WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2006/07

Bewick's Swan *Cygnus columbianus bewickii*

1. Abundance

The sixth internationally coordinated census of Bewick's Swans was undertaken in January 2005. The results of this census have been previously reported here in greater detail (see 2005/06), and are now available in Worden *et al.* (2006).

2. Breeding success

During 2006/07, a total of 2,227 Bewick's Swans was aged at four wintering sites in the UK: Slimbridge (Southwest England), Martin Mere/Ribble Estuary (Northwest England) and sites in Norfolk and Cambridgeshire including the Ouse Washes and Norfolk Broads (East central England). Counts were conducted at Martin Mere/Ribble Estuary and in Norfolk and Cambridgeshire during midwinter (December 2006 and January 2007), whilst birds at Slimbridge (where individual swans wintering at the site are identified daily by their natural bill markings) were aged throughout the winter (October to March). Brood sizes were recorded for 98 families: 66 in East central England (46 at Ouse Washes, 20 at Norfolk Broads), 22 in Southwest England (WWT Slimbridge) and 10 in Northwest England (WWT Martin Mere/Ribble Estuary).

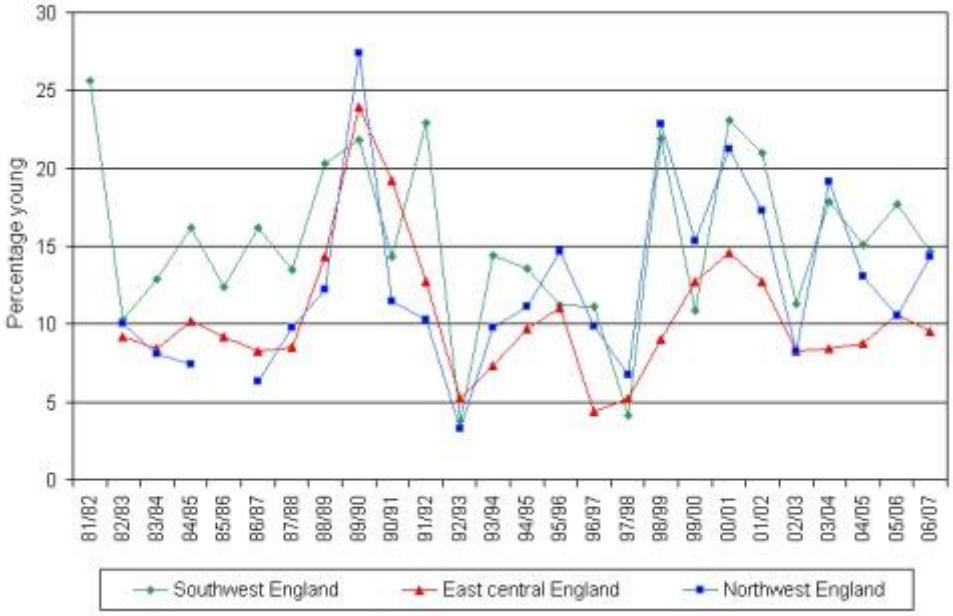
Low numbers of Bewick's Swans were recorded in the Martin Mere/Ribble Estuary area during 2006/07, with the maximum count reaching only 42 swans at Lytham Moss on 31st December. For comparison, the peak count recorded during winter 2005/06 was of 150 birds. The total number aged (442) exceeded the maximum number recorded for this area because birds at major sites were counted at least twice during December and January. The total percentage of young therefore is weighted to the maximum count in this area. Broods of up to four cygnets were recorded in the area. Some sites were counted more than once in Northwest England. The mean brood size was therefore calculated by incorporating each brood size only once if seen on more than one day at the same site to avoid any bias that would arise from repeated observations of the same families at certain sites.

Overall, Bewick's Swan flocks contained 10.3% cygnets, and the average brood size of pairs with young was 1.9 cygnets. The mean percentage young therefore fell below the five year mean of 13.3 % (± 1.9 s.e.) recorded at these three sites over the five winters up to 2006/07.

The proportion of young and mean brood size for Bewick's Swans at three UK regions during the 2006/07 winter.

Region	Total aged	% young	No. of broods	Mean brood size
Northwest England	442	14.3	10	2.8
East central England	1,872	9.5	66	1.7
Southwest England	313	14.7	22	2.1
Total	**2,227**	**10.3**	**98**	**1.9**

Regional variation was assessed in order to determine the differences in the geographical distribution of family parties. Breeding success was below average for all regions surveyed. The highest proportion of young was recorded at Slimbridge (14.7%), as has been the case in 66.6% of all winters since 1982. However, this still remained the lowest proportion recorded at the site since the 2002/03 winter (11.3%). The lowest proportion of young was found in flocks wintering in East central England where the percentage of young (9.5%) was marginally below that of the preceding five year mean for this region (9.8%, ± 0.85 s.e.). The proportion of young found in flocks at Martin Mere/Ribble Estuary (14.3%) was above the region's five year mean (13.7%, ± 2.0 s.e. 2002/03 - 2006/07), and was an increase of 36.2% on the previous year, making it the only region surveyed to have held a greater proportion of young in 2006/07.



