

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2017/18

Whooper Swan *Cygnus cygnus*

1. Abundance

WeBS/I-WeBS

The abundance of Whooper Swan in the UK and the Republic of Ireland in 2016/17 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 census is carried out every five years.

A total of 34,004 Whooper Swans was recorded, representing an increase of 16% since the previous census in 2010 (Figure 1). The results from this census have been presented in Hall *et al.* (2016).

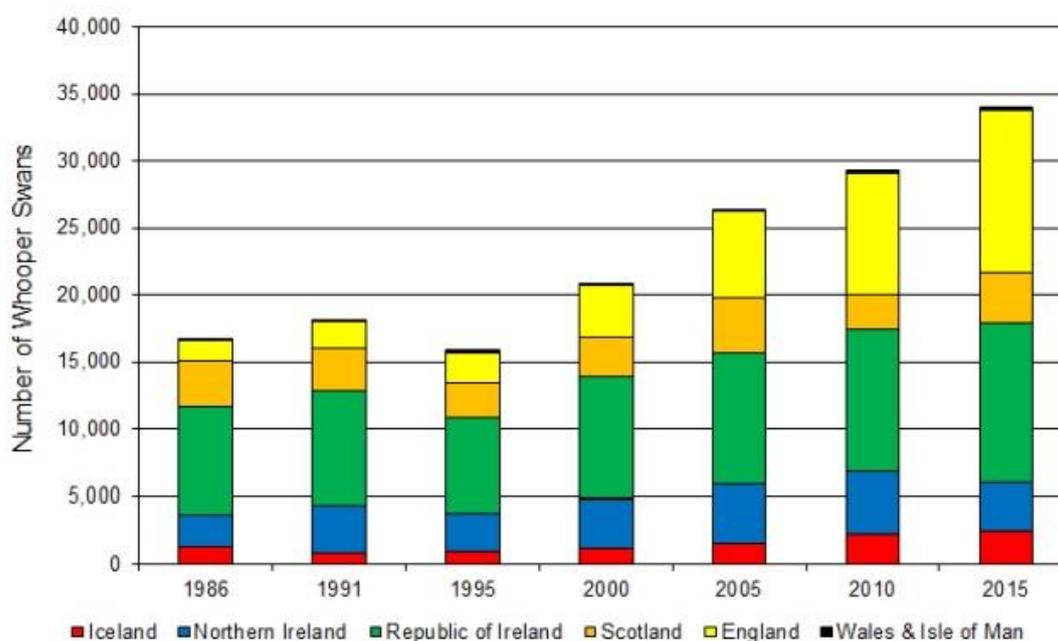


Figure 1: The number of Icelandic Whooper Swans recorded during the International Swan Census, 1986–2015. Note: Wales and the Isle of Man are combined as each holds less than 1% of the total population.

2. Breeding success

Whooper swan age assessments were conducted in seven regions across Britain and Ireland during winter 2017/18 (Table 1). Age assessments were made in all regions in mid-winter (between 14 and 16 January 2018 in Britain and between 9 and 28 January 2018 in Ireland), when the majority of families were likely to have arrived from Iceland to wintering sites (Rees *et al.* 1997). 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 19,125 Whooper Swans was aged (56.2% of the total population recorded at the last International Swan Census in 2015; Hall *et al.* 2016): 11,102 birds in England, 311 in Scotland, 2,427 in Northern Ireland and 5,285 in the Republic of Ireland (Table 1). Overall, 18.1% of birds were cygnets, this being higher than that found in 2016/17 (16.2%) and also the previous ten-year mean for Whooper Swans wintering at sites in Britain and Ireland (16.2% \pm 0.8 SE for 2007/08–2016/17). The mean brood size for pairs with young was 2.1 cygnets.

Table 1: *The percentage of young (%) and mean brood size of Whooper Swans during the 2017/18 winter (regions defined below).*

Region	Total aged (number of young)	Percentage of young (%)	Number of broods (number of young)	Mean brood size
Northwest England	1,882 (360)	19.1	144 (324)	2.3
East Central England	9,220 (1,627)	17.6	809 (1,615)	2.0
Southwest Scotland	144 (18)	12.5	6 (18)	3.0
West Scotland	132 (23)	17.4	14 (23)	1.6
Southern Scotland	35 (22)	62.9	6 (17)	2.8
Northern Ireland	2,427 (533)	22.0	252 (533)	2.1
Republic of Ireland	5,285 (882)	16.7	393 (864)	2.2
Overall	19,125 (3,465)	18.1	1,624 (3,394)	2.1

Regions (counties from which data were received in 2017/18):

