

WWT/JNCC/SNH Goose & Swan Monitoring Programme  
survey results 2015/16  
Greenland Barnacle Goose *Branta leucopsis*

## 1. Abundance

### International Census 2013

The most recent flyway-wide census of Greenland Barnacle Geese took place in March 2013, and included the remote parts of the winter range that need to be checked using a light aircraft. Flyway censuses are carried out once every five years. In Scotland, 226 sites were surveyed, including 190 islands by aerial census, and in Ireland, a further 72 sites were checked. Barnacle Geese were found at 38 sites in Scotland and 31 in Ireland. In total, 80,670 birds were counted, a 14.4% increase on the last complete census conducted in 2008 (70,501 counted). In Scotland, the total was 63,170 birds, an increase of 8.4% since 2008. Islay was the most important site with 44,914 birds – an almost identical count to the one recorded there five years previously. In Ireland, 17,500 birds were counted, an increase of 43% since 2008. The results from this census have been presented in Mitchell & Hall 2013.

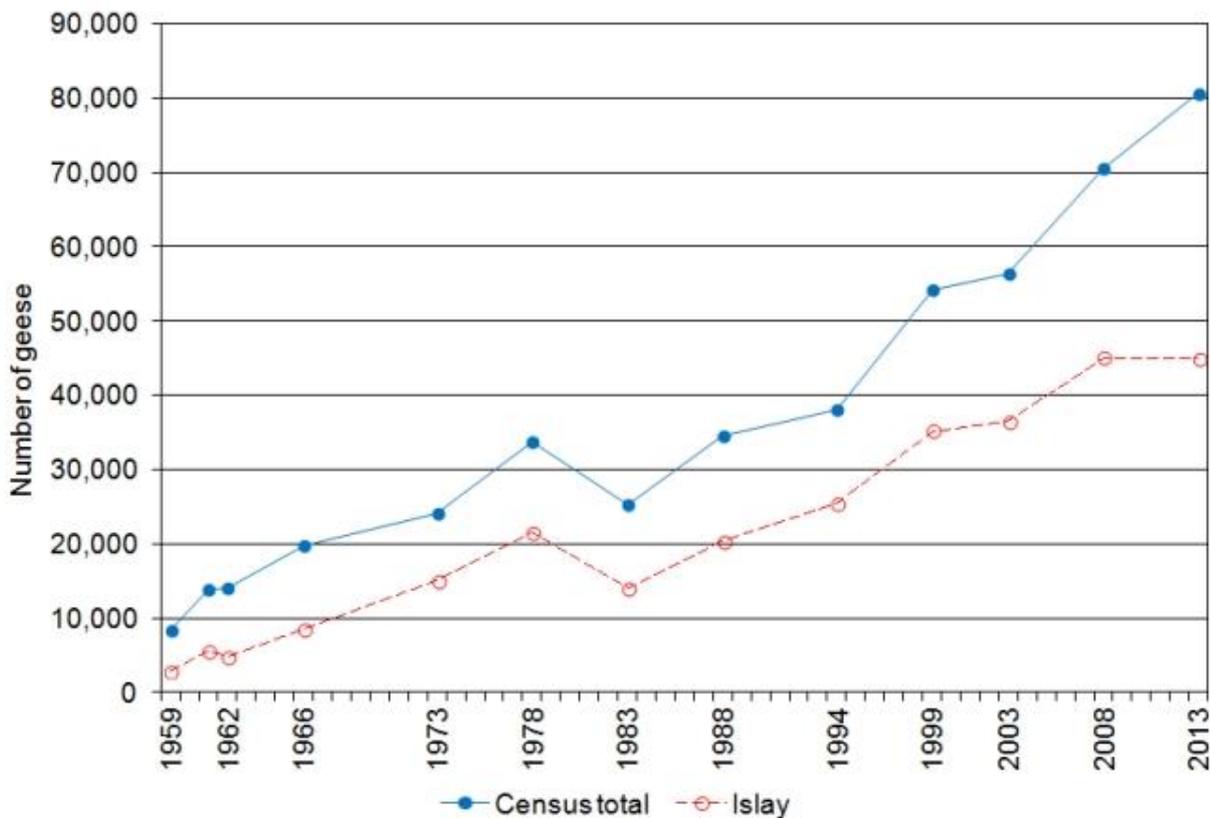


Figure 1. The population estimate of Greenland Barnacle Geese counted in Britain and Ireland from 1959 to 2013 (blue circles) based on periodic flyway censuses, shown with the total number counted on Islay (open red circles) at the time of the census.

Annual counts at key sites

Each winter, up to four comprehensive counts (where emphasis is placed on obtaining greatest coordinated coverage) are organised on Islay, the most important wintering site for Greenland Barnacle Geese, by Scottish Natural Heritage (SNH). The Islay population size is estimated from the mean of these counts and, in winter 2015/16, this figure was 42,838, 13.5% higher than the previous year (37,758 geese) (Figure 2).