The annual average percentage of young Bewick's Swans in Southwest England (WWT Slimbridge), East central England (Norfolk & Cambridgeshire) and Northwest England (WWT Martin Mere/Ribble Estuary), 1982/83 to 2006/07.

From 2003/04, there has been marked variation in the proportion of young recorded in different parts of the UK, and this was again evident during 2006/07, with the proportion of young ranging from 9.5 % to 14.7%. Regional variation in brood size was more evident in 2006/07 than in the three preceding winters, ranging from an average of 1.7 cygnets per family for flocks wintering in Norfolk and Cambridgeshire, to 2.8 cygnets per family at Martin Mere/Ribble Estuary).

Mean brood sizes of Bewick's Swans during the winters 2003/04 - 2006/07.

	2003/04		2004/05		2005/06		2006/07	
Region	**No. of broods**	**Mean brood size**	**No. of broods**	**Mean brood size**	**No. of broods**	**Mean brood size**	**No. of broods**	**Mean brood size**
Martin Mere/Ribble Estuary	26	2.3	8	2.2	61	2.3	10	2.8
Norfolk & Cambridgeshire	305	1.9	150	1.8	47	2.1	66	1.7
Slimbridge	32	2.2	18	2.1	24	2.2	22	2.1
Overall	**363**	**2.1**	**176**	**2.0**	**132**	**2.2**	**98**	**1.9**

3. Discussion

The total of 7,216 Bewick's Swans counted in Britain and Ireland during January 2005 represents an increase of 16% on the 6,239 recorded in these countries during the first international Bewick's Swan census in 1984. Numbers are, however, lower than those found during the 1995 and 2000 censuses, with a 5% decline since January 2000. Numbers in both Northern Ireland and the Republic of Ireland have decreased dramatically from 1,244 birds in 1984, to just 224 birds in January 2005. Declines have also occurred in many western regions of Britain. Two areas which have seen increases, however, are East Anglia and Southeast England, which suggests a possible eastward contraction of the wintering range.

The Northwest Europe population of Bewick's Swans as a whole (including those on the continent) underwent a substantial increase from 16,046 to 29,277 between 1987 and 1995, with the largest increase in numbers in the Netherlands. The population throughout the rest of Northwest Europe was also censused in January 2000 and 2005, but the full results are still awaited. These results will help to determine whether declining numbers in parts of Britain and Ireland reflect the trend for the whole population or whether changing climatic conditions and warmer winters are causing more swans to remain closer to their breeding grounds.

Age counts of Bewick's Swans wintering in England in 2006/07 indicate poor breeding success in the 2006 breeding season. Overall, 10.3% young was recorded in flocks in different parts of the country, whilst the mean brood size per successful pair was 1.9 cygnets. A similar level of breeding success was recorded in the Netherlands, where only 10.2% of 5,473 birds aged in November were first-winters (W. Tijsen, pers. comm.). As the Netherlands and Britain are the most important wintering areas for Bewick's Swans (Beekman 1997; Delany *et al.* 1999), the low average percentage young for both countries (10.3%) suggests that 2006 was a poor breeding year for the whole Northwest European population. However, exceptionally mild temperatures in the UK and on the continent during the 2006/07 winter may have resulted in reduced movement of families from Germany to Britain and the Netherlands.

There was some regional variation in the distribution of Bewick's Swan families recorded in different parts of England. Particularly low proportions of young were recorded in East central England, including the Ouse Washes (9.5 %). The Ouse Washes is the most important site for the population in January (Delany *et al.* 1999), so the proportion of juveniles recorded there is representative not only of most Bewick's Swans wintering in the UK, but also of a large section of the Northwest European population.

The highest percentage of young was found in Southwest England (14.7% at WWT Slimbridge), but breeding success was lower than usual for that site. Higher productivity for Bewick's Swans wintering at Slimbridge may perhaps be partly attributable to the regular supplies of grain received by the birds, and the relative protection from disturbance at the site (Rees *et al.* 1997b). However, research has shown that smaller flocks, such as those recorded at Slimbridge, comprise higher proportions of young than do larger flocks, which may also explain this trend (Rees *et al.* 1997b).

4. References

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