

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2007/08

Whooper swan *Cygnus cygnus*

1. Abundance

The fifth internationally coordinated census of Whooper Swans was undertaken in January 2005. The results of this census have been previously reported here in greater detail (see 2005/06), and will soon be available in Worden *et al.* (in prep).

2. Breeding success

2006/07 update

Following the receipt of additional data, the breeding success for 2006/07 has been updated. Overall, Whooper Swan flocks contained 13.1% cygnets (previously reported as 15.4%). The mean percentage young at Martin Mere/Ribble Estuary, the Ouse Washes and Caerlaverock was 13.8%, below the five-year mean of $14.6\% \pm 1.5$ s.e. (five-year mean previously reported as $15.5\% \pm 1.3$ s.e.).

2007/08

During the 2007/08 winter, Whooper Swan age counts were conducted in four regions in the UK: Northwest England (WWT Martin Mere/Ribble Estuary, Lancashire) East Central England (the Ouse Washes, Norfolk), Southwest Scotland (WWT Caerlaverock, Dumfriesshire) and North and Central Scotland (Highland and Inner Hebrides).

A total of 2,756 swans was aged in England during November and December 2007 and 382 birds in Scotland during December 2007 and January 2008. Brood sizes were recorded for 260 families: 228 in England and 32 in Scotland. Relatively few families were recorded in Southwest Scotland and so the mean brood size was calculated from 17 families identified by darvic rings that were present at WWT Caerlaverock throughout the winter (October to March).

The percentage of young at sites throughout East Central England, Northwest England and Southwest Scotland, and mean brood size for Northwest England and East Central England, was derived from age counts conducted on one day. This was to avoid any bias that could arise from repeated observations of the same families at certain sites. Fewer counts were conducted in North and Central Scotland and so breeding success was determined from data collected across two days (2 January in the Highland region and 14 January in Inner Hebrides).

Overall, Whooper Swan flocks contained 20.7% cygnets, and the mean brood size of pairs with young was 2.6 cygnets. The percentage young at Martin Mere/Ribble Estuary, the Ouse Washes and Caerlaverock (20.4%) was well above the previous five-year mean ($13.4\%, \pm 0.7$ s.e.), and was the highest recorded since 1996/97 (20.7%).

The proportion of young and mean brood size of Whooper Swan flocks during the 2007/08 winter.

Region ¹	Total aged	% young	No. broods	Mean brood size
Northwest England	1,300	21.2	109	2.5
East central England	1,456	20.7	119	2.5
Southwest Scotland	235	14.0	17	3.6
North and Central Scotland	147	25.9	15	2.3
Total	3,138	20.7	260	2.6

¹Regions are defined as follows:

Northwest England: Lancashire

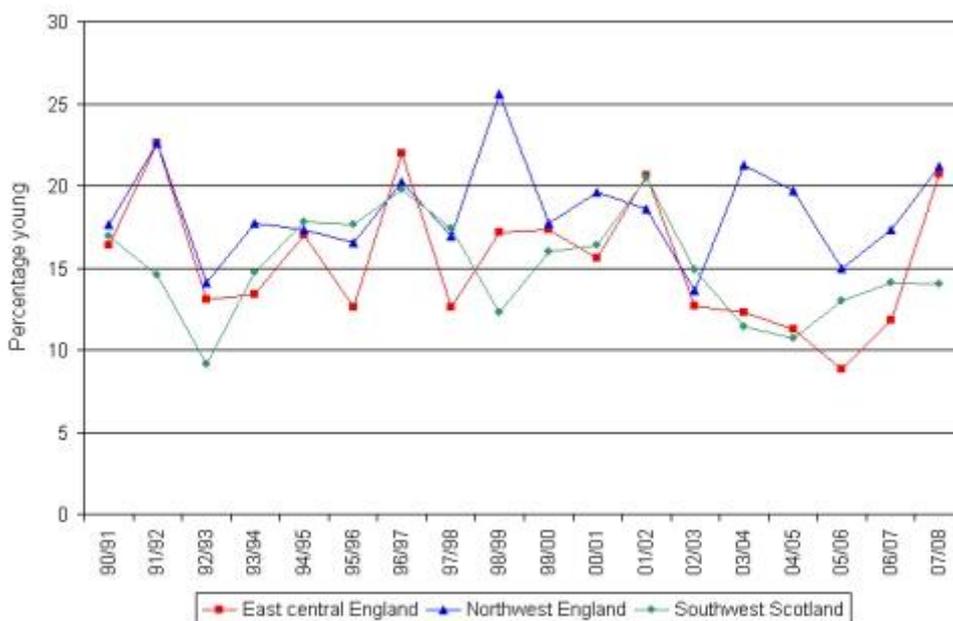
East central England: Norfolk

Southwest Scotland: Dumfriesshire

North and central Scotland: Highland and Inner Hebrides

Breeding success was above average for all regions surveyed. The highest proportions of young were recorded in North and Central Scotland (25.9%) and Northwest England (21.2%). A sharp increase in breeding success has been recorded among swans wintering in East central England and Northwest England since the 2005/06 winter (135.2% and 41.3%, respectively). Following an increase in breeding success between 2004/05 and 2006/07 in Southwest Scotland, the proportion of young recorded there in 2007/08 (14.0%) remained similar to that during 2006/07 (14.1%). Cygnets therefore appear to have been less evenly distributed across the wintering range than in winters 2005/06 and 2006/07, when the percentage of young ranged from 8.8-14.9% and 11.8-17.3%, respectively.

Regional variation in brood size was also evident, ranging from an average of 2.3 cygnets per family for flocks wintering in North and Central Scotland to 3.6 cygnets per family in Southwest Scotland.



The annual average percentage of young Whooper Swans in Northwest England (WWT Martin Mere), Southwest Scotland (WWT Caerlaverock) and East central England (Ouse Washes), 1990/91 to 2007/08.

Mean brood sizes recorded for Whooper Swans during the winter 2004/05 - 2007/08.

Region	2004/05		2005/06		2006/07		2007/08	
	No. of broods	Mean brood size						
Northwest England	153	2.5	143	2.6	28	2.9	109	2.5
East central England	142	1.9	101	2.0	105	2.3	119	2.5
Southwest Scotland	19	2.8	16	3.4	15	2.9	17	3.6
Overall	314	2.4	260	2.4	148	2.5	245	2.6

3. Discussion

The total of 26,366 Whooper Swans recorded during the international census in January 2005 was the highest to date, equating to a 26% increase on numbers counted in 2000. This represents an average annual rate of increase of 4.7%.

There was a disproportionate increase in the number of birds using sites in Britain during January 2005 compared with the rest of the range. Numbers increased by just 11% in Ireland, in contrast to 55% in Britain,

between 2000 and 2005 (compared with 29% and 36% increases between 1995 and 2000). The increase in numbers of birds in England was not accompanied by a significant increase in the number of flocks recorded, and distribution is concentrated at relatively few sites. In fact, the continuing increase in numbers using the Ouse Washes in Norfolk accounted for 82% of the rise in total numbers found in England.

It is possible that the increasing British numbers of Whooper Swans, particularly in East central England, may be inflated by an increasing proportion of birds from the Northwest European population wintering in Britain. This population breeds from Fenno-Scandia to northwest Russia and winters in continental Europe, but it is known from ringing studies that a small number winter in Britain. A greater understanding of the extent of interchange between populations and use of British and Irish wintering grounds by the Northwest European population is necessary to ascertain the true size of these expanding populations.

The percentage of young (20.7%) was above average for Whooper Swans wintering in the UK, and was most probably influenced by the warm and dry conditions encountered across Iceland in May, June and July 2007 (Icelandic Meteorological Office; accessed 17 June 2008). The distribution of families between regions was more variable than in the three preceding winters, with higher proportions of young recorded in North and Central Scotland than in other regions. This may reflect the likely preference of Whooper Swan families for sites closest to their Icelandic breeding grounds. However, breeding success in East Central England was higher than in Southwest Scotland. Such regional variation confirms the need for comprehensive collection of age data across the wintering range in order to provide an accurate estimate of the population's breeding success. Reasons for the regional variation in mean brood size have yet to be determined, but may be due to the large more dominant family groups displacing pairs with fewer young and non/failed breeders from areas closer to the breeding range.

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Goose & Swan Monitoring