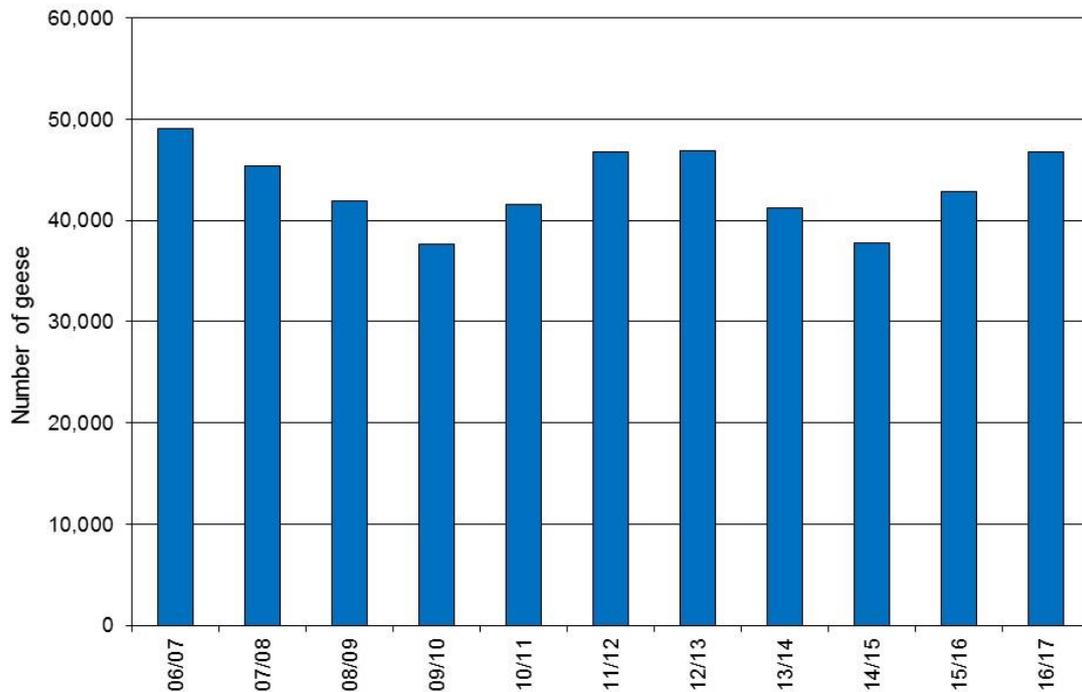


Figure 2. Adopted counts (mean of the winter counts) of Greenland Barnacle Geese on Islay, 2005/06-2015/16.

Since 2006/07, the difference between the lowest summed counts at the six most important sites in Scotland excluding Islay (Figure 3) (11,289 in 2009/10) and the highest (15,166 in 2013/14) was only 3,877 birds, far fewer than the decrease in the number counted on Islay (of over 7,000 birds) over the same period. This suggests that the decline seen on Islay up to 2014/15 was real and that the birds had not simply moved to other winter resorts in Scotland. Regular counts from Irish wintering sites are less frequent and there may have been a shift of geese from Islay to Ireland which merits further investigation.

