

WWT/JNCC/SNH Goose & Swan Monitoring Programme

survey results 2010/11

Dark-bellied Brent Goose *Branta bernicla bernicla*

1. Abundance

The abundance of Dark-bellied Brent Geese during 2010/11 was monitored through the Wetland Bird Survey (WeBS). The latest WeBS results, for 2009/10, are published in Holt *et al.* 2011.

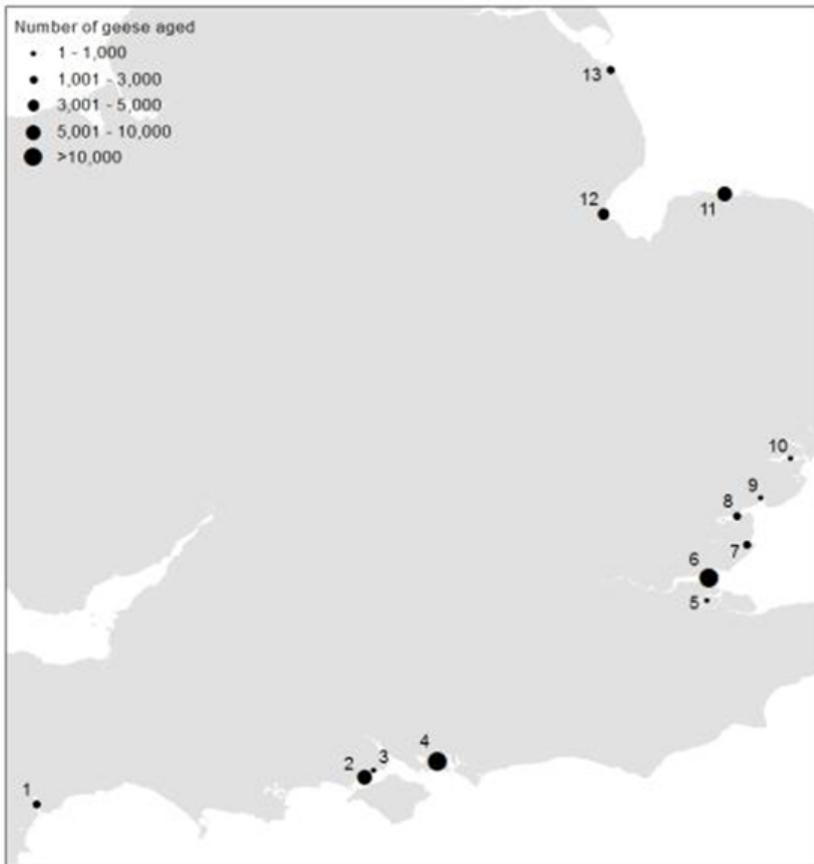
In 2009/10, the British maximum recorded by WeBS was 81,120 in February (Holt *et al.* 2011). This represents an 13% increase on the previous winter.

2. Breeding success

For the twenty-sixth consecutive winter, experienced volunteer observers assessed the breeding performance of Dark-bellied Brent Geese in winter 2010/11 (for methods see Hall 2008). Geese were aged at a total of 96 localities within 13 estuaries or coastal areas on the English east and south coasts, from Donna Nook on the North Lincolnshire Coast, to the Exe Estuary, Devon. Data were collected between 8 October 2010 and 13 March 2011.

Of the 166 flocks assessed, the majority (35%) were aged in October, 26.5% were observed in November, and 12% and 15.7% of the flocks were assessed in December and January, respectively. Only a few flocks were monitored in February (4.8%) and March (6%).

A total of 47,883 geese was aged; a decrease of 47% on the number aged in 2009/10 and 44% lower than the previous five-year mean. The largest numbers were aged at the Thames Estuary (12,109) and Langstone Harbour (11, 593). Between 4,000 and 7,000 individuals were aged at the North Norfolk Coast, The Solent and The Wash. Sample sizes at all other sites were smaller than 3,000 birds, with fewer than 500 geese aged at four sites. The overall proportion of young birds was 12.7% and of the 507 broods recorded, the mean brood size was 2.70 (\pm 0.06 SE) young per successful pair.



Sites in the UK at which Dark-bellied Brent Geese were aged during winter 2010/11. See table below for key to sites.

