

NUMBERS OF DARK-BELLIED BRENT GESE IN BRITAIN, JANUARY/FEBRUARY 1991

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SUMMARY

Counts of Dark-bellied Brent Geese were undertaken in January and February 1991 at 41 coastal sites in Britain. Peak numbers occurred in February when an estimated 115,000 birds were present, the highest total yet recorded. Many sites held large numbers in comparison with earlier years. The principal concentration was present on the Wash which is outstanding in its importance for this sub-species.

INTRODUCTION

The coastline of Britain supports a large wintering population of Dark-bellied Brent Geese Branta b. bernicla and their numbers have been monitored on a site by site basis through the National Wildfowl Counts programme since the late 1940s. To supplement these counts, extra effort has been expended during the last five winters to ensure that as many of the geese are located as is practicable. This has become increasingly necessary as the British population has increased and expanded its range dramatically over recent decades. Also, as a result of such population growth, flocks now feed regularly on grasslands and arable crops, frequently at some distance from the coast, thus presenting further difficulties with regards to censusing them, and bringing the geese themselves into conflict with farmers.

The results of counts made in January and February 1991 are presented here, together with data from the previous four winters. The data are provided by the regular network of volunteers who undertake counts at coastal sites for the National Wildfowl Counts and the Birds of Estuaries Enquiry, on behalf of The Wildfowl & Wetlands Trust (WWT) and the British Trust for Ornithology (BTO), respectively.

METHODS

The sites included in this census are the principal sites for Dark-bellied Brent Geese in Britain (see Kirby & Salmon 1990). There are 41 sites included, most of which are estuaries as listed by Kirby *et al.* (1990), but two are non-estuarine sites, namely Thanet in north-east Kent and Foreland on the eastern shore of the Isle of Wight. All areas within each site were searched for geese on the specified dates in January (20th) and February (17th) 1991, or on alternative dates close to these, and adjacent inland areas known to support geese were also checked. At the larger sites several counters are involved, each visiting pre-defined sectors of the site. The numbers and precise localities of flocks are recorded, together with habitat details and notes on the activity and behaviour of the geese.

WEATHER CONDITIONS

In all three winters, the vast majority of sites were counted on the suggested date or on an alternative date close to it. In general, visibility and weather conditions were good during these counts, though the counts made in January 1988 and February 1990 were hampered, in some areas, by fog and strong winds respectively. The count weekend in February 1991 was particularly cold.

RESULTS

Table 1 shows the numbers of Dark-bellied Brent Geese recorded at each site in January and February 1988-1991, and gives total numbers for Britain in each month/year. The peak count recorded in 1991 was ca. 109,400 in February but, due to the incompleteness of the figures from a number of sites (notably Southampton Water and the Medway), the true total number of geese in Britain was probably around 115,000. This represents the highest total yet recorded. The total number in January 1991 was considerably lower, probably around 88,000, so there had undoubtedly been a sizeable influx between these dates.

The counts made at numerous sites in 1991 were relatively high compared with previous winters (Table 1). Of particular note were the totals from the Exe (1,526, Feb.), Poole Harbour (1,512, Jan.), Yar (1,200, Feb.), Brading Harbour (1,245, Feb.), Thames (12,419, Feb.), Crouch/Roach (8,388, Feb.), Hamford Water (6,889, Feb.) and Deben (2,051, Jan.). By far the largest change in numbers between January and February 1991 occurred on the Thames.

As usual, the geese foraged entirely within the intertidal zone in many areas, but there was extensive and widespread usage of grasslands and cereal crops, particularly from mid-January onwards, in many areas. Also, close to both the Blackwater and Hamford Water, much feeding occurred on Oil Seed Rape fields in mid-February, both during and after the prevailing snow storms (R.G. Gibbs & J. Novorol, In litt.).

There are currently 16 British sites that regularly hold numbers in excess of the level required for international importance (1,700; see Kirby *et al.* 1990) (Table 2). Of these, the Wash is outstanding in its importance for Dark-bellied Brent Geese. Five additional sites, including the tiny Newtown estuary on the Isle of Wight, hold numbers which would make them of national importance for this sub-species.

