

# WWT/JNCC/NatureScot Goose & Swan Monitoring Programme survey results 2019/20

## Whooper Swan *Cygnus cygnus*

### 1. Abundance

The abundance of Whooper Swan in the UK and the Republic of Ireland in 2019/20 was monitored through the Wetland Bird Survey (WeBS) and the Irish Wetland Bird Survey (I-WeBS), respectively. Results from these schemes are presented in reports which are available via the schemes' websites.

#### International Swan Census

The International census of the Icelandic Whooper Swan population is carried out every five years. The 8th census was carried out in January 2020 and the results will be available in autumn 2021.

The census is organised overall by the IUCN SSC Swan Specialist Group, and coordinated in Britain, Ireland and Iceland by WWT in partnership with Birdwatch Ireland, the Irish Whooper Swan Study Group and colleagues in Iceland.

The 7th international census took place in January 2015. A total of 34,004 Whooper Swans was recorded, representing an increase of 16% since the previous census in 2010 (Figure 1). The results from this census have been presented in Hall *et al.* (2016).

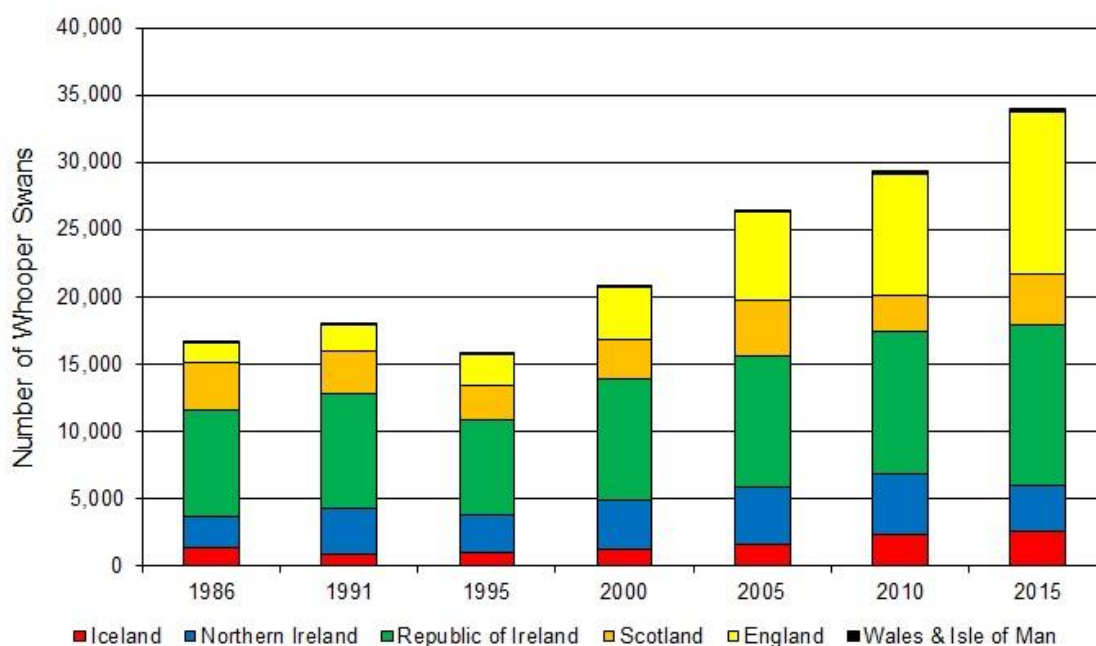


Figure 1: The number of Icelandic Whooper Swans recorded during the International Swan Census, 1986–2015. Note: Wales and the Isle of Man are combined as each holds less than 1% of the total population.

### 2. Breeding success

Whooper Swan age assessments were conducted in fifteen regions across Britain and Ireland during winter 2019/20 (Table 1). Age assessments were made in all regions in mid-winter (9–15 January 2020), to

coincide with the International Swan Census when more flocks were covered across the flyway and when the majority of families were likely to have arrived from Iceland to wintering sites (Rees *et al.* 1997). Regional variation in the percentage of young and mean brood size was assessed to determine any bias in the geographical distribution of family parties.