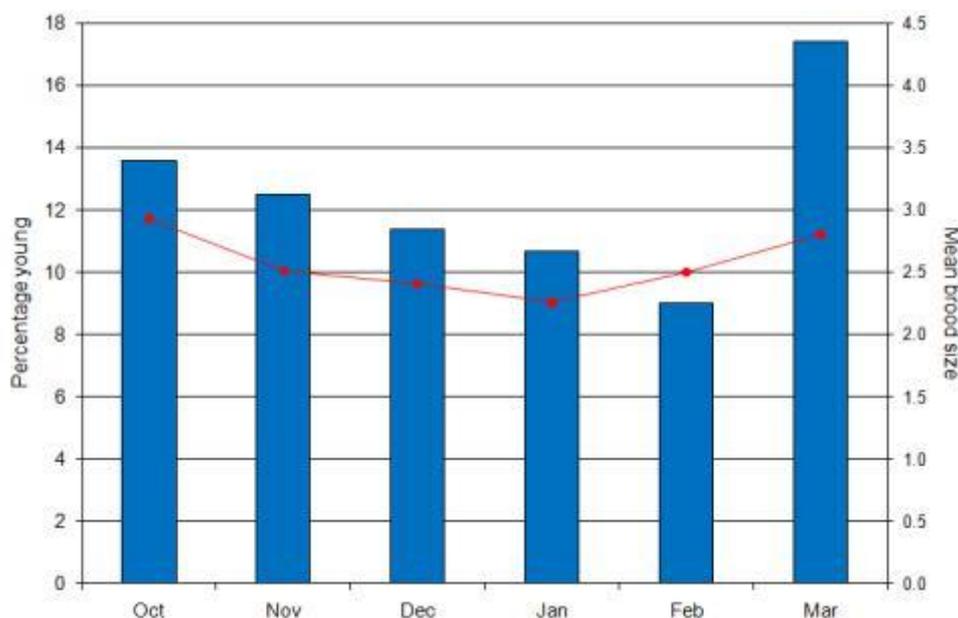
Numbers of Dark-bellied Brent Geese aged at British estuaries and coastal areas in winter 2010/11.

Estuary	Sample flocks			No. sites	Total aged	% young	Mean brood size	SE
	First	Last	n					
1 Exe Estuary	17 Oct	13 Mar	12	4	1,040	14.4	2.50	0.29
2 The Solent	8 Oct	16 Feb	35	9	5,087	8.8	2.53	0.17
3 Beaulieu Estuary	10 Oct	24 Oct	3	3	153	28.8	3.14	0.36
4 Langstone Harbour	14 Oct	11 Mar	50	33	11,593	15.4	2.66	0.10
5 Medway Estuary	06 Nov	06 Nov	3	3	38	47.4	3.75	0.75
6 Thames Estuary	08 Oct	31 Oct	12	3	12,109	12.6	2.94	0.15
7 Crouch Estuary	20 Oct	03 Mar	4	2	1,914	18.2	3.50	0.50
8 Blackwater Estuary	10 Nov	25 Nov	2	2	2,328	18.6	-	-
9 Colne Estuary	09 Oct	08 Nov	4	3	311	10.9	-	-
10 Stour Estuary	15 Nov	21 Jan	4	4	495	2.6	1.80	0.20
11 North Norfolk Coast	22 Oct	13 Mar	17	10	6,905	9.8	2.70	0.18
12 The Wash	11 Oct	06 Jan	12	12	4,165	10.1	2.84	0.24
13 North Lincolnshire Coast	17 Oct	18 Jan	8	8	1,745	9.3	1.75	0.25
Total	08 Oct	13 Mar	166	96	47,883	12.7	2.70	0.06

The percentage young present in flocks decreased through the winter from 13.6% in October to 9.0% in February, before rising to a peak in March (17.4%); note, sample sizes in the latter part of the winter were much lower than in the earlier months. The mean brood size of successful pairs fluctuated slightly throughout the winter, peaking at 2.93 (\pm 0.09 SE) in October; again, sample sizes were much smaller in the latter months.

