

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2013/14

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 2013/14 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 (see the 'Previous results').

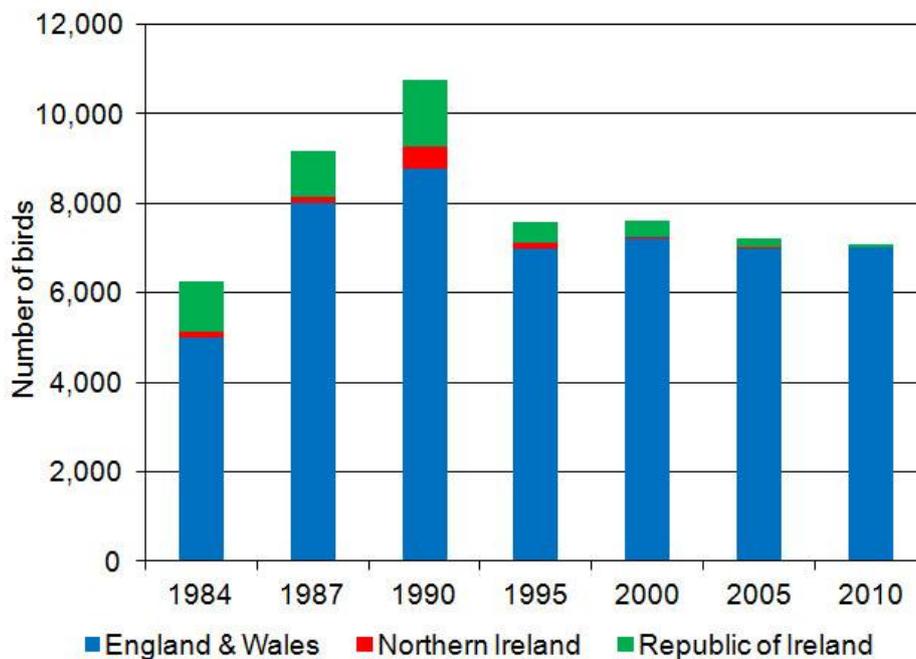


Figure 1. Number of Bewick's Swans recorded in Britain and Ireland during the International Swan Census, 1984-2010.

2. Breeding success

Bewick's Swan age assessments were conducted at three wintering sites for the species in Britain during December 2013: WWT Slimbridge (southwest England), WWT Martin Mere/Ribble Estuary (northwest England) and the Ouse Washes/Nene Washes (east central England). Data from all sites were collected in December 2013 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 wider international age assessment for the population across northern Europe.

The percentage of young and mean brood size was derived from age counts conducted within a two-day window (between 8–9 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 1,343 Bewick's Swans was aged and brood sizes were recorded for 96 families: 84 on the Ouse Washes/Nene Washes, 11 at WWT Slimbridge and one at WWT Martin Mere/Ribble Estuary. The low sample sizes for brood counts at WWT Martin Mere/Ribble Estuary reflected the relatively few Bewick's Swans wintering in this area. Overall, Bewick's Swan flocks contained 14.7% cygnets and the mean brood size of pairs with young was 2.1 cygnets (Table 1, Figure 2).

Table 1. The percentage of young (%) and mean brood size for Bewick's Swans at sites in Britain during the 2013/14 winter.

Region	Total aged	Percentage of young (%)	Number of broods	Mean brood size
WWT Martin Mere/Ribble Estuary	14	28.6	1	-
Ouse Washes/Nene Washes	1,206	14.1	84	2.0
WWT Slimbridge	123	23.0	11	2.1
Overall	1,343	14.7	96	2.1

