



**An assessment of breeding success in the
Dark-bellied Brent Goose *Branta b. bernicla* in 1995**

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SUMMARY

113,663 Dark-bellied Brent Geese were aged at 17 estuaries in Britain between September and December 1995. The proportion of juvenile Brent Geese present was 0.3%, revealing an almost complete breeding failure in summer 1995. Of 208 broods recorded the mean brood size was 1.63 young per successful pair.

INTRODUCTION AND METHODS

Britain has long been a major wintering area for the Dark-bellied race of the Brent Goose *Branta b. bernicla* and the Government therefore has a special responsibility for these geese under international legislation (Stroud *et al.* 1990) and as a Red Data Book Species (Batten *et al.* 1990). Information is gathered not only about the abundance and distribution of Brent wintering in Britain (*e.g.* Mitchell & Cranswick 1994) but also on age-ratios (*e.g.* Mitchell & King 1994), through which estimations of the annual recruitment and survival can be made.

For the eleventh consecutive autumn, the breeding performance of Brent Geese was assessed by experienced voluntary observers. First year (young) Brent Geese have white edges on the wing coverts which is lacking in older birds. With a telescope and under good light conditions ageing is feasible from 400m. Sample sizes are variable, being determined by flock size and field situations. To determine brood size, distinct groups, composed of two or sometimes one adult plus one or more juveniles, recognised, for example, by spatial separation from other birds or a common activity such as walking or swimming together, have been regarded as a family. Counts were made between 19 September and 6 December. Observers were asked to note the location, date, time, and habitat for all observations and the sizes of flocks, number aged, total number of juveniles and brood sizes.

RESULTS

Summaries of the counts where birds were aged are given overleaf on a site by site basis (Table 1). Of 211 counts made, nine were in September, 27% in October, with the majority (64%) being recorded in November and ten counts in December. Including multiple observations (*e.g.* double counts) a total of 141,560 geese were counted and, of these, 113,663 were aged (an increase of 33% compared with 1994). These contained 374 young, a proportion of 0.3%. Geese were aged on 211 occasions at 93 coastal localities within 17 estuaries from Humberside to Devon (Figure 1). The largest numbers of birds aged were on the Thames Estuary (63,543), the Wash, (23,039) and on the Blackwater Estuary (16,815). Sample sizes at all other sites were less than 15,000 birds.

Although very small, the overall proportion of young present in flocks increased between October (0.12% young), November (0.41 %) to December (0.63%) as would be expected - non-breeding geese and failed breeding pairs tend to arrive in Britain a little ahead of the successful breeders and their young.

There was variation in the frequency of the proportion of young recorded - thus, 65 % of the age counts contained no young, 23% contained less than 1 % young (excluding no young) and 12% of the age counts showed greater than 1 % young. Note, however, that these values ignore the *number* of geese aged within each sample.

Geese were recorded in one of five habitat types - either water/sea, inter-tidal mud, marsh, grass fields or cereal fields. Sample sizes and locations varied, however, 54% were found on the first three categories (representing tidal estuary areas; note that water and mud often represent the same location but are tide dependant). A further 22% of Brent Geese were recorded on grass fields, 21 % on saltmarsh and 2.3% on cereal and sugar beet fields.

Table 1. Numbers of Dark-bellied Brent Geese counted and aged at 17 British estuaries in autumn 1995 and their distribution of flocks across habitats.

