

# WWT/JNCC/SNH Goose & Swan Monitoring Programme

## survey results 2011/12

### Whooper Swan *Cygnus cygnus*

#### 1. Abundance

The sixth International Census of Whooper Swans was undertaken in January 2010 and yielded the highest population estimate to date. A total of 29,232 Whooper Swans was recorded, representing an increase of 10.9% compared with the previous census in 2005 (26,366). Typically, the majority of birds were recorded in the Republic of Ireland, where numbers were slightly above (7.2 % higher) those in 2005, as was also the case in Northern Ireland (6.6% higher). Scotland, however, saw 35.8% fewer birds, whilst England and Wales recorded a 40% increase. This shift in distribution was probably caused by cold weather movements southwards. In Iceland, the total count was 46% higher than in 2005 and reflects an increasing trend for birds to overwinter there.

#### 2. Breeding success

Whooper Swan age counts were conducted in six regions across Britain and Ireland during the 2011/12 winter. For East Central England (WWT Welney/Ouse Washes/Nene Washes) and Northwest England (WWT Martin Mere/Ribble Estuary), the percentage of young and mean brood size were derived from age counts conducted on two days (16 and 17 January 2012), to avoid biasing age assessments for the population through the inclusion of repeat observations of swans (likely the same individuals) at a particular site. In Southwest Scotland (WWT Caerlaverock), breeding success was determined from data collected on 20 December 2011, whilst counts were conducted between 1318 January in North and Central Scotland, between 816 January in Northern Ireland and between 821 January in the Republic of Ireland. Regional variation was also assessed in order to determine the differences in the geographical distribution of family parties.

A total of 14,435 Whooper Swans was aged: 7,370 birds in England, 761 in Scotland, 2,818 in Northern Ireland and 3,486 in the Republic of Ireland. Overall, Whooper Swan flocks contained 12.5% young and the mean brood size for pairs with young was 2.0 cygnets.

The mean percentage of young in flocks at Martin Mere/Ribble Estuary, Welney/Ouse Washes and Caerlaverock, where data are collected annually, was 10.6% ( $n = 7,105$ ), below the previous ten-year mean (2001/02 to 2010/11; 14.9%). The mean brood size for these three areas was 1.9 cygnets per family, also below the previous ten-year mean (2001/02 to 2010/11; 2.4).

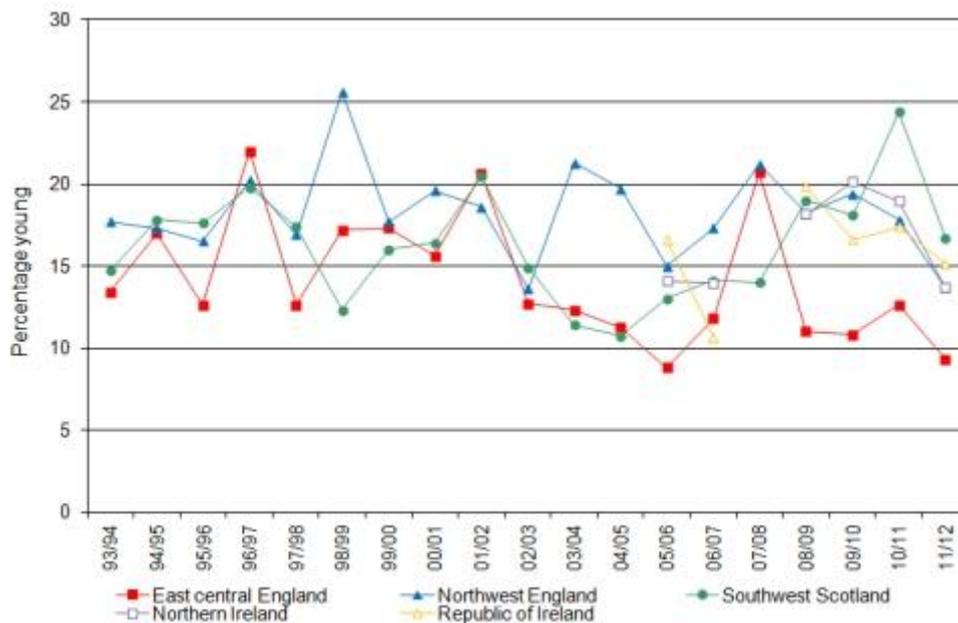
The proportion of young and mean brood size of Whooper Swan flocks during the 2011/12 winter.

