

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2012/13

Bewick's Swan *Cygnus columbianus bewickii*

1. Abundance

WeBS/I-WeBS

The abundance of Bewick's Swans in the UK and the Republic of Ireland in 2012/13 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

The 7th census of Bewick's Swans in Britain and Ireland was undertaken in January 2010: this census is carried out every five years. The census produced a British and Irish total of 7,079 Bewick's Swans, a decrease of 1.9% compared with the 2005 census (Figure 1). A brief summary of the results was presented in the 2011/12 results for Bewick's Swan.

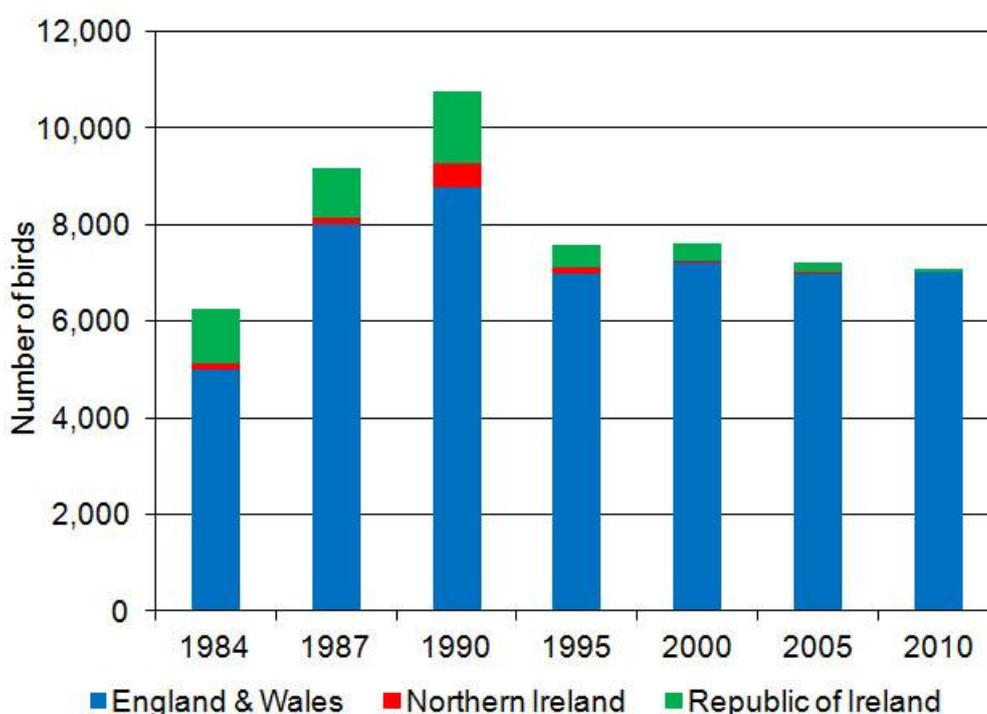


Figure 1. Number of Bewick's Swans recorded in Britain and Ireland during the International Swan Census, 1984-2010.

2. Breeding success

Bewick's Swan age assessments were conducted at four wintering sites for the species in Britain during December 2012: WWT Slimbridge (southwest England), WWT Martin Mere/Ribble Estuary (northwest England), the Ouse Washes/Nene Washes (east central England) and Walland Marsh (southeast England). Data from all sites were collected in December 2012 because a relatively high proportion of early arrivals (*i.e.* those present in October and November) are non/failed breeders (Rees *et al.* 1997), whereas age assessments made in mid-winter can be taken as being more representative of the population as a whole. These counts also coincided with a wider international age count across northern Europe.

The percentage of young and mean brood size was derived from age counts conducted within a three-day window (between 7–9 December) in an effort to avoid any bias that would arise from repeated observations of the same families at a particular site. Regional variation in the percentage of young was also assessed in order to determine any differences in the geographical distribution of family parties.

A total of 1,232 Bewick's Swans was aged and brood sizes were recorded for 125 families: 109 on the Ouse Washes/Nene Washes, 11 at WWT Slimbridge, one at WWT Martin Mere/Ribble Estuary and four at Walland Marsh. The low sample sizes for brood counts at WWT Martin Mere/Ribble Estuary and Walland Marsh reflected the relatively few Bewick's Swans wintering in these areas. Overall, Bewick's Swan flocks contained 17.7% cygnets and the mean brood size of pairs with young was 1.7 cygnets (Table 1).

Table 1. The proportion of young (%) and mean brood size for Bewick's Swans at sites in Britain during the 2012/13 winter.

