

# WWT/JNCC/SNH Goose & Swan Monitoring Programme survey results 2018/19

## 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 2018/19 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 8th census of Bewick's Swan in Britain and Ireland was undertaken in January 2015 as part of the international census. The census was organised overall by the Wetlands International / IUCN SSC Swan Specialist Group, and coordinated in Britain and Ireland WWT in partnership with BirdWatch Ireland and the Irish Whooper Swan Study Group. This census is carried out every five years.

The census yielded a total of 4,371 Bewick's Swans in Britain and 21 in Ireland, which together represent a decline of 38% compared with the Britain and Ireland total in 2010 (Figure 1). This is by far the lowest census total to date. A brief summary of the results was presented in the 2015/16 results for Bewick's Swan: see the Previous results tab.

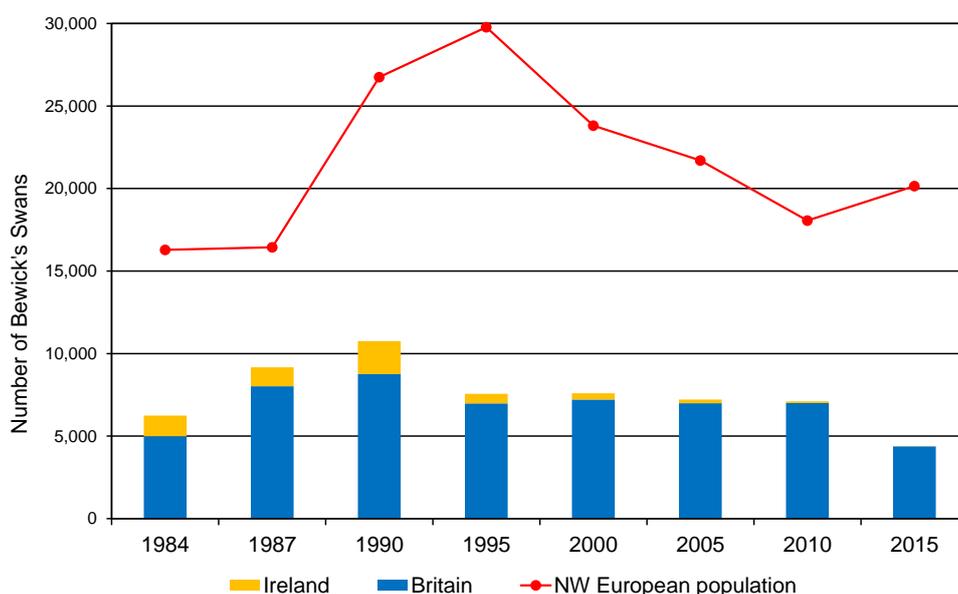


Figure 1. Number of Bewick's Swans recorded in Britain and Ireland during the International Swan Census, 1984–2015 (the overall 2015 NW European population estimate has yet to be calculated, with the analysis being undertaken by the Wetlands International / IUCN SSC Swan Specialist group).

### 2. Breeding success

Bewick's Swan age assessments were conducted in three regions across England during winter 2018/19 (Table 1). Age assessments were made in all regions in mid-winter (on 22 January 2019), because a relatively high proportion of early arrivals (*i.e.* those present in October and November) typically comprise mostly 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.

The percentage of young and mean brood size was derived from age counts conducted on one day 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 1,618 Bewick's Swans was aged: 1,490 in east central England, 11 in northwest England and 117 in southwest England. Brood sizes were recorded for 108 families. No Bewick's swans were recorded at WWT Martin Mere (Lancashire) or Chew/Blagdon Lakes (Somerset) during the survey.

Overall, Bewick's Swan flocks contained 11.5% cygnets which fell below the previous ten-year average recorded at wintering sites in England ( $11.7\% \pm 1.3$  SE for 2008/09–2017/18). The mean brood size of pairs with young was 1.7 cygnets (Table 1).

Table 1: The percentage of young (%) and mean brood size for Bewick's Swans at sites in England during the 2018/19 winter (regions defined below).

