

WWT/JNCC/SNH Goose & Swan Monitoring Programme  
survey results 2015/16  
Dark-bellied Brent Goose *Branta bernicla bernicla*

## 1. Abundance

The abundance of Dark-bellied Brent Geese in the UK during 2015/16 was monitored through the Wetland Bird Survey (WeBS). Results are available on WeBS Report Online.

## 2. Breeding success

The winter of 2015/16 marked the 31st consecutive winter that experienced volunteer observers assessed the breeding performance of Dark-bellied Brent Geese (for methods see Hall 2008). Geese were aged at 69 localities within 12 estuaries or coastal areas, from Lindisfarne, Northumberland to the Exe Estuary in Devon (Figure 1 & Table 1). Data were collected between 20 September 2015 and 8 March 2016.

Of the 96 flocks assessed, the majority were aged in November (28.6%) with 19.8% aged in October, 17.6% in January and 15.4% in December. Fewer flocks were aged in February (13.2%), March (4.4%) and September (2.0%) (Table 2).

A total of 40,060 geese were aged; a similar number to those aged in 2014/15, but 33.6% lower than the previous five-year mean. The largest sample came from the North Lincolnshire Coast with 12,231 geese aged. Samples of more than 2,000 birds were received from the Dengie Estuary (8,376), in North Norfolk (5,474), Chichester Harbour (4,152), the Blackwater Estuary (2,674) and the Thames Estuary (2,635). Sample sizes of fewer than 2,000 birds were from the Solent (1,174), the Crouch Estuary (1,083), the Exe Estuary (892), Stour Estuary (745), Hamford Water (606) and Lindisfarne (18).

The overall percentage of young birds was 0.9% and, of the 110 broods recorded, the mean brood size was 1.57 ( $\pm 0.09$  SE) young per successful pair (Figure 2).

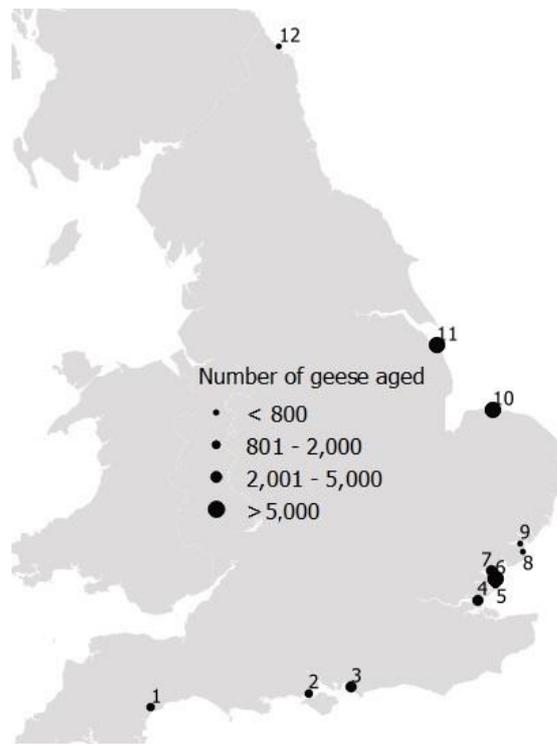


Figure 1. Sites in the UK at which Dark-bellied Brent Geese were aged during winter 2015/16. See Table 1 for key to sites.

Table 1. Numbers of Dark-bellied Brent Geese aged at UK estuaries and coastal areas in winter 2015/16.

Sample flocks								
Estuary	First count	Last count	number of flocks	Number of sites	Total aged	Percentage of young (%)	Mean brood size	SE
1 Exe Estuary	20/09/2015	17/01/2016	7	4	892	0.8	–	
2 The Solent	24/10/2015	16/01/2016	4	3	1,174	1.1	1.56	0.34
3 Chichester Harbour	18/10/2015	28/01/2016	15	11	4,152	0.8	1.68	0.23
4 Thames Estuary	04/10/2015	02/02/2016	3	3	2,635	1.6	1.40	0.19
5 Crouch Estuary	02/12/2015	18/12/2015	2	1	1,083	2.0	1.40	0.24
6 Dengie Estuary	11/11/2015	25/12/2015	4	2	8,376	0.8	1.36	0.23
7 Backwater Estuary	06/12/2015	23/12/2016	2	1	2,674	1.4	–	–
8 Hamford Water	11/11/2015	05/02/2016	4	4	606	0.8	–	–
9 Stour Estuary	01/11/2015	09/12/2015	5	4	745	1.47	–	–
10 North Norfolk Coast	14/10/2015	03/03/2016	18	16	5,474	0.6	1.60	0.19
11 North Lincs Coast	02/10/2015	08/03/2016	31	19	12,231	0.7	1.42	0.16
12 Lindisfarne	30/10/2015	30/10/2015	1	1	18	66.6	4.0	0.58
<b>Total</b>	<b>20/09/2015</b>	<b>08/03/2016</b>	<b>96</b>	<b>69</b>	<b>40,060</b>	<b>0.9</b>	<b>1.57</b>	<b>0.09</b>