- Northwest England: Lancashire (WWT Martin Mere/Ribble Estuary/the Flyde)
- 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. Clare, Co. Cork, Co. Donegal, Co. Galway, Co. Kerry, Co. Leitrim, Co. Limerick, Co. Mayo, Co. Meath, Co. Offaly, Co. Roscommon, Co. Sligo, Co. Tipperary, Co. Waterford, Co. Wexford, Co. Wicklow

There was evidence of variation in the distribution of families between regions ($X^2_6 = 84.4$, $P < 0.05$). Highest breeding success was found for birds which subsequently wintered in southern Scotland (62.9 %) and Northern Ireland (22.0 %) (Table 1). Lowest breeding success was found for birds wintering in southwest Scotland (12.5 %).

Overall, higher breeding success was found in northern and western regions (Scotland, northwest England and Ireland) compared to those wintering in the southeast (east central England) (18.6 %, $n = 9,905$ and 17.6 %, $n = 9,220$ respectively, although this was not statistically significant; $X^2_1 = 2.7$, $P = > 0.05$). Regional variation in brood size was also evident, ranging from 1.6 cygnets per family in west Scotland to 3.0 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 long-term data has been collected annually, was 17.9% ($n = 10,667$), which was higher than the previous five and ten-year means (2007/08–2016/17; $13.1 \% \pm 0.8$ SE and $13.9 \% \pm 0.9$ SE, respectively) (Figures 2 & 3). The mean brood size for these three regions was 2.0 cygnets per family, which was higher than the five-year mean (2012/13–2016/17; 1.9 ± 0.02 SE) but which was similar to the ten-year mean (2007/08–2016/17; 2.1 ± 0.08 SE).

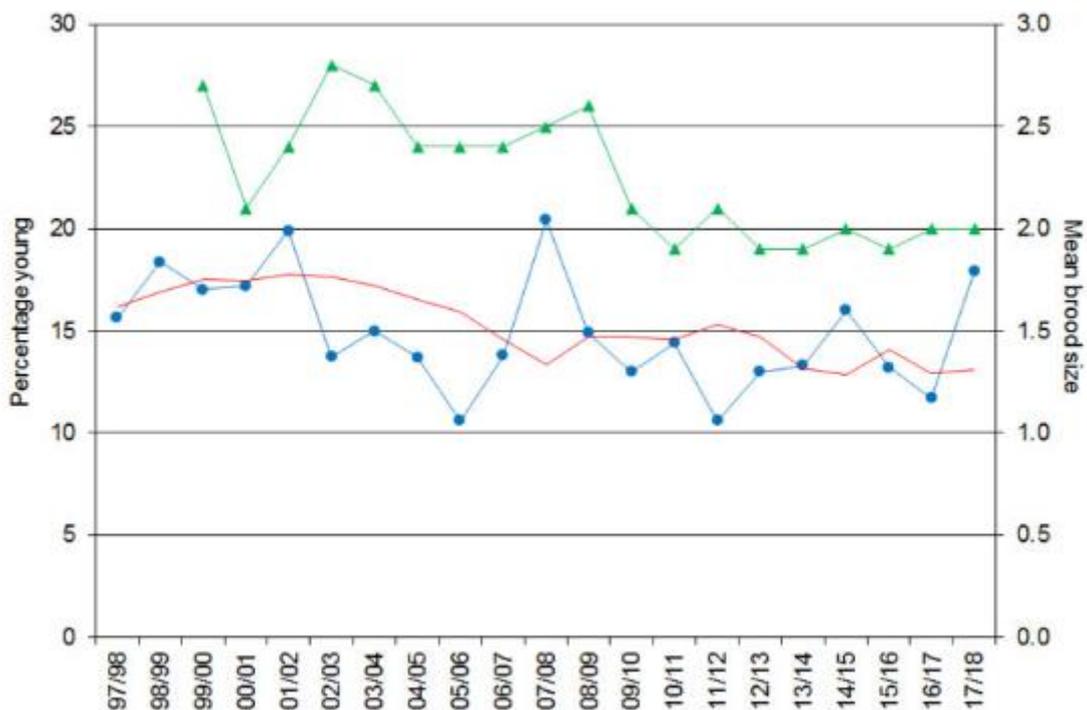


Figure 2. The percentage of young (blue circles), with the rolling five-year mean of percentage of young (red line), and mean brood size (green triangles) of Whooper Swans recorded at WWT Welney/Ouse and Nene Washes, WWT Caerlaverock and WWT Martin Mere/Ribble Estuary, 1999/99–2017/2018. Five-year mean values for the percentage of young were calculated for the five years preceding the year in question (e.g. mean presented for 2017/18 is for 2012/13–2016/17).

