

WWT/JNCC/SNH Goose & Swan Monitoring Programme  
 survey results 2015/16  
 Whooper Swan *Cygnus cygnus*

## 1. Abundance

The abundance of Whooper Swan in the UK and the Republic of Ireland in 2015/16 was monitored through the Wetland Bird Survey (WeBS) and the Irish Wetland Bird Survey (I-WeBS), respectively. Results from these schemes are presented in reports which are available via the schemes' websites.

### International Swan Census

The seventh international census of the Icelandic Whooper Swan population took place in January 2015. The census was organised overall by the Wetlands International / IUCN SSC Swan Specialist Group, and coordinated in Britain, Ireland and Iceland by WWT in partnership with BirdWatch Ireland and colleagues in Iceland.

The 2015 census yielded the highest population estimate to date, with a total of 34,004 birds recorded, representing a 16% increase on the 2010 census (Figure 1). All countries, with the exception of Northern Ireland, saw an increase in wintering numbers. England and the Republic of Ireland held an equal proportion of the population (35% recorded in both countries), whilst 11% was recorded in Scotland, 10% in Northern Ireland, 7% in Iceland and less than 1% in Wales and the Isle of Man.

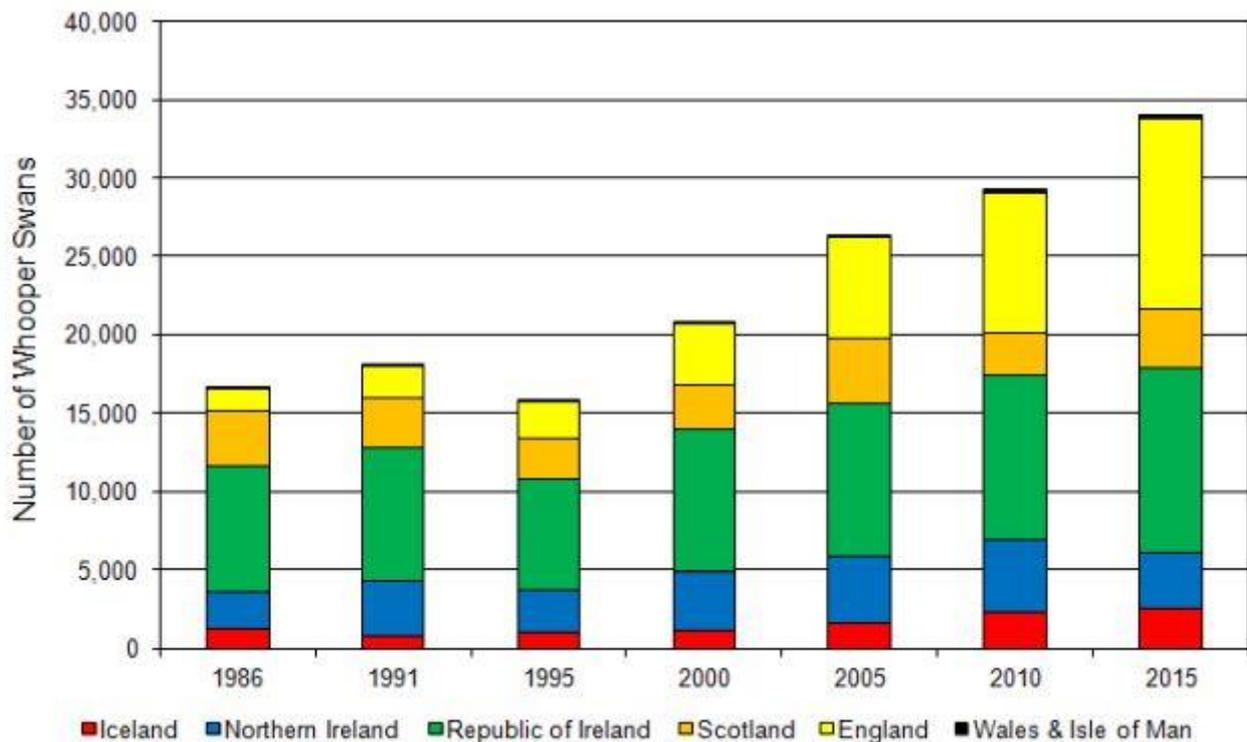


Figure 1: The number of Icelandic Whooper Swans recorded during the International Swan Census, 1986–2015. Note: Wales and the Isle of Man are combined as each holds less than 1% of the total population.