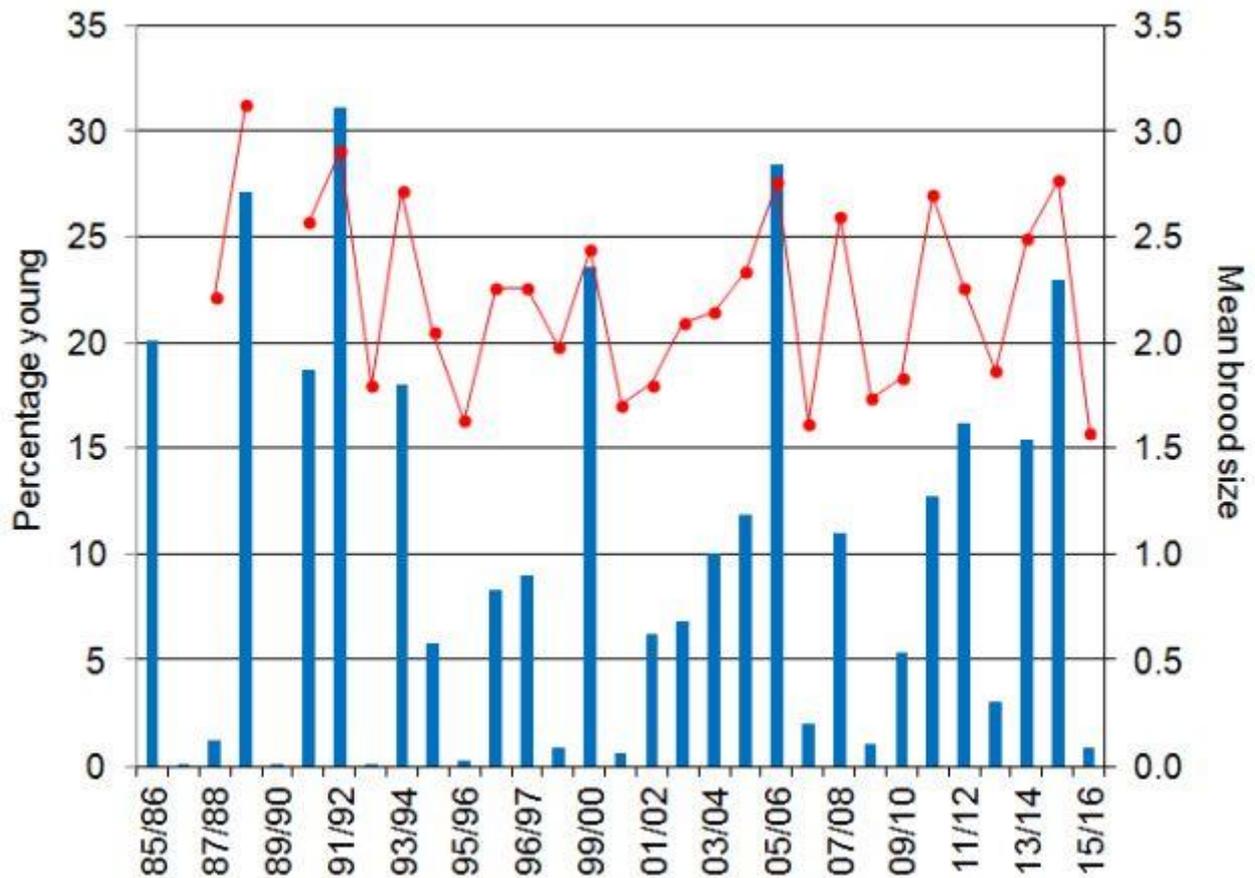


Figure 2. The percentage of young (blue columns) and mean brood size (red circles) of Dark-bellied Brent Geese recorded in the UK, 1985/86-2015/16. No brood size data were collected in 1985/86, 1986/87 or 1989/90.