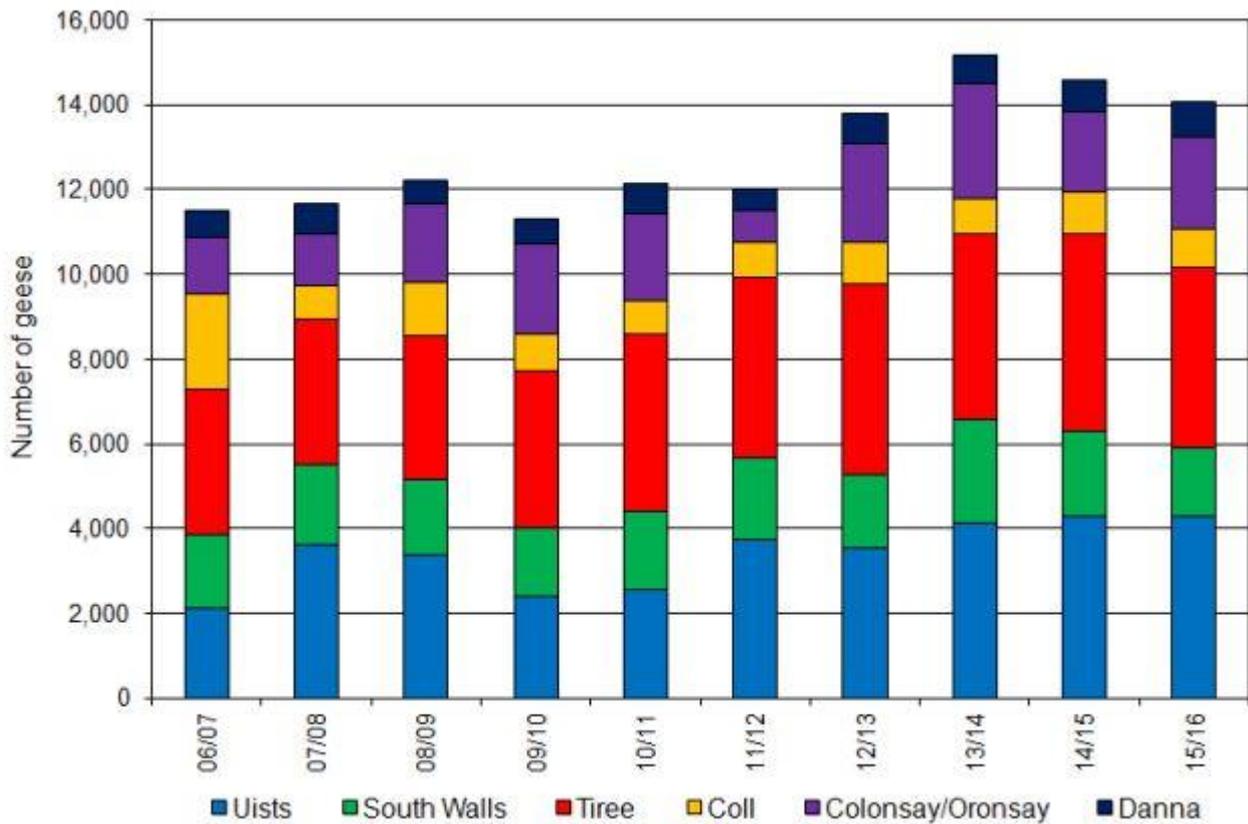


Figure 3. Winter peaks of Greenland Barnacle Geese at Uists, South Walls, Tiree, Coll, Colonsay/Oronsay and Danna, 2006/07-2015/16.

## 2. Breeding success

Breeding success in the population was assessed on Islay and Tiree. The Islay sample was much the larger (7,531 birds) and sampled flocks held 5.6% young, with a mean brood size of 1.51 young per successful pair (Table 1 and Figure 4). On Tiree, 500 birds were aged and these contained 4.6% young, with a mean brood size of 1.21 young (Table 1).

Table 1. The percentage of young and mean brood size of Greenland Barnacle Geese during winter 2015/16.

Site	Number aged	Percentage of young (%)	Mean brood size
Islay	7,531	5.6	1.51
Tiree	500	4.6	1.21
<b>Overall</b>	<b>8,031</b>	<b>5.5</b>	<b>1.48</b>