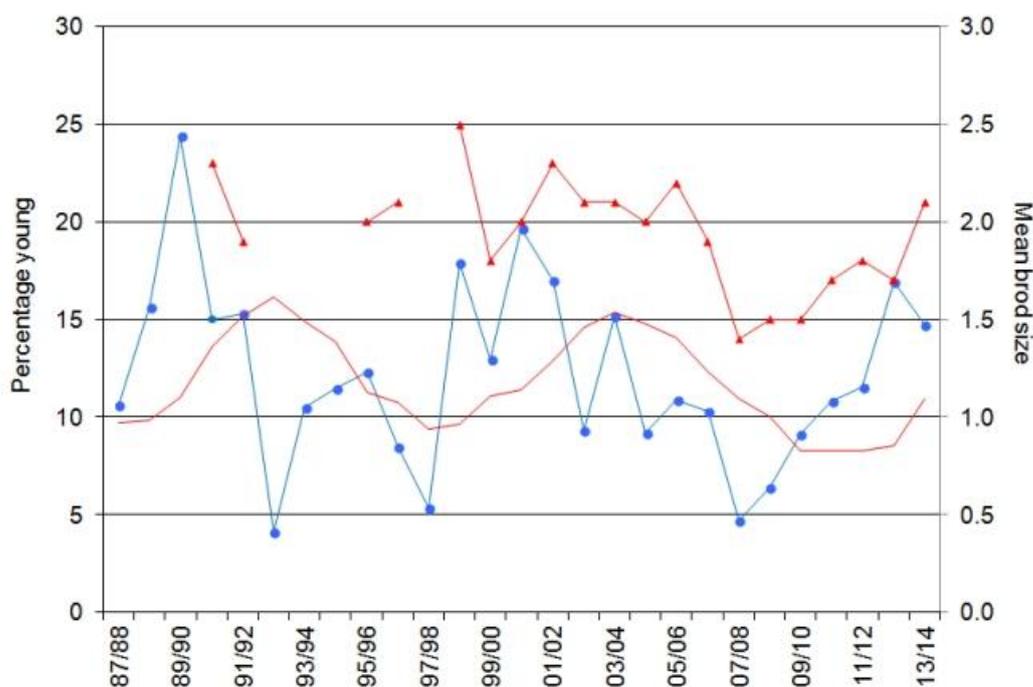


Figure 2: The percentage of young (blue circles), with the rolling five-year mean of % young (red line), and mean brood size (red triangles) of Bewick's Swans recorded at WWT Slimbridge, the Ouse Washes/Nene Washes and WWT Martin Mere/Ribble Estuary, 1990/91-2013/14. Five-year mean values for the percentage of young were calculated for the five years preceding the year in question.

There was considerable variation in the proportion of cygnets recorded across Britain with the percentage of young ranging from 14.1% at the Ouse Washes/Nene Washes to 28.6% at WWT Martin Mere/Ribble Estuary, although sample sizes varied considerably (Table 1, Figure 3). Variation between all three sites in the proportion of juveniles recorded was statistically significant ($X^2_3 = 23.8$, $P < 0.01$). Regional variation in brood sizes did not include WWT Martin Mere/Ribble Estuary because only one brood was recorded in the area.