The percentage of young in flocks remained fairly consistent throughout the winter and below 2% in all months except September (37.5%), however the sample size in September was very small compared to the other months (Table 2). The mean brood size of successful pairs peaked in October at 1.94 and ranged between 1.0 and 1.47 during other months.

Table 2. The percentage of young and mean brood size of Dark-bellied Brent Geese in the UK during winter 2015/16. Not included are 8 birds were aged in September with 3 of these being young birds.

Percentage of young		Mean brood size			
Month	%	n	Mean	SE	n
September	37.5	8			1
October	1.4	4,612	1.94	0.20	18
November	0.7	12,945	1.44	0.13	31
December	1.5	8,684	1.30	0.13	14
January	0.6	6,118	1.47	0.23	16
February	1.0	5,360	1.38	0.18	12
March	0.7	2,263	1.0	–	4
<b>Total</b>	<b>0.9</b>	<b>40,060</b>	<b>1.57</b>	<b>0.09</b>	<b>96</b>

The vast majority of flocks (90%, n = 86) held less than 5% young (Figure 3), thus very few flocks held >5% young; seven flocks (7.3%) held 5-15% young and the three remaining categories (15-30% young to >50% young) each held approximately 1% of the total number of flocks sampled.

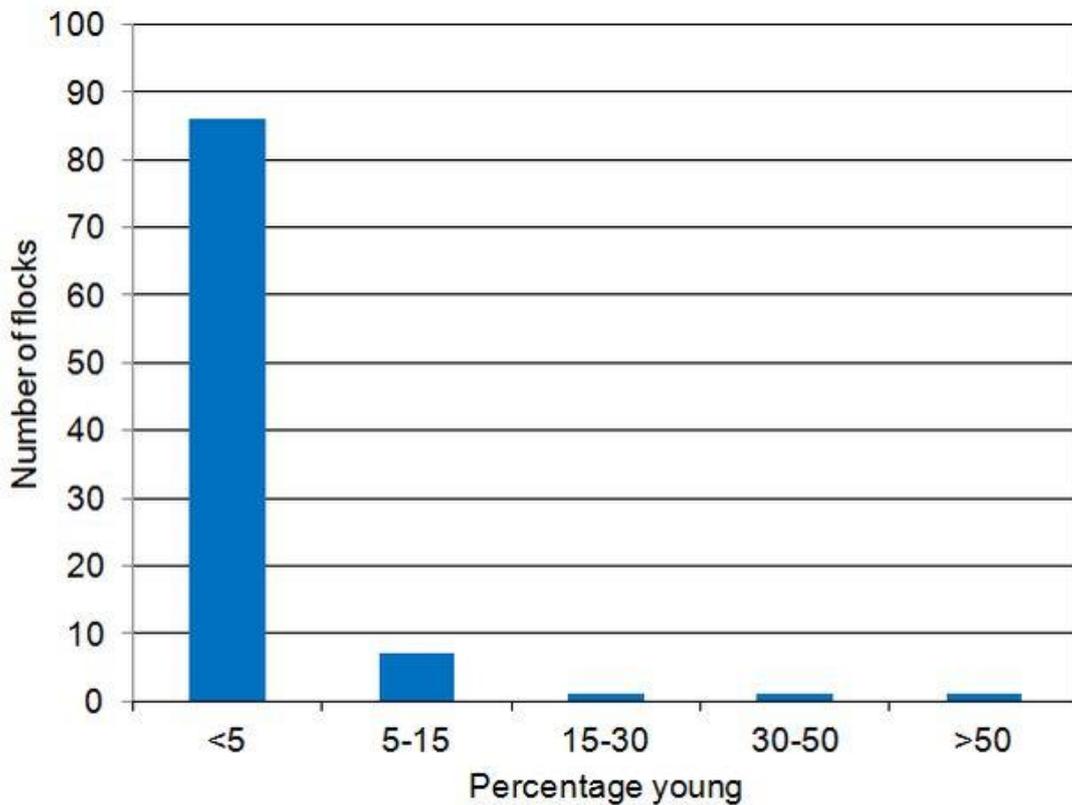


Figure 3. Frequency distribution of the percentage of young in individual flocks (n=91) of Dark-bellied Brent Geese in the UK during winter 2015/16.

The percentage of young was highest amongst flocks of fewer than 100 geese (4.1%) and was lowest amongst flocks of 1,000-1,999 geese (0.7%). Mean brood size ranged from 1.36 to 2.0 young per successful pair (Figure 4).