Estuary (see Figure 1)	Counts			No. Loc alities	Total Count	Total aged	No. young	% Young	Mean Brood size	% Distribution across habitats					
	First	Last	No.							Water	Mud	Marsh	Grass	Cereal	
Beaulieu	14 Oct	14 Oct	1	1	100	100	0	0	0	100					
Blackwater	9 Oct	2 Dec	15	8	16815	15671	81	0.52	1.58	21.6	4.4	74.0			
Chichester	22 Sep	1 Dec	24	20	11965	11559	13	0.11	1.00	2.4	0.6	46.5			
Caine	6 Nov	6 Nov	1	1	80	80	0	0	0		100				
Crouch	7 Nov	1 Dec	6	4	3666	3666	42	1.15	1.62	13.5		70.4	16.1		
Deben	22 Oct	22 Oct	1	1	95	95	0	0	0	100					
Exe	11 Oct	5 Nov	2	1	1092	890	0	0	0	100					
Langstone	20 Sep	3 Dec	22	11	12338	10522	85	0.81	1.95	9.9	15.2	73.1			
Medway	9 Nov	6 Dec	2	2	539	539	0	0	0		100				
North Norfolk	13 Oct	27 Nov	6	6	2329	2300	4	0.17	1.33	26.8	15.3	27.9	14.6		
Orwell	21 Oct	21 Oct	1	1	79	79	0	0	0		100				
Outer Humber	15 Nov	15 Nov	1	1	226	226	1	0.44	1.00						
Poole	26 Nov	2 Dec	2	3	152	152	3	1.97	1.50	78.3		21.7			
Solent	20 Sep	1 Dec	9	4	2179	2179	2	0.09	1.00	53.2	1.6	26.6			
Stour	20 Sep	20 Nov	12	7	3333	2782	0	0	0	90	10				
Thames	29 Sep	26 Nov	26	7	63543	40198	71	0.18	2.30	100					
Wash	11 Oct	2 Dec	12	15	23029	22625	72	0.32	1.27		97.5				2.5
Totals	19 Sep	6 Dec	211	93	141560	113663	374	0.33	1.63	13	41	21	22		2