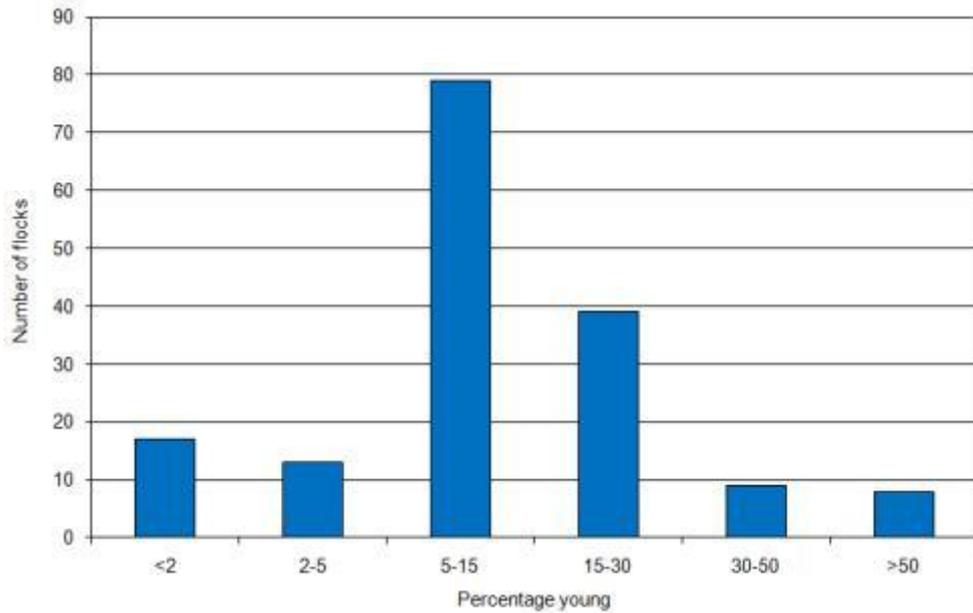
The proportion of young and mean brood size of Dark-bellied Brent Geese in the UK during winter 2010/11

Month	Proportion of young		Mean brood size		
	overall	n	Mean	SE	n
Oct	13.6	18,059	2.93	0.09	266
Nov	12.5	11,574	2.51	0.14	106
Dec	11.4	4,527	2.41	0.20	54
Jan	10.7	8,151	2.26	0.17	43
Feb	9.0	2,208	2.50	0.27	28
Mar	17.4	3,364	2.80	0.51	10
Total	12.7	47,883	2.70	0.06	507



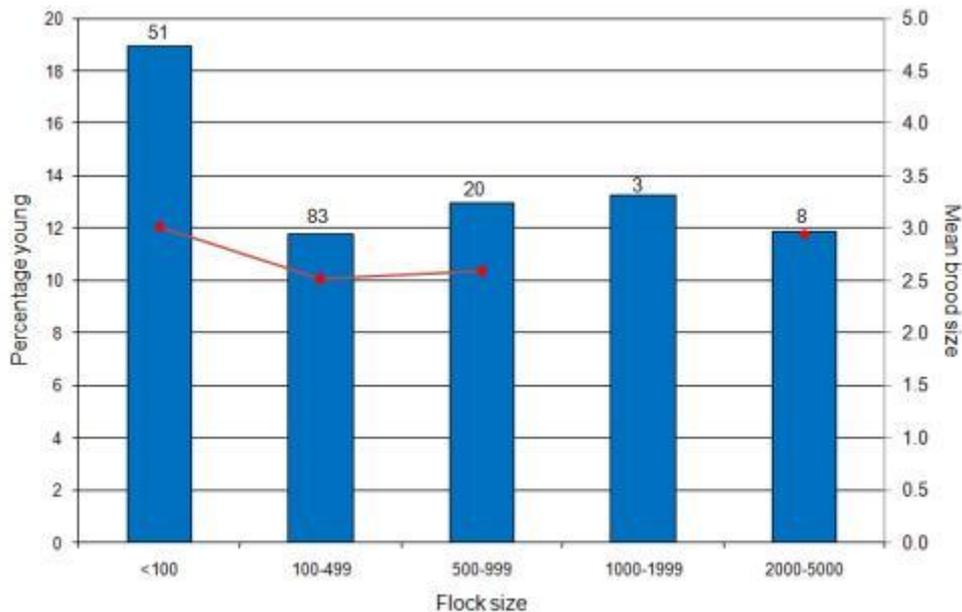
The percentage of young (blue columns) and mean brood size (red circles) of Dark-bellied Brent Geese in the UK during winter 2010/11.

The proportion of young within individual flocks varied from 0% to 60%. Almost half the flocks (47.9%; $n = 79$) contained 5-15% young, whilst 23.6% ($n = 39$) held 15-30%. Just over 18% ($n = 30$; excluding a flock of one adult) held less than 5% young; 17 flocks held less than 2%, 12 of which containing no young at all. The number of flocks in the top two classes was considerably lower; nine flocks (5.5%) held 30-50% young and eight (4.8%) held greater than 50%.



Frequency distribution of the percentage of young in individual flocks (n=166) of Dark-bellied Brent Geese in the UK during winter 2010/11.

