

WWT/JNCC/SNH Goose & Swan Monitoring Programme survey results 2006/07

Dark-bellied Brent Goose *Branta bernicla bernicla*

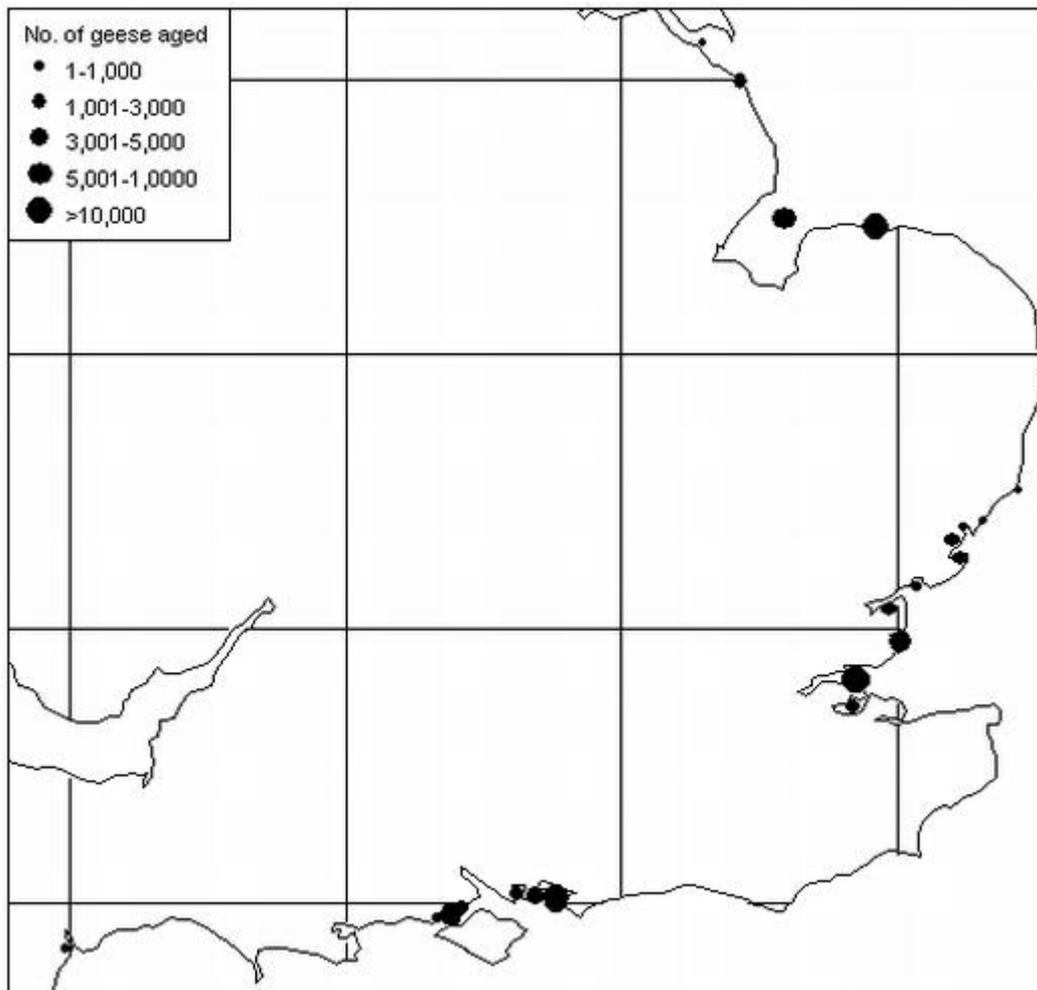
1. Abundance

The abundance of Dark-bellied Brent Geese during 2006/07 was monitored through the Wetland Bird Survey (WeBS).

2. Breeding success

For the twenty-second consecutive winter, experienced voluntary observers assessed the breeding performance of Dark-bellied Brent Geese in winter 2006/07. Geese were aged at a total of 157 localities within 23 estuaries or coastal areas on the English east and south coasts from Northumberland to Devon.

Of the 272 flocks assessed, 15.1% were in October, the majority were in November (35.7%) decreasing to 19.9% in December through to 3.7% in March. A total of 86,581 geese was aged, the largest numbers at the North Norfolk Coast (20,684), the Thames Estuary (13,143) and Chichester Harbour (10,627). Between 5,500 and 7,400 birds were aged at The Wash, the Crouch Estuary, and The Solent, with sample sizes at all other estuaries and coastal areas smaller than 5,000 birds.



Sites at which Dark-bellied Brent Geese were aged during winter 2006/07. Geese were also aged at Lindisfarne, Northumberland (120), but this is not shown on the map