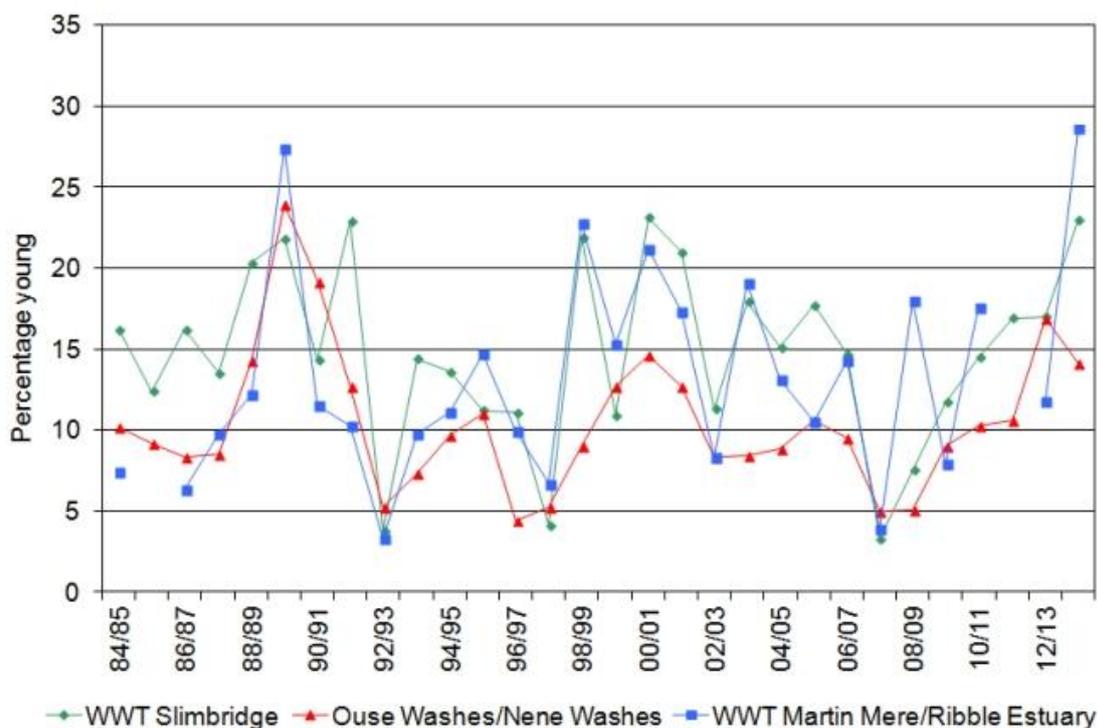


Figure 3. The percentage of young Bewick's Swans recorded at WWT Slimbridge, the Ouse Washes/Nene Washes and WWT Martin Mere/Ribble Estuary, 1984/85–2013/14. Data for WWT Martin Mere/Ribble Estuary in 2012/13 were omitted because the sample size was very small.

An age assessment of 38 Bewick's Swan at Romney Marsh, Kent, on 8 January 2014 recorded 15.1% young. This data was not included in the final assessment to avoid biasing age assessments for the population through the inclusion of repeat observations of swans (likely the same individuals) aged in both December and January.

3. Discussion

Overall, Bewick's Swan had a reasonably good breeding season in 2013 with 14.7% young recorded in flocks wintering in Britain. The percentage of young wintering at and around WWT centres (equivalent to the overall percentage young) was considerably higher than the average recorded at these sites over the previous ten years ($10.5\% \pm 1.1$ SE). However, the percentage of juveniles recorded in flocks at the Ouse Washes/Nene Washes, where the majority of birds are aged each winter, was slightly lower in 2013/14 (14.1%) than in 2012/13 (16.9%). Mean brood size of 2.1 cygnets per successful pair recorded at and around WWT centres was also above the previous ten-year mean (1.8 ± 0.08 SE).

The surveys in Britain coincided with an international age count (coordinated by Dutch ornithologists Jan Beekman and Wim Tjisen). Over 12,000 Bewick's Swans were aged across northern Europe (Latvia, Poland, Germany, Denmark, The Netherlands, Belgium and Britain) and, overall, 12.8% young was found in the flocks surveyed. This was lower than the proportion of young found in 2012 (14.5%), the highest recorded in northern Europe since 2001 (W. Tjisen and J. Beekman pers. comm.).

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). Temperatures in the Pechora Delta (in the vicinity of an important breeding area for the species) in May and June 2013 averaged 1.8°C and 8.2°C respectively, a little lower than the previous five year averages for the area (of 2.5°C and 10°C respectively) (TuTiempo 2014).

With thanks to C. Liggett for information from the Ribble Estuary, R. Norman for information from Romney Marsh, W. Tijssen and J. Beekman for reports from Europe and WWT/RSPB staff and volunteers at Welney, Martin Mere and Slimbridge.

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 2014].

This report should be cited as:

WWT. 2014. *Goose & Swan Monitoring Programme: survey results 2013/14 Bewick's Swan* *Cygnus columbianus bewickii*. WWT/JNCC/SNH, Slimbridge.

© Wildfowl & Wetlands Trust

All rights reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the copyright holder.

This report was produced under the Goose & Swan Monitoring Programme (GSMP). This programme monitors numbers and breeding success of geese and swans in the UK during the non-breeding season. GSMP is organised by the Wildfowl & Wetlands Trust in partnership with the Joint Nature Conservation Committee (on behalf of Natural Resources Wales, Natural England and the Council for Nature Conservation and the Countryside) and Scottish Natural Heritage.



Goose & Swan Monitoring