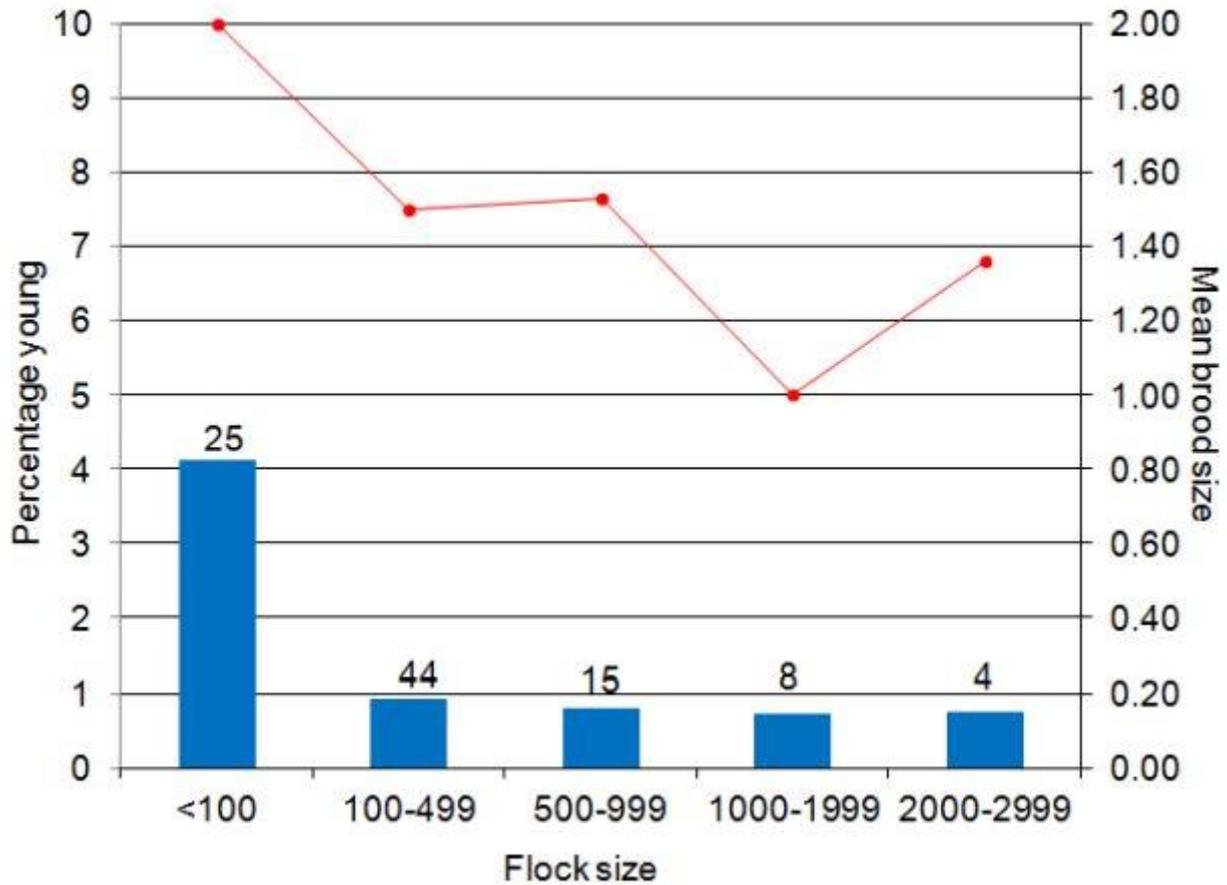


Figure 4. The percentage young (blue column) and mean brood sizes (red circles) of Dark-bellied Brent Geese in the UK flocks of different sizes during winter 2015/16. Sample sizes (number of flocks) are represented on the graph.

Dark-bellied Brent Geese were recorded using five main habitat types in 2015/16; water, intertidal (including *Enteromorpha* spp., and *Zostera*), saltmarsh, grass and cereal fields (including arable stubbles and oilseed rape). The highest percentage of young was seen amongst flocks feeding on intertidal habitats (1.4%). Mean brood size ranged from 1.20 ( $\pm 0.20$  SE) to 2.0 ( $\pm 0.19$  SE).