## 2. Breeding success

Whooper Swan age assessments were conducted in six regions across Britain and Ireland during winter 2015/16 (Table 1). Age assessments were made in all regions in mid-winter (between 15 and 19 January 2016 in Britain and between 11 and 22 January 2016 in Ireland), when the majority of families were likely to have arrived from Iceland to wintering sites. Regional variation in the percentage of young and mean brood size was assessed to determine any bias in the geographical distribution of family parties.

A total of 9,458 Whooper Swans was aged (approx. 28% of the total population; Hall *et al.* in prep.): 5,743 birds in England, 337 in Scotland, 1,941 in Northern Ireland and 1,437 in the Republic of Ireland (Table 1). Overall, 13.2 % of birds were cygnets and the mean brood size for pairs with young was 2.0 cygnets.

Table 1. *The proportion of young (%) and mean brood size of Whooper Swans during the 2015/16 winter (regions defined below).*

Region	Total aged (number of young)	Percentage of young (%)	Number of broods (number of young)	Mean brood size
Northwest England	1,746 (266)	15.2	147 (266)	1.8
East Central England	3,997 (403)	10.01	204 (403)	2.0
Southwest Scotland	231 (30)	13.0	13 (30)	2.3
West Scotland	106 (19)	17.9	11 (19)	1.7
Northern Ireland	1,941 (253)	13.0	124 (241)	1.9
Republic of Ireland	1,437 (280)	19.5	130 (277)	2.1
<b>Overall</b>	<b>9,458 (1,251)</b>	<b>13.2</b>	<b>629 (1,236)</b>	<b>2.20</b>

Regions (counties from which data were received in 2015/16):

- Northwest England: Lancashire (WWT Martin Mere/Ribble Estuary)
- East central England: Cambridgeshire and Norfolk (WWT Welney/Ouse Washes/Nene Washes), Lincolnshire
- Southwest Scotland: Dumfries & Galloway
- West Scotland: Argyll and Bute
- Northern Ireland: Co. Antrim, Co. Armagh, Co. Down, Co. Fermanagh, Co. Londonderry, Co. Tyrone
- Republic of Ireland: Co. Cork, Co. Donegal, Co. Galway, Co. Leitrim, Co. Mayo, Co. Meath, Co. Roscommon, Co. Sligo, Co. Waterford, Co. Wicklow

There was evidence of variation in the distribution of families between regions ( $X^2_3 = 91.7$ ,  $P < 0.05$ ). Highest breeding success was among birds that wintered in the Republic of Ireland (19.5%) and west Scotland (17.9%) (Table 1). Lowest breeding success was found for birds wintering in east central England (10.1%).

Overall, higher breeding success was found in northern regions (west and southwest Scotland, north west England and Northern Ireland) compared to southern regions (east central England and the Republic of Ireland) (14.1% and 12.6%, respectively;  $X^2_1 = 4.8$ ,  $P < 0.05$ ), which may reflect a general preference for Whooper Swan families to select wintering sites closest to their Icelandic breeding grounds (Rees *et al.* 1997). Regional variation in brood size was also evident, ranging from 1.7 cygnets per family in west Scotland to 2.3 cygnets per family in southwest Scotland.

The mean percentage of young in flocks at and around WWT centres (*i.e.* WWT Martin Mere/Ribble Estuary, WWT Welney/Ouse Washes/Nene Washes and WWT Caerlaverock), where data are collected annually, was 11.8% ( $n = 5,873$ ), which was lower than the previous five and ten-year means (2005/06–2014/15;  $14.1\% \pm 0.5$  SE and  $14.4\% \pm 0.3$  SE, respectively) (Figure 2; Figure 3). The mean brood size for these three regions was 1.9 cygnets per family, which also fell below the five and ten-year means (2005/06–2014/15;  $2.0 \pm 0.04$  SE and  $2.2 \pm 0.1$ , respectively) (Figure 2).