Region	Total aged	Proportion of young (%)	Number of broods	Mean brood size
WWT Martin Mere / Ribble Estuary	17	11.8	1	Limited data
OuseWashes / NeneWashes	1,034	16.9	109	1.6
WWT Slimbridge	135	17.0	11	2.1
Walland Marsh	46	39.1	4	Limited data
Overall	1,232	17.7	125	1.7

There was considerable variation in the proportion of cygnets recorded across Britain with the percentage of young ranging from 11.8% at WWT Martin Mere/Ribble Estuary to 39.1% at Walland Marsh, although sample sizes varied (Table 1). Variation between the Ouse Washes/Nene Washes, WWT Slimbridge and Walland Marsh was statistically significant ($\chi^2 = 14.9$, $P < 0.01$). Regional variation in brood sizes could not be assessed at WWT Martin Mere/Ribble Estuary and Walland Marsh because of the small number of broods recorded.

The mean percentage of young in flocks at and around WWT centres (Martin Mere/Ribble Estuary, the Ouse Washes/Nene Washes and Slimbridge), where data are collected annually, was 16.9% ($n = 1,186$), considerably higher than the previous ten-year average ($9.7\% \pm 0.9\text{SE}$), and the mean brood size was 1.7 cygnets (121 broods), just below the previous ten-year mean ($1.8 \pm 0.09\text{SE}$) (Figure 2).

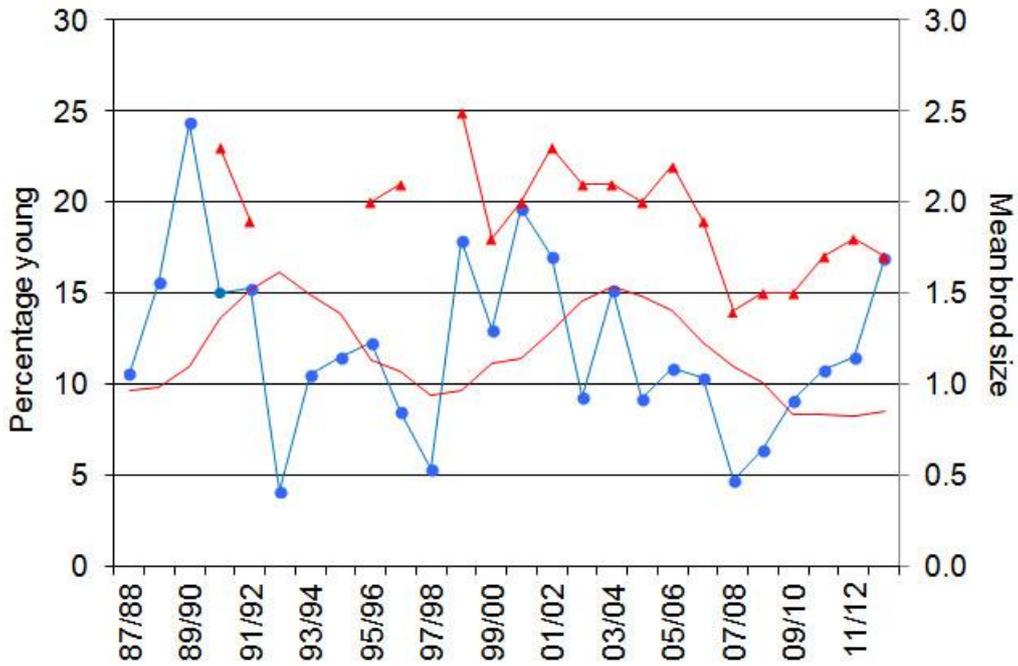


Figure 2: The percentage of young (blue circles), with the rolling five-year mean of % young (red line), and mean brood size (red triangles) of Bewick's Swans recorded at WWT Slimbridge, the Ouse Washes/Nene Washes and WWT Martin Mere/Ribble Estuary, 1990/91 – 2012/13. Five-year mean values for the percentage of young were calculated for the five years preceding the year in question.