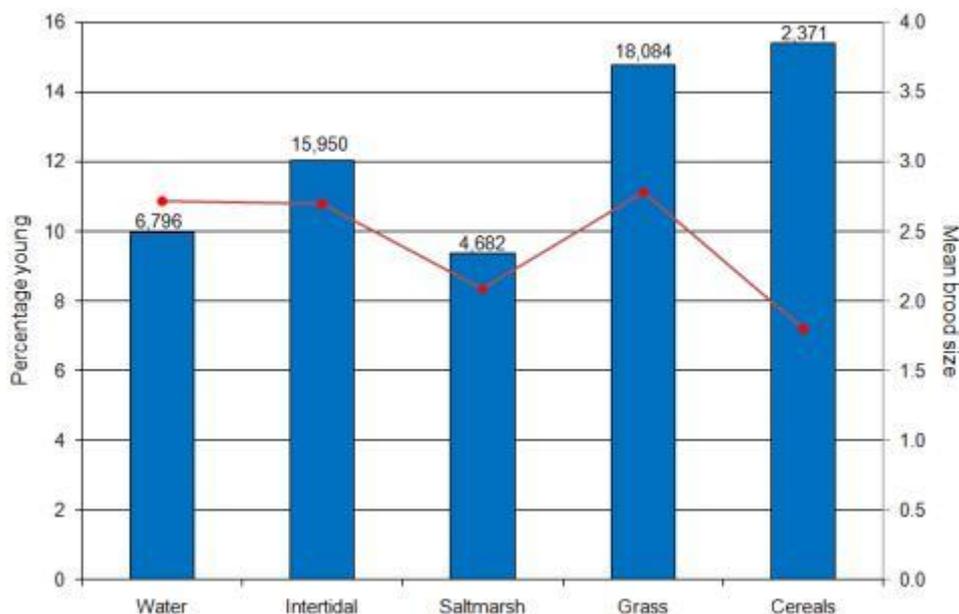
The proportion of young was highest (19.0%) amongst flocks of fewer than 100 geese, whilst the number of juvenile birds seen in flocks of the other size classes was relatively similar, with the lowest (11.8%) observed in flocks of 10-499 birds. Mean brood size varied between 2.52 (± 0.14 SE) and 3.01 (± 0.08 SE) young per successful pair. No brood sizes were recorded in flocks of 1,000-1,999 birds.



The percentage of young (blue columns) and mean brood size (red circles) of Dark-bellied Brent Geese in the UK in flocks of different size during winter 2010/11 (sample sizes are given above columns). No brood sizes were collected for flocks of 1,000-1,999 birds.

Geese were recorded at five main habitat types; water, intertidal (including *Enteromorpha* spp., *Ulva* spp., and *Zostera* beds), saltmarsh, grass/pasture and cereal fields, including stubble and oilseed rape. The majority of geese (37.8%) were aged in grass fields, whilst 33.3% were observed on intertidal habitats. Notably lower numbers were seen on water (14.2%), saltmarsh (9.8%) and cereals (15.4%).

The highest proportion of young was seen amongst flocks in grass (14.7% young) and cereal (15.4%) fields, as would be expected as these habitats have the higher nutritional value. The lowest was amongst flocks found on saltmarsh (9.4%). Mean brood size varied between 1.80 (± 0.20 SE) and 2.78 (± 0.12 SE) young per successful pair.



The percentage of young (blue columns) and mean brood size (red circles) of Dark-bellied Brent Geese in the UK recorded in different habitat groups during winter 2010/11. Sample sizes 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 was above the recent average ($8.3\% \pm 2.57$ SE; 2000/01 - 2009/10) and 7.4% higher than the previous year. Mean brood size was also higher than in 2009/10 and slightly above the previous ten-year mean (2.06 ± 0.12 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 and predators numbers were generally low in 2010 (Soloviev & Tomkovich 2011), although there were a couple locations on the Taimyr Peninsular where lemmings were numerous. As breeding success of Dark-Bellied Brent Geese is greatly influenced by interactions between rodent abundance and predator pressure, it is possible that the low number of predators allowed the geese to breed relatively successfully.

4. References

Soloviev, M & P Tomkovich. (Eds.) 2011. *ARCTIC BIRDS: an international breeding conditions survey*. Online database: <http://www.arcticbirds.ru/> Accessed June 2011.

This report should be cited as:

WWT. 2011. *Goose & Swan Monitoring Programme: survey results 2010/11 Dark-bellied Brent Goose Branta bernicla bernicla*. WWT/JNCC/SNH, Slimbridge.

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Goose & Swan Monitoring