A total of 30,185 Whooper Swans was aged (88.8% of the total population; Hall *et al.* 2016): 12,423 birds in England, 3,285 in Scotland, 193 in Wales, 27 in the Isle of Man, 4,125 in Northern Ireland and 10,132 in the Republic of Ireland (Table 1). Overall, 17.1% of birds were cygnets, this being higher than the previous ten-year mean for Whooper Swans wintering at sites in Britain and Ireland ( $15.8\% \pm 0.6$  SE for 2009/10–2018/19). The mean brood size for pairs with young was 2.03 which was slightly higher than the previous ten-year mean ( $2.00 \pm 0.03$  SE for 2009/10–2018/19).

*Table 1: The percentage of young (%) and mean brood size of Whooper Swans during the 2019/20 winter (regions defined below).*

Region	Total aged (number of young)	Percentage of young (%)	Number of broods (number of young)	Mean brood size
North & Northeast England	242 (35)	14.5	14 (33)	2.36
Northwest England	2,478 (494)	19.9	149 (387)	2.6
Central England	434 (93)	21.4	3 (3)	1
East Central England	9,264 (1,133)	12.2	582 (1,078)	1.85
Southwest England	5 (0)	0	—	—
North Scotland	1,474 (336)	22.8	57 (138)	2.42
Central Scotland	497 (103)	20.7	45 (89)	1.98
East Scotland	157 (23)	14.6	7 (18)	2.57
West Scotland	182 (38)	20.9	16 (33)	2.06
South Scotland	975 (154)	15.8	56 (119)	2.13
Isle of Man	27 (5)	18.5	3 (5)	1.67

Region	Total aged (number of young)	Percentage of young (%)	Number of broods (number of young)	Mean brood size
North Wales	125 (20)	16	6 (14)	2.33
Northwest Wales	68 (19)	27.9	—	—
Northern Ireland	4,125 (825)	20	373 (749)	2.01
Republic of Ireland	10,132 (1,888)	18.6	715 (1,438)	2.01
<b>Overall</b>	<b>30,185 (5,166)</b>	<b>17.1</b>	<b>2,206 (4,104)</b>	<b>2.03</b>

Regions (counties from which data were received in 2019/20):

- **North & Northeast England:** Yorkshire, Northumberland
- **Northwest England:** Lancashire (WWT Martin Mere/Ribble Estuary), Cumbria
- **Central England:** Cheshire, Shropshire, Nottinghamshire
- **East Central England:** Cambridgeshire and Norfolk (WWT Welney/Ouse Washes/Nene Washes), Lincolnshire, Suffolk
- **Southwest England:** Gloucestershire
- **Southwest Scotland:** Dumfries & Galloway (WWT Caerlaverock)
- **North Scotland:** Aberdeenshire, Sutherland, Shetland, Ross & Cromarty, Outer Hebrides, Orkney, Moray, Inverness-shire, Caithness
- **Central Scotland:** Stirlingshire, Perthshire, Midlothian, Lanarkshire
- **East Scotland:** Fife
- **West Scotland:** Argyll and Bute, Renfrewshire, Kintyre, Ebeudes, Dunbartonshire, Clyde
- **South Scotland:** Wigtownshire, Selkirkshire, Roxburghshire, Kirkcudbrightshire, Borders, Ayrshire
- **Isle of Man**
- **North Wales:** Anglesey, Flintshire, Carmarthenshire, Caernarvonshire
- **Northwest Wales:** Merionethshire
- **Northern Ireland:** Co. Antrim, Co. Armagh, Co. Down, Co. Fermanagh, Co. Londonderry, Co. Tyrone
- **Republic of Ireland:** Co. Cavan, Co. Clare, Co. Cork, Co. Donegal, Co. Galway, Co. Kerry, Co. Leitrim, Co. Limerick, Co. Mayo, Co. Meath, Co. Monaghan, Co. Offaly, Co. Roscommon, Co. Sligo, Co. Tipperary, Co. Waterford, Co. Wexford and Co. Wicklow

There was evidence of variation in the distribution of families between regions ( $X^2_{12} = 264.8$ ,  $P < 0.05$ ).

Overall, higher breeding success was found for those wintering in more northerly regions (Scotland and Northern Ireland) compared to those in more southerly regions (England, IoM, Wales and the Republic of Ireland) (24.9 %,  $n = 7,410$  and 19.3 %,  $n = 22,775$ , respectively) ( $X^2_1 = 55.8$ ,  $P = < 0.05$ ).