DISCUSSION

In autumn 1990, some 42,574 Dark-bellied Brent Geese were aged at various localities on the British coast and 21.4% were juveniles, thus revealing a moderate level of breeding success for the population in summer 1990 (Kirby 1991). Using these data, it was predicted that 94-141,000 geese would resort to Britain in midwinter 1990/91. The peak total actually recorded in 1991, of around 115,000, falls approximately in the middle of the predicted range. As between 40-60% of the world population of this sub-species is known to occupy the British coast (Salmon & Fox, 1991), Dark-bellied Brent Geese may currently number as many as 288,000 in total.

The feeding ecology of Dark-bellied Brent Geese wintering in Norfolk has been the focus of much recent research, some of which has now been published. Summers & Critchley (1990) studied field selection by the geese and found that, on average, 74% of the day was spent on grass or arable fields during midwinter, with between 44-66% of the total number of observations of Brent Geese being made on grass fields. Individual geese visited four fields per day on average and their home ranges were approximately 6km². Fields with a high percentage of live grass were selected by geese, perhaps on the basis of their colour. Once selected, those fields with the shortest grass and the fewest thistles were more intensively used.

On winter cereals, grazing by geese resulted in a loss of c. 75% of the biomass of leaves and shoots (Summers 1990a). Grazed wheat ripened later than ungrazed wheat and average grain yield losses were between 6-10%. Defoliation of the wheat was responsible for the loss. Cost-effective scaring of geese from winter wheat fields was achieved by suspending long lines of red tape across the field, under experimental conditions where there were untaped fields of wheat available (Summers & Hillman 1990). However, when all the fields were taped the geese eventually grazed in the taped fields but at lower grazing intensity than in years when this scaring method was not employed.

Feeding on beds of green algae (mainly Enteromorpha spp.) was also studied and occurred at low tide during autumn and early winter (Summers 1990b). However, the number of geese present started to decline when the biomass of algae was reduced to less than a critical level, and the birds rarely occurred on the beds after mid-November. The biomass of ungrazed algae did not decline as rapidly, nor to as low a level as that of grazed algae during the winter, showing that grazing by geese was partly responsible for the earlier decline in this food source.

REFERENCES

- Kirby, J.S. 1991. An assessment of breeding success in the Dark-bellied Brent Goose in 1990. Report to NCC, The Wildfowl & Wetlands Trust, Slimbridge, 7pp.
- Kirby, J.S. & Salmon, D.G. 1990. Numbers of Dark-bellied Brent Geese in Britain, midwinter 1989/90. Report to NCC, The Wildfowl & Wetlands Trust, Slimbridge, 7pp.
- Kirby, J.S., Waters, R.J. & Prys-Jones, R.P. 1990. Wildfowl and Wader Counts 1989-90. The Wildfowl & Wetlands Trust, Slimbridge.
- Salmon, D.G. & Fox, A.D. 1991. Dark-bellied Brent Geese Branta b. bernicla in Britain, 1976-1987. Ardea 79 (2): 327-330.
- Summers, R.W. 1990a. The effect on winter wheat of grazing by Brent Geese Branta bernicla. J. Appl. Ecol. 27: 821-833.
- Summers, R.W. 1990b. The exploitation of beds of green algae by Brent Geese. Estuarine, Coastal and Shelf Science 31: 107-112.
- Summers, R.W. & Critchley, C.N.R. 1990. Use of grassland and field selection by Brent Geese Branta bernicla. J. Appl. Ecol. 27: 834-846.
- Summers, R.W. & Hillman, G. 1990. Scaring Brent Geese Branta bernicla from fields of winter wheat with tape. Crop Protection 9: 459-462.

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Table 1. Numbers of Dark-bellied Brent Geese counted at coastal sites in Britain in January/February 1988-1991. Sites are presented in geographical order starting in North Devon and working anti-clockwise around the coast. A cross indicates that there was no count available in that month. Counts considered to be very incomplete are given in brackets.