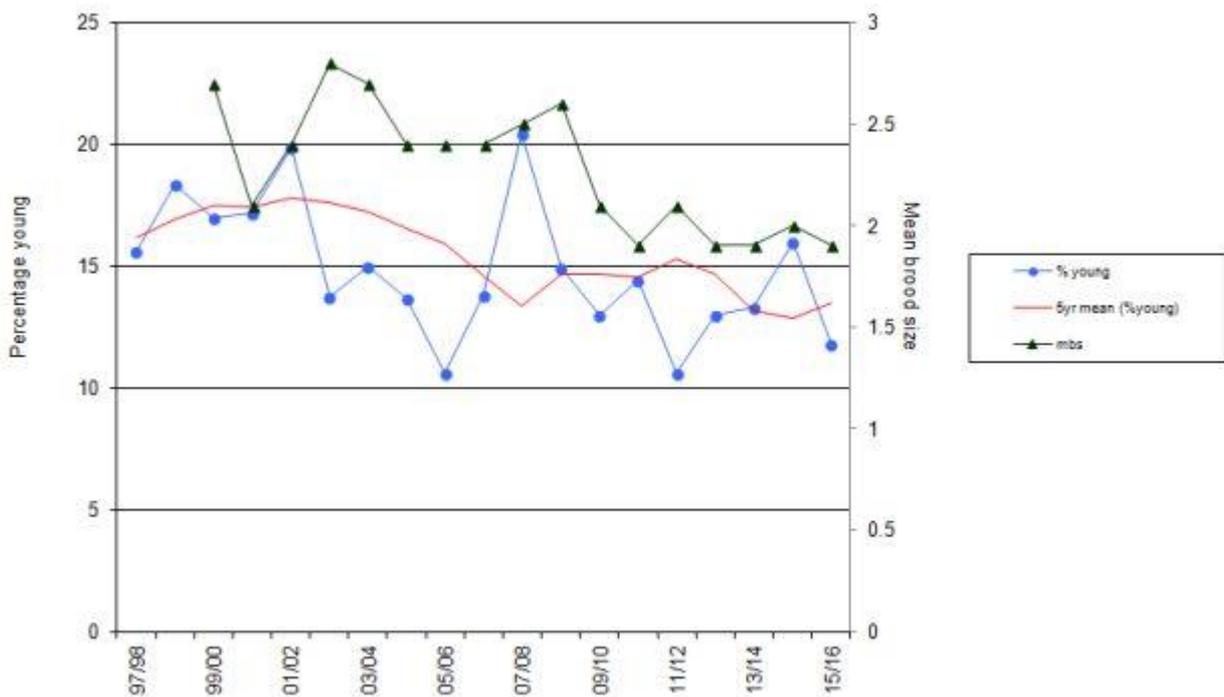


Figure 2: The percentage of young (blue circles), with the rolling five-year mean of % young (red line), and mean brood size (green triangles) of Whooper Swans recorded at WWT Welney/Ouse Washes/Nene Washes, WWT Caerlaverock and WWT Martin Mere/Ribble Estuary, 1997/98–2015/16. Five-year mean values for the percentage of young were calculated for the five years preceding the year in question.

