

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2014/15

Whooper Swan *Cygnus cygnus*

1. Abundance

WeBS/I-WeBS

The abundance of Whooper Swans in the UK and the Republic of Ireland in 2014/15 was monitored through the Wetland Bird Survey (WeBS) and the Irish Wetland Bird Survey (I-WeBS), respectively. Results from these schemes are presented in survey reports which are available to download from the schemes' websites.

International Swan Census

International Swan Census

The 7th international census of Whooper Swan (International Swan Census) was undertaken in January 2015, covering Britain, Ireland and Iceland: this census is carried out every five years and the latest results will be available in late 2015.

The 6th census was undertaken in January 2010 and a total of 29,232 Whooper Swans was recorded, an increase of 10.9% since the previous census in 2005 (Figure 1). The results from this census were published in Hall *et al.* (2012).

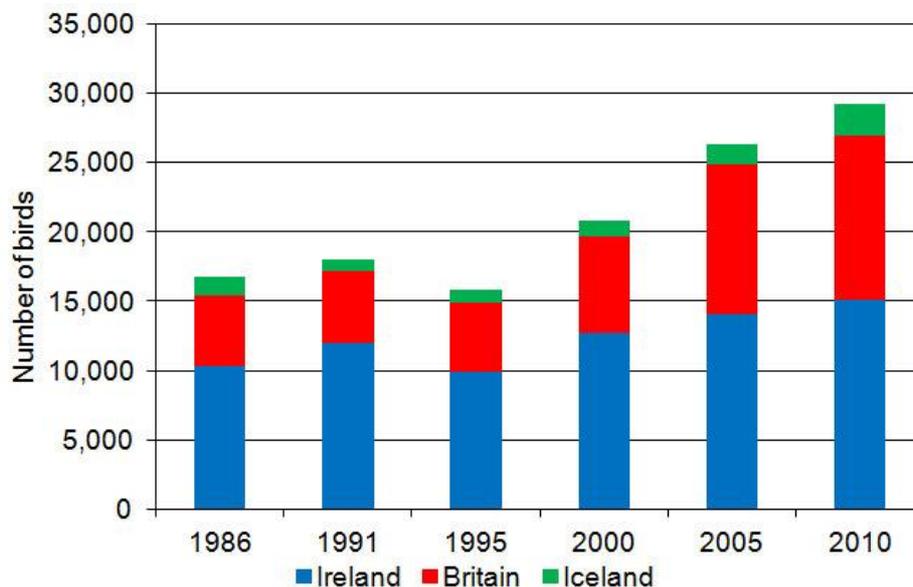


Figure 1. Number of Whooper Swans recorded in Britain, Ireland and Iceland during the International Swan Census, 1984–2010.

2. Breeding success

Whooper Swan age assessments were conducted in eleven regions across Britain and Ireland during winter 2014/15 (Table 1). They were carried out in mid-winter (between 15 and 21 January 2015), when the majority of birds were likely to have arrived from Iceland to wintering sites in Britain and Ireland. Surveys were made within three days of the International Swan Census, which took place on 17/18 January, to avoid biasing estimates of breeding success through the inclusion of repeat observations (*i.e.* the same individuals). 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 19,434 Whooper Swans was aged (approximately 67% of the total population; Hall *et al.* 2012): 8,930 birds in England, 2,920 in Scotland, 3,075 in Northern Ireland and 4,509 in the Republic of Ireland (Table 1). Overall, 20.0% of birds were cygnets and the mean brood size for pairs with young was 2.2 cygnets.

Table 1. The percentage of young (%) and mean brood size of Whooper Swans during the 2014/15 winter (regions defined below).

| Region | Total aged | Percentage of young (%) | Number of broods | Mean brood size |
|---------------------------|---------------|-------------------------|------------------|-----------------|
| Northwest England | 2,315 | 22.5 | 197 | 2.1 |
| East Central England | 6,408 | 14.3 | 451 | 2 |
| North & Northeast England | 144 | 23.6 | 14 | 1.8 |
| Central England | 63 | 11.1 | 3 | limited data |
| Central Scotland | 535 | 24.5 | 20 | 2.4 |
| East Scotland | 141 | 22.0 | 16 | 1.9 |
| North Scotland | 1,444 | 22.7 | 68 | 2.2 |
| South Scotland | 580 | 18.1 | 39 | 1.9 |
| West Scotland | 220 | 17.7 | 18 | 2.1 |
| Northern Ireland | 3,075 | 21.8 | 282 | 2.3 |
| Republic of Ireland | 4,509 | 24.6 | 208 | 2.9 |
| Overall | 19,434 | 20.0 | 1,316 | 2.2 |

Regions (counties from which data were received in 2014/15):

- Northwest England: Cumberland , Lancashire (WWT Martin Mere/Ribble Estuary)
- East central England: Cambridgeshire and Norfolk (WWT Welney/Ouse Washes), Lincolnshire
- North & NE England: Northumberland , Yorkshire
- Central England: Derbyshire , Shropshire
- Central Scotland: Lanarkshire , Lothian, Perthshire
- East Scotland: Angus, Fife
- North Scotland: Aberdeenshire, Caithness, Inverness-shire, Moray, Orkney, Outer Hebrides, Ross & Cromarty, Shetland, Sutherland
- South Scotland: Ayrshire, Berwickshire, Dumfriesshire (WWT Caerlaverock), Kirkcubrightshire Roxburghshire, Wigtownshire
- West Scotland: Argyllshire, Clyde Isles , Ebeudes, Midlothian
- Northern Ireland: Co. Antrim, Co. Armagh, Co. Down, Co. Fermanagh, Co. Londonderry, Co. Tyrone
- Republic of Ireland: Co. Cavan, Co. Clare, Co. Cork, Co. Donegal, Co. Galway, Co. Kerry, Co. Kilkenny, Co. Laois, Co. Leitrim, Co. Limerick, Co. Longford, Co. Mayo, Co. Meath, Co. Monaghan, Co. Offaly, Co. Roscommon, Co. Sligo, Co. Tipperary, Co. Waterford, Co. Westmeath, Co. Wicklow