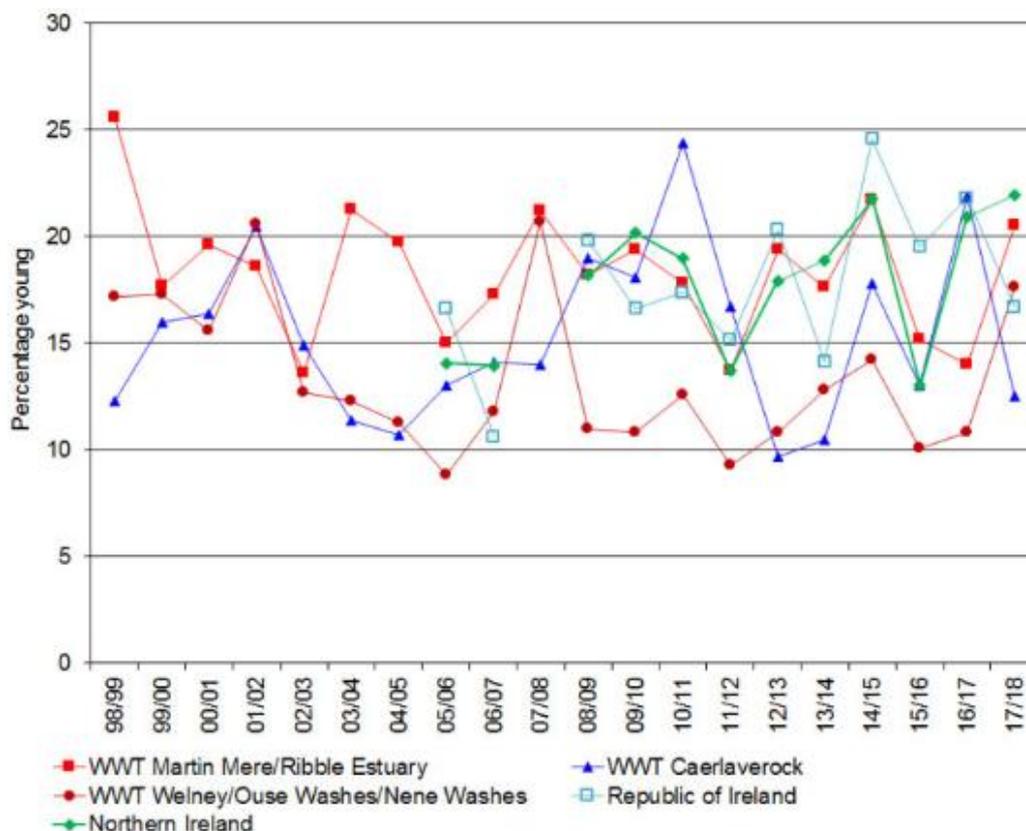


Figure 3. The percentage of young Whooper Swans recorded at WWT Welney/Ouse Washes/Nene Washes, WWT Caerlaverock, WWT Martin Mere/Ribble Estuary, Northern Ireland and the Republic of Ireland, 1999/00–2017/18.

3. Discussion

In 2017, breeding success for Icelandic Whooper Swans wintering in Britain and Ireland was above average. The percentage of young recorded (18.1%) in wintering flocks was higher than the average recorded over the previous ten years at wintering sites in Britain and Ireland (16.2%) and also at WWT centres (13.9%). Higher breeding success found in northern and western regions compared to the southeast may reflect a general preference for Whooper Swan families to select wintering sites closest to their Icelandic breeding grounds (Rees *et al.* 1997) and/or a preference for non-breeding birds to select southeast England’s agricultural heartlands.

Daily peak temperatures averaged 12.9°C in Iceland in June (Tutiempo 2018). Although this fell below the average daily maximum temperature recorded in June over the previous five years (14.9°C; Tutiempo 2018), no extreme conditions likely to have impacted on the swans’ breeding success were reported on the breeding grounds in late spring/early summer.

4. Acknowledgements

Special thanks to all observers who took part in the productivity surveys. We are especially grateful to Graham McElwaine and the Irish Whooper Swan Study Group for coordinating and conducting the annual productivity counts across Ireland.

5. References

Hall, C., O. Crowe., G. McElwaine., O. Einarsson., N. Calbrade & E. Rees. 2016. Population size and breeding success of the Icelandic Whooper Swan *Cygnus cygnus*: results of the 2015 international census. *Wildfowl* 66: 75–97.

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Goose & Swan Monitoring