Age assessments of Whooper Swans have been regularly undertaken at and around WWT centres (WWT Welney/Ouse and Nene Washes, WWT Martin Mere/Ribble Estuary and WWT Caerlaverock) since the early 1980s. In 2019/20, the mean percentage of young in flocks at these sites combined, was 13.6% (11,432 birds aged) (Figure 2), which is the same as the previous ten-year mean (2009/10–2018/19; 13.6 %  $\pm$  0.69

SE); whilst the mean brood size was 2.00 cygnets per family, this being higher than the previous ten-year mean (2009/10–2018/19;  $1.96 \pm 0.03$  SE).

At the individual sites, the percentage of young was highest amongst flocks at WWT Martin Mere/Ribble Estuary (19.9%), with 17.6% and 12% recorded at WWT Caerlaverock and WWT Welney/Ouse and Nene Washes, respectively (Figure 3). Mean brood size was, however, highest at WWT Caerlaverock (2.92 cygnets per family), whilst 2.58 cygnets and 1.84 cygnets were recorded at WWT Martin Mere/Ribble Estuary and WWT Welney/Ouse and Nene Washes, respectively.

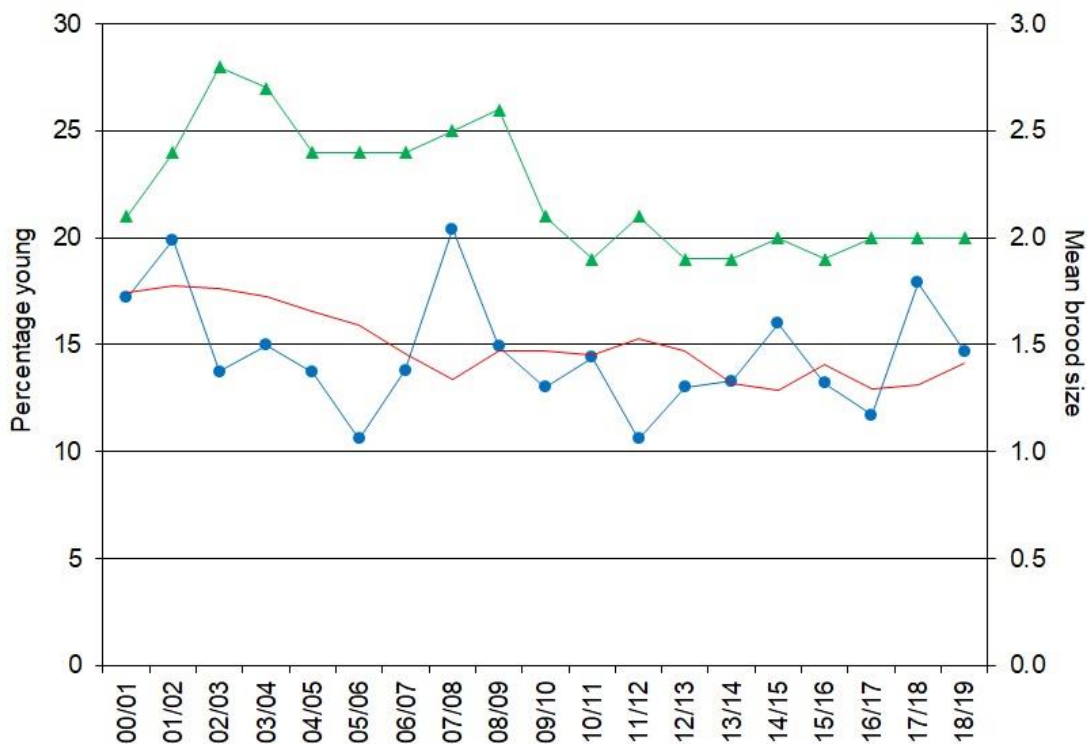


Figure 2: The percentage (%) of young (blue circles), with the rolling five-year mean (red line), and mean brood size (green triangles) of Whooper Swans recorded at WWT Welney/Ouse and Nene Washes, WWT Caerlaverock and WWT Martin Mere/Ribble Estuary, 2005/06–2019/20. Five-year mean values for the percentage of young were calculated for the five years preceding the year in question (e.g. mean presented for 2019/20 is for 2014/15–2018/19).