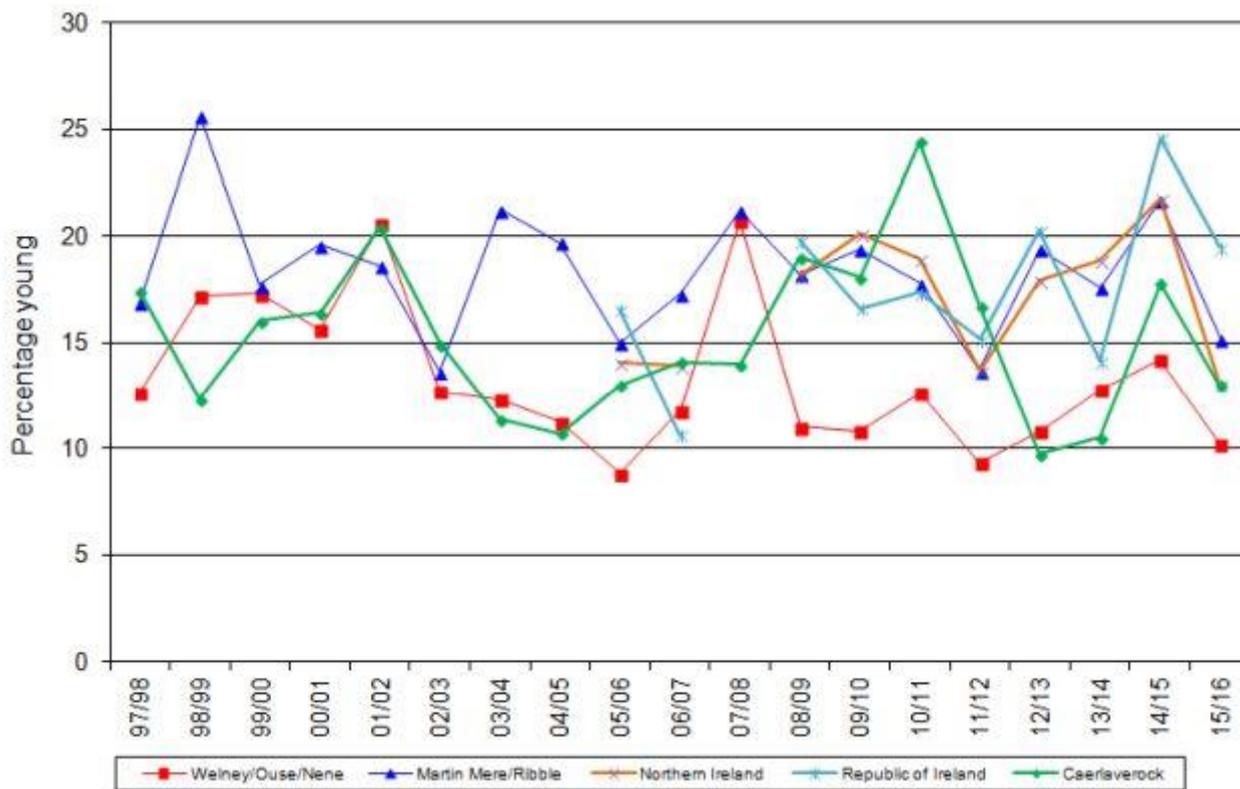


Figure 3: The percentage of young Whooper Swans recorded at WWT Welney/Ouse Washes/Nene Washes, WWT Caerlaverock, WWT Martin Mere/Ribble Estuary, Northern Ireland and the Republic of Ireland, 1997/98–2015/16.

### 3. Discussion

In 2015, breeding success for Icelandic Whooper Swans was below average. The proportion of young wintering at and around WWT centres (11.8 %) was lower than the average recorded at these sites over the previous ten years (14.4%). Iceland experienced a very cold spring with some areas remaining snow covered in mid-May, causing unseasonal mortality of some species of wader (K. Brides, pers comm.). Temperatures averaged 9°C across the country in June (Accuweather 2016) which was below the average daily maximum temperature recorded for this month between 1979 and 2012 (12°C; Weatherspark 2016). Such unfavourable conditions would have almost certainly impacted on the swans’ breeding success.

Results from the 2015 international census clearly show a continued increase in the Icelandic Whooper Swan population. Whilst Britain has seen a gradual increase in the proportion of the population it supports, Ireland has seen a continued decline. In 2015, Britain, for the first time since the 1986 census, held a larger proportion of the population than Ireland, albeit by just a small percentage. This increase in Britain is due to a higher rate of increase in England than in the population as a whole, whereas in Northern Ireland and the Republic of Ireland the rate of increase has fallen. This suggests that either some birds may be shifting their winter distribution to England from other parts of the winter range, or that swans in the eastern part of the range are experiencing significantly different levels of breeding success and/or survival than those further west.

Although Iceland has seen an increase in the number of wintering Whooper Swans, there has only been a small increase in the proportion of the population remaining there to overwinter. Hence, at present, there is little evidence to suggest a northwards shift in the overall winter distribution, whereby more birds are

choosing to remain closer to their breeding grounds in Iceland; which has been seen in other wildfowl species, such as Bewick's Swan, which are tending to winter closer to their Arctic breeding grounds with the milder winters of the early 2000s (Worden *et al.* 2006). In fact, the results from recent censuses are suggesting a southerly shift in Whooper Swan distribution, with England holding an increasing proportion of the population.

The full results of the census will be published in *Wildfowl* 66.

#### Acknowledgements

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## 4. References

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Hall, C., Glanville, J.R., Boland, H., Einarsson, O., McElwaine, G., Holt, C.A., Spray, C.J. & Rees, E.C. 2012. Population size and breeding success of Icelandic Whooper Swans *Cygnus cygnus*: results of the 2010 international census. *Wildfowl* 62: 73-96.

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This report should be cited as:

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WWT/JNCC/SNH, Slimbridge.

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## Goose & Swan Monitoring