Region	Total aged (number of young)	Percentage of young (%)	Number of broods (number of young)	Mean brood size
East Central England	1,490 (178)	11.9	103 (173)	1.7
Northwest England	11 (1)	Limited data	1 (1)	Limited data
Southwest England	117 (7)	6	4 (7)	1.8
<b>Overall</b>	<b>1,168(186)</b>	<b>11.5</b>	<b>108 (181)</b>	<b>1.7</b>

Regions (counties from which data were received in 2018/19):

- East Central England: Cambridgeshire (WWT Welney, Ouse Washes, Nene Washes), Norfolk (Ouse Washes) and Kent (Walland Marsh, St Mary's Marsh, Grove Ferry)
- Northwest England: Lancashire (WWT Martin Mere, Ribble Estuary)
- Southwest England: Gloucestershire (WWT Slimbridge), Somerset (Chew/Blagdon Lakes)

There was significant variation in the proportion of cygnets recorded in East Central England (11.9%) and Southwest England (6.0%) (Table 1;  $X^2_{21} = 3.8$ ,  $P = 0.05$ ).

The mean percentage of young in flocks at and around WWT centres (WWT Welney, Ouse/Nene Washes and WWT Slimbridge), where data is collected annually, was 11.5% ( $n = 1,573$ ), which was similar to the previous five-year and ten-year averages ( $11.9\% \pm 2.0$  SE and  $11.4\% \pm 1.3$  SE, respectively) for these sites (Table 1, Figures 2 & 3). The mean brood size of 1.7 cygnets (108 broods) in and around WWT centres also equalled the previous ten-year mean ( $1.7 \pm 0.1$  SE).

No Bewick's Swans were recorded in Ireland in January 2019 (G. McElwaine pers. Comms).

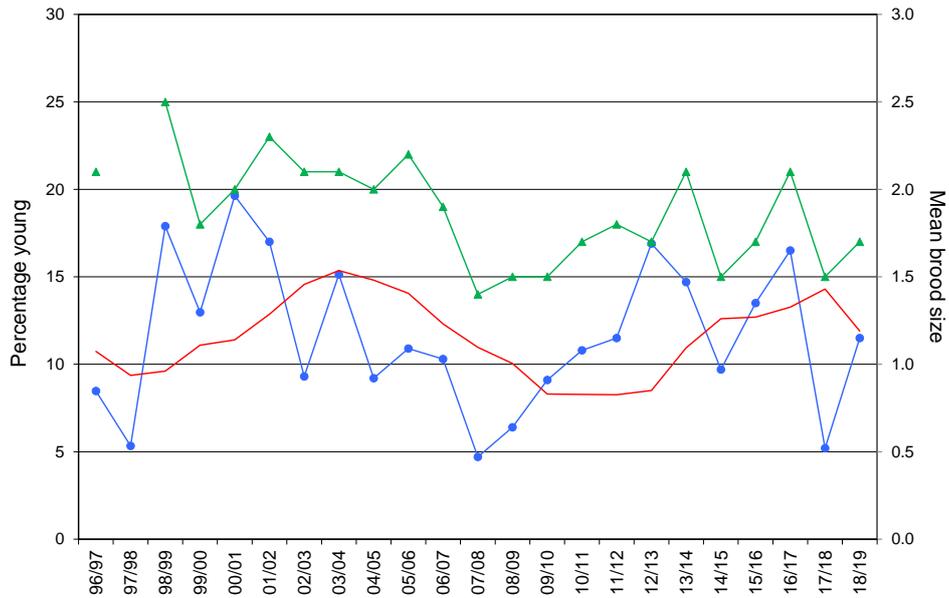


Figure 2: The percentage of young (blue circles), with the rolling five-year mean of % young (red line). Mean brood size (green triangles) is for Bewick's Swans recorded at WWT Slimbridge, WWT Welney / the Ouse and Nene Washes and WWT Martin Mere/the Ribble Estuary combined, 1996/97–2018/19. Five-year mean values for the percentage of young were calculated for the five years preceding the year in question (e.g. mean presented for 2018/19 is for 2013/14–2017/18).