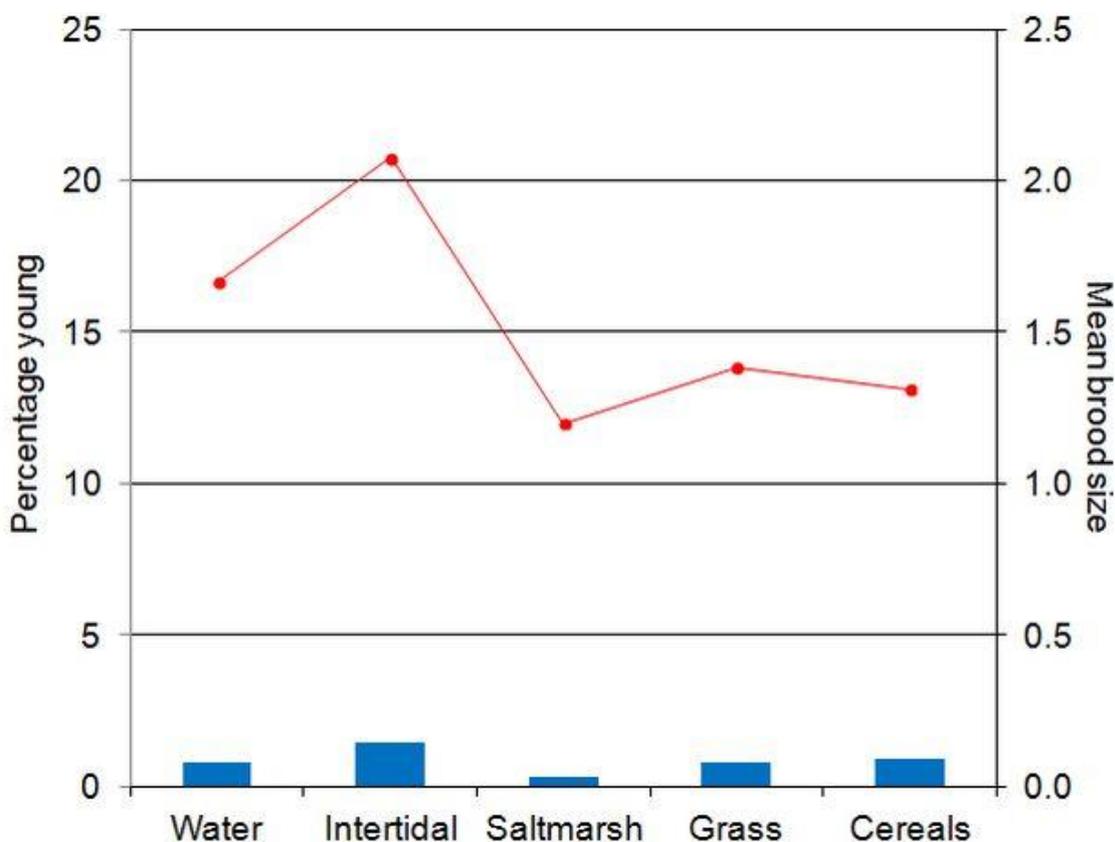


Figure 5. The percentage young (blue column) and mean brood sizes (red circles) of Dark-bellied Brent Geese in the UK recorded in different habitat groups during winter 2015/16. Sample sizes (total number aged) are given above the columns.

### 3. Discussion

Results from age assessments made at wintering sites in the UK indicate that the breeding success of Dark-bellied Brent Geese in 2015 was well below the previous ten year average ( $11.8\% \pm 2.91$  SE), and 22.1% lower than the previous year. Mean brood size was lower than in 2014/15 and also below the previous ten-year mean ( $2.26 \pm 0.14$  SE).

No data on breeding success among birds wintering outside the UK are available at the current time, so it is uncertain how representative the estimates from UK are. However, reports from monitoring stations along the breeding grounds in Arctic Russia indicate that rodent numbers were generally low in 2015 (Soloviev & Tomkovich 2016). As breeding success of Dark-bellied Brent Geese is greatly influenced by interactions between rodent abundance and predator pressure, the low rodent abundance and high numbers of Arctic Fox may explain why the geese had a poor breeding season in 2015.

#### Acknowledgements

As ever, thanks are extended to the many volunteer counters who provided Dark-bellied Brent Goose age counts.

## 4. References

Hall, C. 2008. *The breeding success of Dark-bellied Brent Geese Branta bernicla bernicla in 2007, as assessed in the UK*. Wildfowl & Wetlands Trust Report, Slimbridge.

Soloviev, M & P Tomkovich. (Eds.) 2016. Online database: <http://www.arcticbirds.ru/> Accessed June 2016.

This report should be cited as:

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# Goose & Swan Monitoring