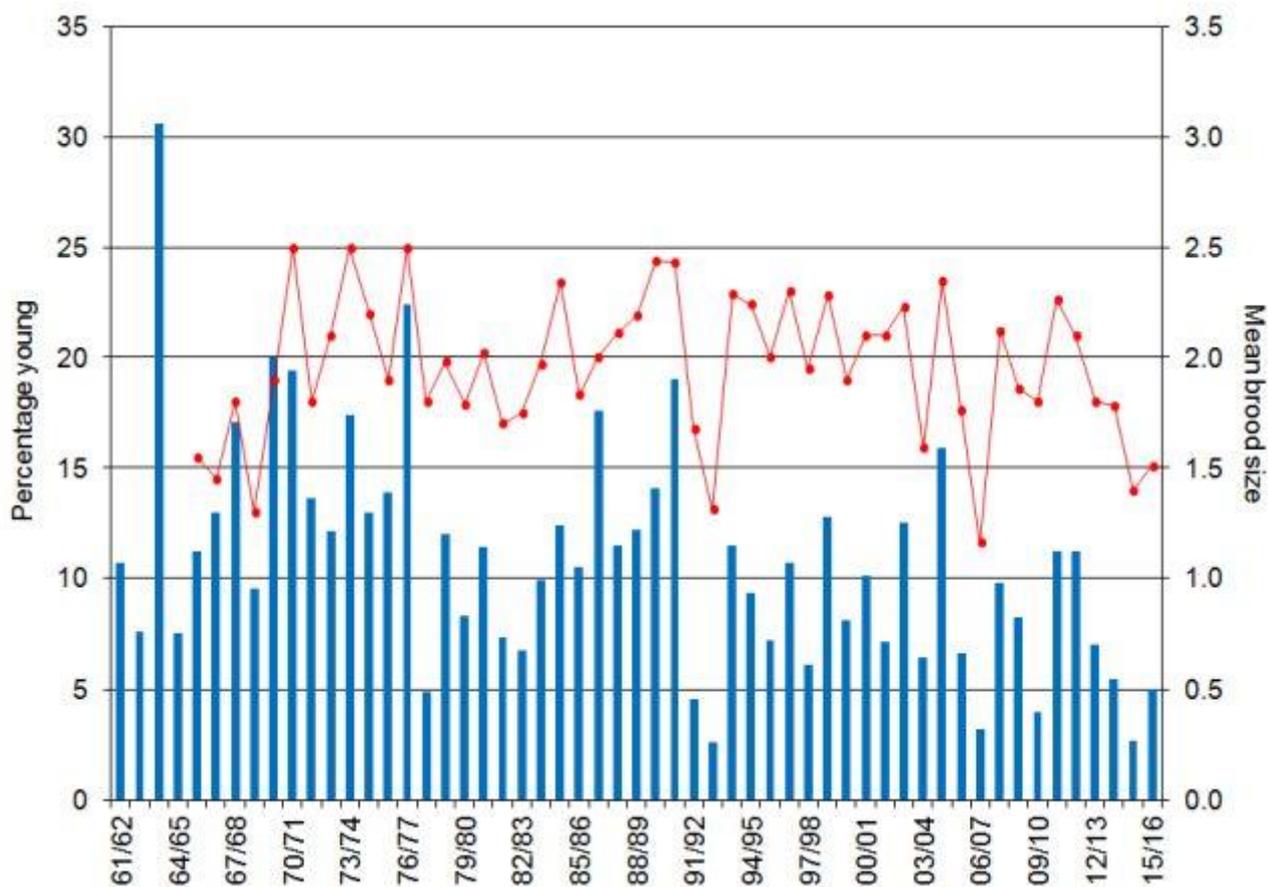


Figure 4. Percentage young (blue columns) and mean brood size (red circles) of Greenland Barnacle Goose on Islay (where data have been collected regularly), 1961/62–2015/16.

### 3. Discussion

A small number of key sites in Scotland hold the majority of wintering Greenland Barnacle Geese, with the majority on the Inner Hebridean island of Islay. Combined numbers at the key sites, including Islay, underwent a sustained increase up to 2006/07; however, counts in the following winters indicated an apparent decrease in the size of the Scottish wintering population compared to the peak year. Up to *c.* 2,000 Greenland Barnacle Geese are shot in Iceland each year (mean 2005–2014; 1,614 birds) and licences to shoot up to 2,400 on Islay have been issued by the Scottish Government in recent years. It may be that this level of mortality, combined with relatively low annual productivity in the last ten years is keeping population growth in Scotland in check, and there may already be signs of a decrease in numbers wintering there. The increase in number on Islay of 13.5% compared to the previous winter is then surprising. However the mean figure (42,838) is influenced by a high count of 48,568 birds in November. Ring-recovery information has shown that November counts on Islay include some passage birds that stop over on Islay during the autumn and move on to winter elsewhere within the range. Excluding the high November count would give an average of 40,928 birds in 2015/16, a smaller increase of 8.4% on the previous winter. The peak count of Greenland Barnacle Geese on the six other important sites (*i.e.* Uists – Outer Hebrides, Tiree, Coll, Colonsay/Oronsay and Danna – Inner Hebrides; and South Walls on Orkney) declined by 3% from 14,579 to 14,053 suggesting that in 2015/16 more birds may have wintered on Islay than on the other important sites.

Since a complete census of the entire population is carried out only once every five years, tracking the trend at the seven most important sites in Scotland (*i.e.* Islay and the six sites mentioned above) was, traditionally,

thought to have reflected changes at the population level. However, the large difference in the rate of increase between Scotland (8.4%) and Ireland (43%) since the 2008 census suggests this may no longer be the case, and the annual counts in Scotland only allow us to track changes in the Scottish wintering population (which is approximately three quarters of the total population).

Results from age assessments conducted during 2015/16 on Islay show that the 2015 breeding season was again poor; the figure of 5.6% young recorded on Islay being slightly lower than the previous ten-year mean of 6.9% ( $\pm 1.0$  SE). Since 2006, annual breeding success has been below 10% in eight out of the ten years. Mean brood size on Islay in 2015 was also below average at 1.51 young per successful pair, lower than the previous ten-year mean of 1.81 young ( $\pm 0.1$  SE). The reasons for the decline in breeding success on Islay are not known.

#### Acknowledgements

Thanks are extended to Malcolm Ogilvie and John Bowler for providing age counts. SNH provided additional counts.

## 4. References

Mitchell, C. & C. Hall. 2013. *Greenland Barnacle Geese Branta leucopsis in Britain and Ireland: results of the international census, spring 2013*. Wildfowl & Wetlands Trust Report, Slimbridge.

This report should be cited as:

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