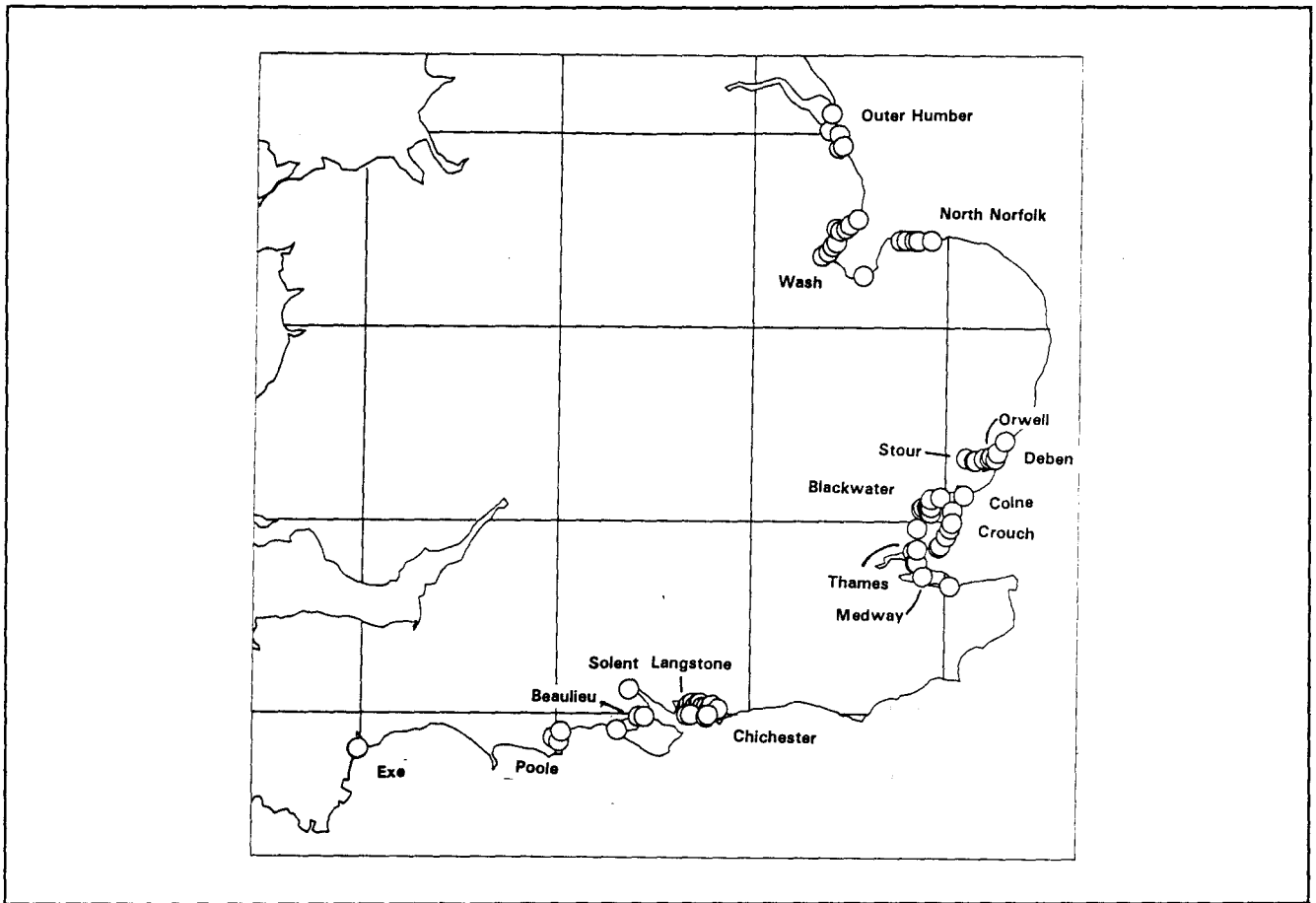


Figure 1. *The distribution of 93 coastal localities in 17 estuaries (shown) where Brent Geese were aged in 1995.*

METHOD LIMITATIONS

Counters were encouraged to check flocks whenever possible and no emphasis was placed on obtaining a co-ordinated census that avoided double counting. Thus, counts conducted at the same estuaries on different dates will have undoubtedly recorded some birds more than once in these totals. For example, the greatest number of counts from a single site was 26 from the Thames Estuary; 24 counts were received from Chichester Harbour and 22 counts were reported from Langstone Harbour. Some repeat counting of the same geese is therefore, probably inevitable.

DISCUSSION

The proportion of young present in Britain in 1995 is shown in comparison to the proportion recorded in each year since 1983 in Figure 2. The breeding 'failure' years occurred in 1984, 1986, 1987, 1989, 1992 and 1995. The poor breeding success in 1992 was also recorded for most other high latitude and Arctic breeding geese that wintered in Britain in 1992/93. Early indications from autumn age counts of other goose species indicate that 1995 was not a productive year for some of the other species.

Other populations of Brent Geese wintering in Europe have also shown low productivity in the 1995 breeding season. The Svalbard Light-bellied Brent Goose *Branta bernicla hrota* revealed 4.9% young (S.Percival pers.comm.) and the Canadian Light-bellied Brent Goose had a poor breeding season with only 352 young recorded in 8,999 birds aged (3.9% young, D Andrews & K.Mackie pers. comm.)

Information from the Continent confirms our findings. An estimate of breeding success from Dark-bellied Brent Geese checked in The Netherlands indicated less than one percent young in October (B.Ebbing pers.comm.).

Unfortunately, estimates of the world population of Dark-bellied Brent Geese are not available for January 1995. However, the maximum British count from the Wetland Bird Survey was 104,000. Assuming an average of 15% annual mortality (Summers & Underhill 1991) and virtually no productivity in 1995 revealed by this study, the mid-winter 1995-96 count in Britain may well see between *c.80,000* and *c.90,000* using British estuaries.

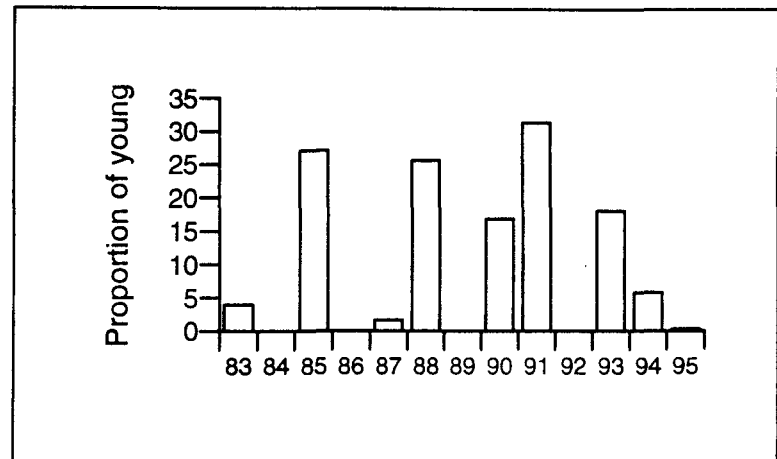


Figure 2. *The proportion of young Brent Geese recorded in Britain in 1983-1995.*

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