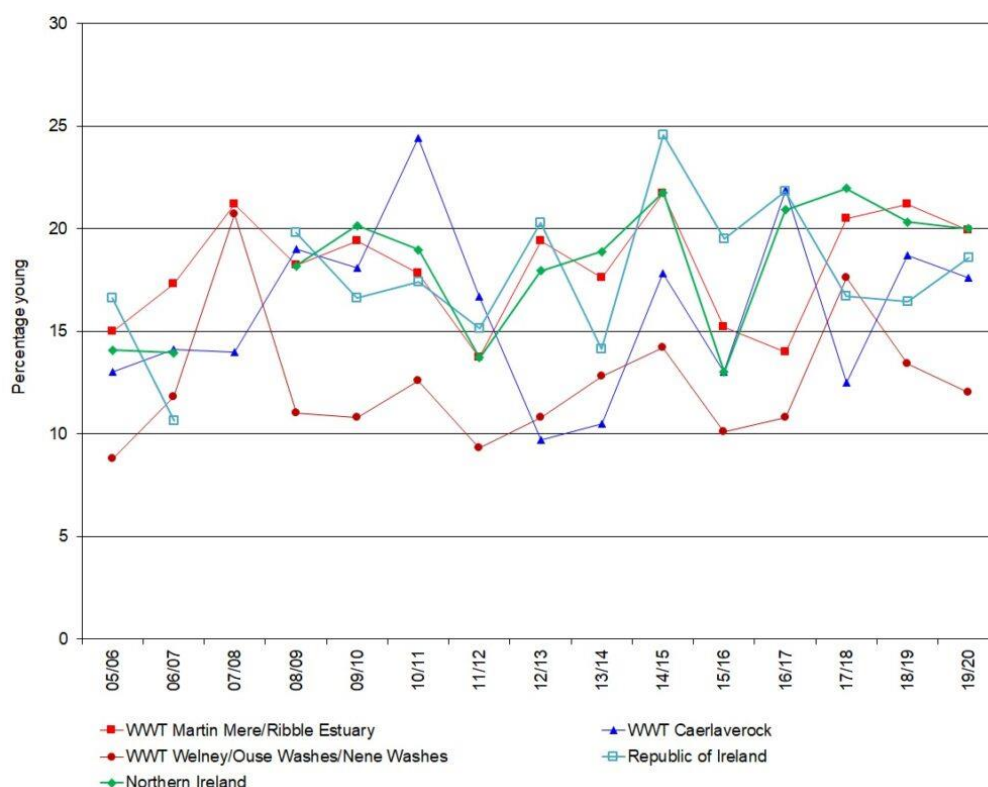


Figure 3. The percentage of young Whooper Swans recorded at WWT Martin Mere/Ribble Estuary, WWT Caerlaverock, WWT Welney/Ouse Washes and Nene Washes (Britain), Northern Ireland and the Republic of Ireland, 2005/06–2019/20.

### 3. Discussion

In 2019, Icelandic Whooper Swans experienced a fairly average breeding season. The overall percentage of young for flocks wintering in Britain and Ireland was only slightly higher (by c.1%) than the previous ten-year mean; while the percentage of young recorded amongst flocks at and around WWT centres (for which there is a long-term dataset) was the same as the previous ten-year mean.

The mean temperature (9.3°C) for Akureryi, a key breeding area, in June 2019, was slightly lower than the June temperature recorded in the previous five years (2014–2018; 10.2 °C; Tutiempo 2020); however, no extreme conditions were reported from the breeding grounds and, therefore, unlikely to have impacted the swans' breeding success.

Higher breeding success was found in northern regions of Britain and Ireland compared with southern regions which may reflect a general preference for Whooper Swan families to select wintering sites closest to their Icelandic breeding grounds (Rees *et al.* 1997).

### 4. Acknowledgements

Special thanks to all observers and Local Organisers who took part in the international census and the productivity surveys, including the WeBS, I-WeBS, Irish Whooper Swan Study Group and GSMP networks. We are especially grateful to Brian Burke and Graham McElwaine for coordinating the surveys across Ireland.

## 5. References

Hall, C., O. Crowe., G. McElwaine., O. Einarsson., N. Calbrade & E. Rees. 2016. Population size and breeding success of the Icelandic Whooper Swan *Cygnus cygnus*: results of the 2015 international census. *Wildfowl* 66: 75–97.

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## Goose & Swan Monitoring