COUNT DATES	JANUARY				FEBRUARY			
	1988	1989	1990	1991	1988	1989	1990	1991
	17	15	14	20	21	12	11	17
Taw/Torridge	10	208	160	203	0	190	86	133
Kingsbridge	12	27	24	29	12	17	20	29
Exe	753	1166	867	1297	1092	1147	944	1526
Otter	1	15	0	6	0	3	9	0
The Fleet/Wey	(0)	685	850	942	412	17	105	735
Poole Hbr	326	533	x	1512	741	636	(291)	868
Christchurch Hbr	71	188	137	231	102	209	172	253
NW Solent	1750	1680	2127	2662	1400	2400	1645	3335
Beaulieu	490	1140	680	650	520	980	920	740
Southampton	1547	2486	(2150)	(795)	562	1449	(2183)	(905)
Yar	150	305	134	75	90	190	105	1200
Newtown	990	1238	1117	1218	500	1289	940	1125
Medina	29	57	51	33	29	57	31	67
Brading Hbr	151	68	189	1215	26	20	200	1245
Foreland	27	86	x	x	97	84	x	x
Portsmouth Hbr	1571	1748	2567	2659	1387	1741	2063	2350
Langstone Hbr	6800	7113	7821	4977	5450	5040	5046	4455
Chichester Hbr	8276	10473	9484	6685	9721	9660	4664	6849
Pagham Hbr	1251	2476	2755	1081	2551	2965	476	2370
Rye/Pett	5	17	6	x	5	0	0	x
Pegwell Bay	2	49	x	x	0	80	x	x
Thanet	x	x	x	x	x	x	x	x
Swale	2589	(1578)	2339	(1132)	(768)	(1184)	775	1415
Medway	2189	(1921)	2610	(1071)	2896	(3093)	2805	(1130)
Thames	10894	5728	6062	6028	6120	7302	5400	12419
Crouch/Roach	2541	3755	2870	6186	1727	5333	3109	8388
Dengie	(850)	2455	1540	1280	2598	1500	1900	1830
Blackwater	6038	6605	5726	8114	6320	6172	6370	6212
Colne	4765	5494	2993	3507	5487	5348	2745	4924
Hamford Water	3000	3942	x	3479	3750	1265	x	6889
Stour	970	1351	961	1228	1375	946	1252	948
Orwell	965	224	20	309	898	610	117	1090
Deben	484	797	900	2051	298	1002	1500	605
Alde complex	50	457	79	217	7	103	65	826
Breydon Water	0	0	5	0	0	10	5	30
N Norfolk	9450	12711	6187	10685	9813	10300	8350	11889
Wash	22279	24396	19309	19842	23236	22197	18218	20150
Humber	1121	236	1631	2724	442	478	1278	1810
Tees	5	0	1	0	0	0	1	1
Lindisfarne	17	0	40	x	x	0	12	x
Burry Inlet	635	885	394	617	510	785	661	630
TOTALS	93054	104293	84786	94440	90942	95802	74463	109371

Table 2. Principal sites for Dark-bellied Brent Geese in Britain. The sites are ranked according to average January/February maxima, 1988-1991. The table is broken into three parts: sites on the left hold internationally important numbers of this sub-species; those at the top of the right hand column hold nationally important numbers; and those at the bottom of the right hand column are the best of the remaining sites for this sub-species. For information concerning national and international importance see Kirby *et al.* (1990).

Wash	21,773	Stour	1,302
N Norfolk	10,691	Humber	1,284
Thames	9,169	Exe	1,182
Chichester Hbr	9,132	Newtown	1,154
Blackwater	6,852	Poole Harbour	963
Langstone Hbr	6,678		
Hamford Water	4,860	Deben	898
Crouch	4,843	Beaulieu	830
Colne	4,725	The Fleet/Wey	722
Medway	2,931	Burry Inlet	703
Pagham Hbr	2,660	Orwell	696
Swale	2,464	Yar	448
NW Solent	2,403	Brading Harbour	416
Dengie	2,196	Alde complex	353
Portsmouth Hbr	2,136	Christchurch Harbour	184
Southampton	2,072		

Note that in calculating average maxima for each site, incomplete counts were only used if they exceeded an initial average based on complete counts only, thus making maximum use of the available data.