There was evidence of variation in the distribution of families between regions ($X^2_{10} = 224.5$, $P < 0.01$). The highest breeding success was found for birds which wintered in central Scotland (24.5%) and the Republic of Ireland (24.6%) (Table 1). The lowest breeding success was found for birds wintering in central and east central England (11.1% and 14.3%, respectively).

Overall, higher breeding success was found in northern and western regions (northern England, Scotland, Northern Ireland and the Republic of Ireland) compared to southern and eastern regions (east central and central England) (22.9%, $n = 12,963$ and 14.3%, $n = 6,471$, respectively; $X^2_1 = 200.5$, $P < 0.01$), which may reflect a general preference of Whooper Swan families for wintering sites closest to their Icelandic breeding grounds (Rees *et al.* 1997). Regional variation in brood size was also evident, ranging from 1.8 cygnets per family in north and northeast England to 2.9 cygnets per family in the Republic of Ireland.

The mean percentage of young in flocks at and around WWT centres (*i.e.* WWT Martin Mere/Ribble Estuary, WWT Welney/Ouse Washes and WWT Caerlaverock), where data are collected annually, was 16.0% ($n = 8,505$), which was higher than the previous ten-year mean (2004/05–2013/14; $13.8\% \pm 0.86$ SE) (Figure 2; Figure 3). The mean brood size for these three regions was 2.0 cygnets per family, slightly below the ten-year average (2004/05–2013/14; 2.2 ± 0.09 SE) (Figure 2).



Figure 2: The percentage of young (blue circles), with the rolling five-year mean of % young (red line), and mean brood size (red triangles) of Whooper Swans recorded at WWT Welney/Ouse and Nene Washes, WWT Caerlaverock and

WWT Martin Mere/Ribble Estuary, 1994/95–2014/2015. Five-year mean values for the percentage of young were calculated for the five years preceding the year in question.

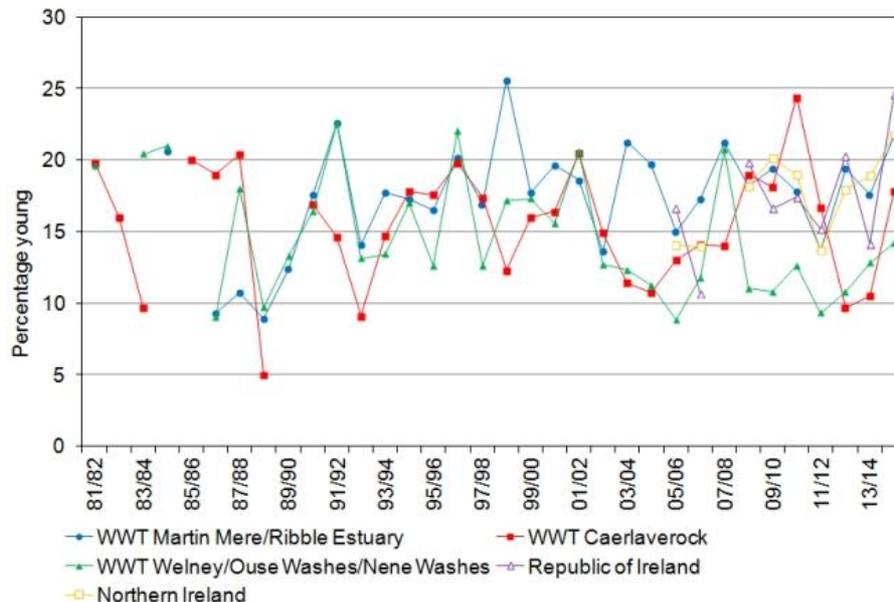


Figure 3: The percentage of young Whooper Swans recorded at WWT Welney/Ouse Washes/Nene Washes, WWT Caerlaverock, WWT Martin Mere/Ribble Estuary, Northern Ireland and the Republic of Ireland, 1994/95–2014/15.

3. Discussion

In 2014, Iceland Whooper Swans experienced an above average breeding season, with the proportion of young wintering at and around WWT centres (16.0%) higher than the average recorded at these sites over the previous ten years (13.8%). Although there were reports of mixed weather in Iceland in spring 2014 (O. Einarsson and P. Potts pers. comm.), temperatures averaged 14°C across the country in June (Accuweather 2015) which was above the average daily maximum temperature recorded for this month between 1979 and 2012 (12°C; Weatherspark 2015). Such favorable conditions would have almost certainly contributed to the successful breeding season.

4. Acknowledgments

Special thanks to all observers who took part in the International Swan Census (organised by BirdWatch Ireland and the Irish Whooper Swan Study Group in Ireland). We are especially grateful to Graham McElwaine and the Irish Whooper Swan Study Group for co-ordinating and conducting the additional annual productivity counts across Ireland.

5. References

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Goose & Swan Monitoring