amber or Red list indicating an increasing level of conservation concern. The Red List now accounts for more than a quarter of the UK's birds, which is higher than the last assessment in 2009 when 52 species were listed.

Amongst those new to the red list are Pochard, Long-tailed Duck, Velvet Scoter, Slavonian Grebe and Puffin due to each having seen declines in their UK breeding and/or wintering numbers as well as being classed as 'Vulnerable' on the IUCN Red List of Threatened Species.

The only native goose or migratory swan species to appear on the Red List is White-fronted Goose, which was added following the BoCC4 assessment due to the species having undergone declines in its

wintering distribution in the UK. Seven species are, however, on the Amber List: Bewick's Swan (due to being listed as Endangered on the European Red List of Birds, as well as declining in the UK), Whooper Swan, Pink-footed Goose, Greylag Goose, Barnacle Goose and Brent Goose (each due to more than 50% of the UK's wintering population being found on fewer than ten sites) and Bean Goose (due to fewer than 900 individuals wintering in the UK).

There was, however, some good news, with Bittern, Nightjar and Dunlin all moving from the Red to Amber List, mainly due to a recovery in their numbers or range, whilst 22 further species moved from the Amber to Green list, meaning they are now of the lowest conservation concern.

BoCC4 was compiled by a partnership of conservation organisations and government agencies and was published in the December 2015 issue of the journal *British Birds*. For further information see <http://monitoring.wwt.org.uk/our-work/indicators-and-assessments/birds-of-conservation-concern/>.

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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. GSMP is organised by WWT in partnership with JNCC (on behalf of NE, NRW and DAERA Northern Ireland) and SNH.

The Joint Nature Conservation Committee (JNCC) is the statutory adviser to Government on UK and international nature conservation, on behalf of Natural England, National Resources Wales, Scottish Natural Heritage and the Department of Agriculture, Environment and Rural Affairs, Northern Ireland. Its work contributes to maintaining and enriching biological diversity, conserving geological features and sustaining natural systems.

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