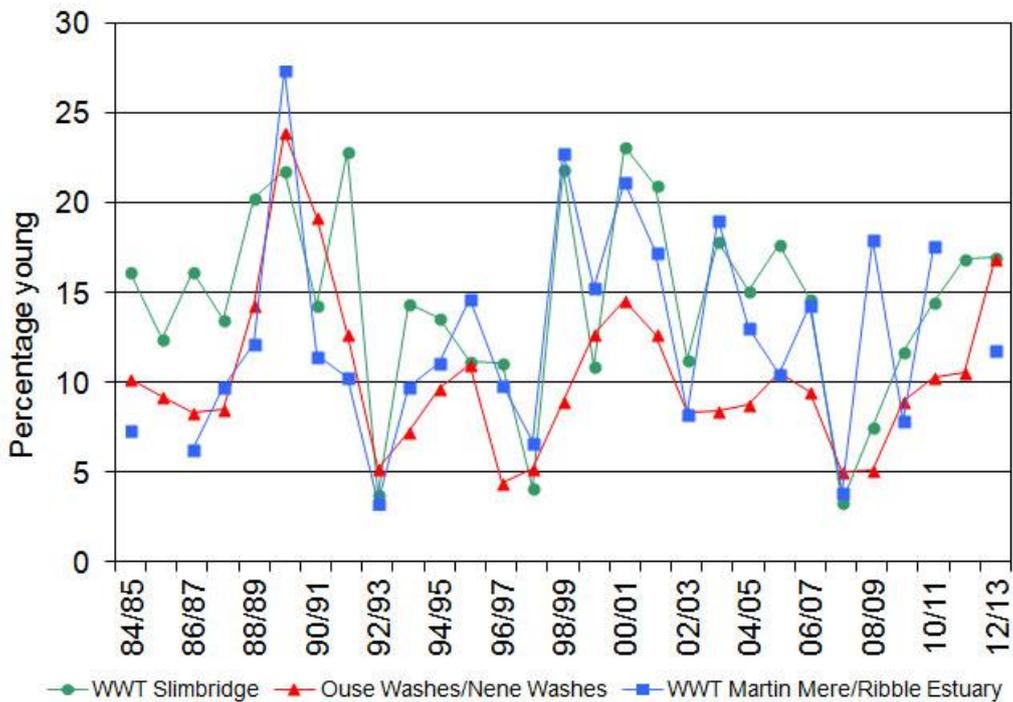


Figure 3. The percentage of young Bewick's Swans recorded at WWT Slimbridge, the Ouse Washes/Nene Washes and WWT Martin Mere/Ribble Estuary, 1984/85–2012/13. Data for WWT Martin Mere/Ribble Estuary in 2011/12 were omitted because the sample size was very small.

3. Discussion

Overall, Bewick's Swan had a good breeding season in 2012 with 17.7% young recorded in flocks wintering in Britain. The proportion of young wintering at and around WWT centres (16.9%) was considerably higher than the average recorded at these sites over the previous ten years ($9.7\% \pm 0.9$ SE) and the highest recorded since 2000/01 (19.6%). This marks a continuation of improved breeding success among birds at the Ouse Washes/Nene Washes and WWT Slimbridge since the exceptionally poor 2007/08 breeding season when only 4.7% young was recorded. The mean brood size for these sites was 1.7 (121 broods) cygnets, slightly lower than the previous ten-year mean (1.8 ± 0.09 SE). There was regional variation in the distribution of Bewick's Swan families recorded in different parts of Britain, with a higher proportion of young found in the south than in the north.

The surveys in Britain coincided with an international age count (coordinated by Dutch ornithologists Jan Beekman and Wim Tijssen). Over 12,000 Bewick's Swans were aged across northern Europe (Lithuania, Latvia, Poland, Germany, Denmark, The Netherlands, Belgium and Britain) and, overall, 14% young was found in the flocks surveyed, the highest proportion recorded across northern Europe since 2001 (14.5 % young) (W. Tijssen and J. Beekman pers. comm.). The mean brood size was 2.2 cygnets (in 325 families aged).

Conditions on the breeding grounds are likely to be important in determining the population's breeding success, in particular, weather conditions during the short Arctic breeding season (Poorter 1991). Conditions in the Pechora Delta (in the vicinity of an important breeding site for the species) in spring 2012 were relatively good with temperatures in May averaging 4.6°C , higher than the previous five year average for the area (1.6°C) (TuTiempo 2013).

4. References

Poorter, E.P.R. 1991. *Bewick's Swans* *Cygnus columbianus bewickii*, *an analysis of breeding success and changing resources*. Ministerie van Verkeer en Waterstaat, Rijkswaterstaat, Directie Flevoland.

Rees, E.C., J.S. Kirby & A. Gilburn. 1997. Site selection by swans wintering in Britain; the importance of habitat and geographic location. *Ibis* 139: 337-352.

TuTiempo: <http://www.tutiempo.net/en/> [accessed June 2013]

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Goose & Swan Monitoring