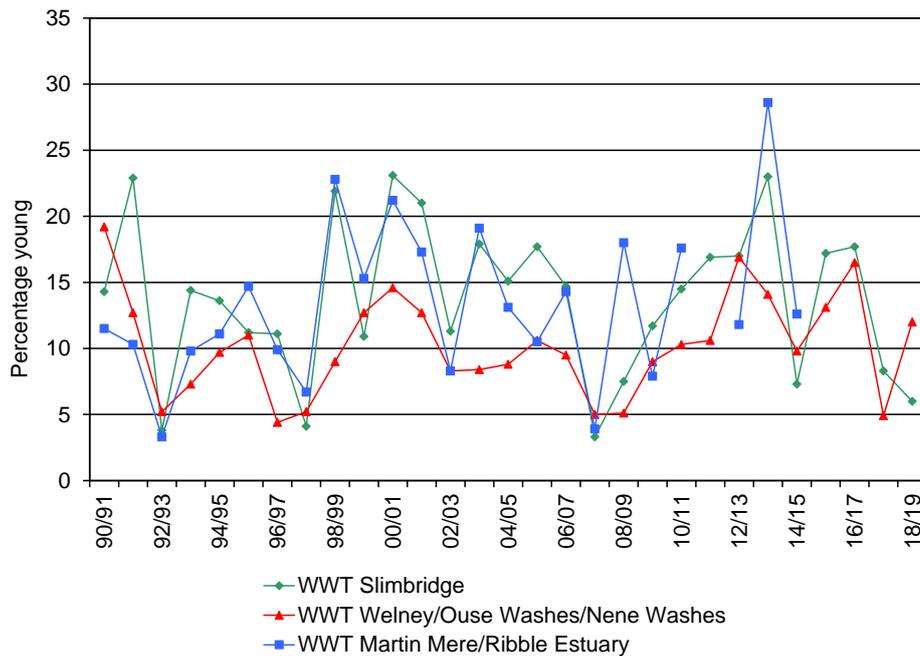


Figure 3. The percentage of young Bewick's Swans recorded at WWT Slimbridge, WWT Welney/Ouse Washes/ Nene Washes and WWT Martin Mere/Ribble Estuary, 1990/91–2018/19. The percentage young for WWT Martin Mere/Ribble could not be derived from age assessments collected between 2015/16 and 2018/19 due to limited data (*i.e.* <12 swans aged).

### 3. Discussion

Overall, Bewick's Swans wintering in England had an average breeding season in 2018 with 11.5% young recorded in flocks wintering at or nearby WWT sites and across the country as a whole. This was similar to the ten-year mean (11.4%) recorded for these key sites.

An international age count held between 14 and 17 December 2018 support these findings. Preliminary results indicate that 9,262 Bewick's Swans were aged in ten countries across northern Europe (including England) and, overall, 8.7% young was found in the flocks surveyed. This is above the percentage of young found in 2017 (3.9 %) (W. Tijsen and J. Beekman pers. comm.). The mean brood size was 1.9 cygnets (in 298 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). However, temperatures in the Pechora Delta (in the vicinity of an important breeding area for the species) in May 2018 averaged 0.7 °C which was lower than the previous five year averages for the area (of 3.1°C) (TuTiempo 2018). Therefore, other factors such as predator (Arctic fox) abundance may be influential (Wood *et al.* 2016). Inter-annual variability in breeding success is sensitive to the combined effects of both intrinsic and extrinsic factors (Wood *et al.* 2016).

#### 4. Acknowledgements

Special thanks to all observers who took part in the age counts, and also to our colleagues in The Netherlands who coordinate the international age count and kindly provided their data for us to use here.

#### 5. References

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This report should be cited as:

WWT. 2019. *Goose & Swan Monitoring Programme: survey results 2018/19 Bewick's Swan* *Cygnus columbianus bewickii* WWT/JNCC/SNH, Slimbridge.

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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 and Scottish Natural Heritage.



## Goose & Swan Monitoring