| Region                     | Total aged<br>(no. of young) | % young     | No. broods<br>(no. of young) | Mean brood size |
|----------------------------|------------------------------|-------------|------------------------------|-----------------|
| Northwest England          | 1,307 (179)                  | 13.7        | 94 (179)                     | 1.9             |
| East Central England*      | 6,063 (575)                  | 9.5         | 267 (497)                    | 1.9             |
| Southwest Scotland*        | 480 (80)                     | 16.7        | 13 (40)                      | 3.1             |
| North and Central Scotland | 281 (50)                     | 17.8        | 19 (50)                      | 2.6             |
| Northern Ireland           | 2,818 (386)                  | 13.7        | 186 (386)                    | 2.1             |
| Republic of Ireland        | 3,486 (528)                  | 15.1        | 249 (528)                    | 2.1             |
| <b>Total</b>               | <b>14,435 (1,798)</b>        | <b>12.5</b> | <b>828 (1,680)</b>           | <b>2.0</b>      |

(1) Regions are defined as follows: Northwest England:Lancashire  
 East Central England: Norfolk and Cambridgeshire  
 Southwest Scotland: Dumfriesshire  
 North and Central Scotland: Perthshire, Aberdeenshire  
 Northern Ireland: Co. Londonderry, Co. Antrim, Co. Tyrone, Co. Fermanagh, Co. Armagh, Co. Down  
 Republic of Ireland: Co. Cavan, Co. Clare, Co. Cork, Co. Donegal, Co. Galway, Co. Kerry, Co. Limerick, Co. Mayo, Co. Meath, Co. Monaghan, Co. Roscommon, Co. Sligo, Co. Waterford, Co. Westmeath, Co. Wexford

\* Brood sizes were not recorded for all flocks aged. The total number of cygnets used for the % young and the mean brood size estimates therefore differ for the regions indicated.

There was evidence of variation in the distribution of families between regions ( $X^2_5 = 93.2, P < 0.001$ ). The highest breeding success was found amongst birds in North and Central Scotland (17.8%) and Southwest Scotland (16.7%), with the lowest recorded in East Central England (9.5%). Regional variation in brood size was also evident, ranging from 1.9 cygnets per family in Northwest and East Central England to 3.1 cygnets per family in Southwest Scotland.



The mean percentage of young Whooper Swans recorded in East Central England (green circles), Southwest England (blue triangles), Northwest England (red squares), Northern Ireland (open orange triangles) and the Republic of Ireland (open purple squares), 1993/94-2011/12

### 3. Discussion

In 2011/12, the overall proportion of young among Whooper Swans wintering at and around WWT centres (10.6%) was considerably lower than that recorded at these sites over the previous ten years (14.9%). Poor breeding success in summer 2011 was most probably influenced by cold conditions encountered across Iceland in June when the mean temperature in the north of the country (6.7°C) was several degrees lower than the five-year average (10.3°C), and heavy snow affected many areas (Icelandic Meteorological Office).

The regional variation in the distribution of families may reflect a general preference for Whooper Swan families to select wintering sites closest to their Icelandic breeding grounds (Rees *et al.* 1997), in that the proportion of young was lower in flocks further south within Britain, although this was not the case in Ireland. Studies have also shown that Whooper Swans ringed in the Suður and Norður-Þingeyjarsýsla regions of northern Iceland are more likely to winter in England, that those ringed in the eastern region of Norður-Múlasýsla are more likely to winter in Scotland and that birds ringed further west in Skagafjörður, are more likely to spend their winter in Ireland (Newth *et al.* 2007; McElwaine *et al.* 1995; Gardarsson 1991). Regional variation in the prevalence of families in winter may therefore also be linked to environmental conditions in specific regions of Iceland during spring and summer.

Research has also shown that smaller flocks comprise higher proportions of young than do larger flocks (Rees *et al.* 1997) which may partly explain the higher percentage of young recorded in North and Central Scotland (where the average flock size was 94) compared to that recorded in East Central England (122 birds). Reasons for the regional variation in mean brood size have yet to be determined, but may be due to the larger more dominant family groups (Black & Rees 1984) displacing pairs with fewer young and non/failed breeders from areas closer to the breeding range.

### 4. References

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## Goose & Swan Monitoring