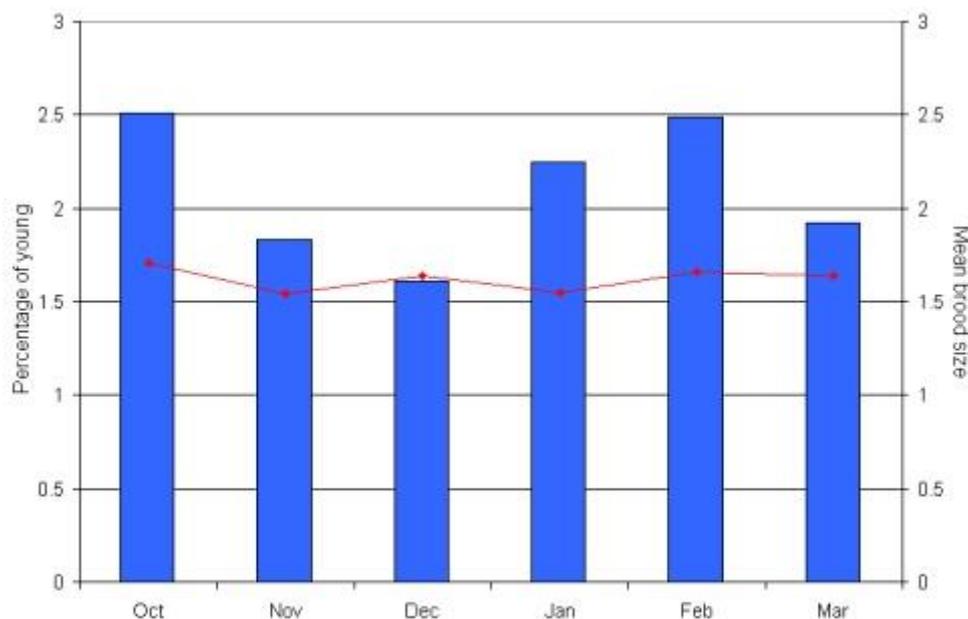
The overall proportion of juvenile birds present was 2.07%, varying throughout the winter from 2.51% in October to 1.61% in December. Only one age assessment was made in April, which was of a single flock of 10 birds, which contained no young.

The proportion of young and mean brood size of Dark-bellied Brent Geese in the UK during winter 2006/07.

Month	Proportion of young		Mean brood size		
	overall	n	Mean	s.e.	n
Oct	2.51	17,736	1.71	0.08	122
Nov	1.83	22,821	1.54	0.08	135
Dec	1.61	19,102	1.64	0.09	86
Jan	2.24	13,635	1.55	0.12	51
Feb	2.49	10,882	1.66	0.22	29
Mar	1.92	2,395	1.64	0.28	11
Apr	0	10	-	-	-
Total	2.07	86,581	1.62	0.04	434

The percentage of young within individual flocks varied from 0% to 62.5%. Over 60% of the flocks assessed held less than 2% young, with 27% containing 2-5% and considerably fewer flocks holding over 5% juveniles. The proportion of juveniles varied slightly across flock size, ranging from 1.85% young, observed in flocks of 1,000-1,999 geese, to 2.8% young, recorded in a single flock of greater than 5,000 birds.

Of the 434 broods recorded, the mean brood size per successful pair was 1.62 (\pm 0.04 s.e.). Mean brood size was fairly consistent across flock size categories, varying between 1.79 (\pm 0.18 s.e.) in flocks of 1,000-1,999 birds, to 1.52 (\pm 0.07 s.e.) in flocks of 500-999 birds.



The percentage of young (columns) and mean brood size (diamonds) of Dark-bellied Brent Geese in the UK during winter 2006/07.

Geese were recorded in 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, while 24.2% were aged on intertidal habitats and 22.9% in cereal fields. The fewest birds were aged on water (7.3%) and saltmarsh (7.8%). Intertidal habitats supported the highest proportion of young (2.38%), followed by grass (2.23%) and cereals (1.90%). Mean brood size was greatest in

flocks found on water ($1.93, \pm 0.24$ s.e.), although this habitat held the lowest proportion of young (1.42%), with the lowest on grass fields ($1.42, \pm 0.06$ s.e.).

3. Discussion

Following a successful breeding season in 2005, productivity data received from wintering sites in the UK indicate that 2006 was a poor breeding year for Dark-bellied Brent Geese. Notably fewer broods were observed (434) compared with 2005 (1,284; Hall 2006) reflecting the poor breeding success, with nearly 30% of the flocks assessed containing no young. The mean brood size per successful pair was also lower than in the previous year. Following the gradual increase of the previous five years, the proportion of young in 2006 dropped to its lowest since 2000, the mean brood size following a similar pattern, falling to the lowest recorded since 1995. Preliminary information from other wintering areas in western Europe also suggest a poor breeding year, with the possibility that flocks consisted of approximately 1% first-winter birds (B.S. Ebbinge pers. comm.).

The breeding success of Dark-bellied Brent Geese has previously been shown to follow a three-year cycle of good, poor and variable success (Dhondt 1987), and is greatly influenced by interactions between lemming abundance, predator pressure and other factors such as weather. In 2006, reports from monitoring stations along the Taimyr and Yamal Peninsulas in Russia indicated that lemmings were rare or absent on the breeding grounds - a predictable crash following the exceptionally high numbers recorded the previous year - and although not all outposts recorded the presence of Arctic Foxes, predators at the Gydan Peninsular were reported to be numerous (Soloviev & Tomkovich 2007). According to the cycle, the poor breeding season for Dark-bellied Brent Geese in 2006 was to be expected. However, between the mid 1990s and 2005, whilst there was still considerable annual variation in breeding success, the pattern had shifted away from a three-yearly cycle. This perhaps suggests that the connection between rodent abundance and breeding success may no longer function in the same way, or that rodent abundance is no longer following such a predictable pattern. Although in the most recent two years a poor breeding season has followed a notable high, it is still unclear whether this indicates a return to a regular three-yearly cycle.

4. References

- Hall, C. 2006. The breeding success of Dark-bellied Brent Geese *Branta bernicla bernicla* in 2005, as assessed in the UK. Wildfowl & Wetlands Trust Report, Slimbridge.
- Dhondt, AA. 1987. Cycles of lemmings and Brent Geese *Branta b. bernicla*: a comment on the hypothesis of Roselaar and Summers. *Bird Study* 34: 151-154.
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