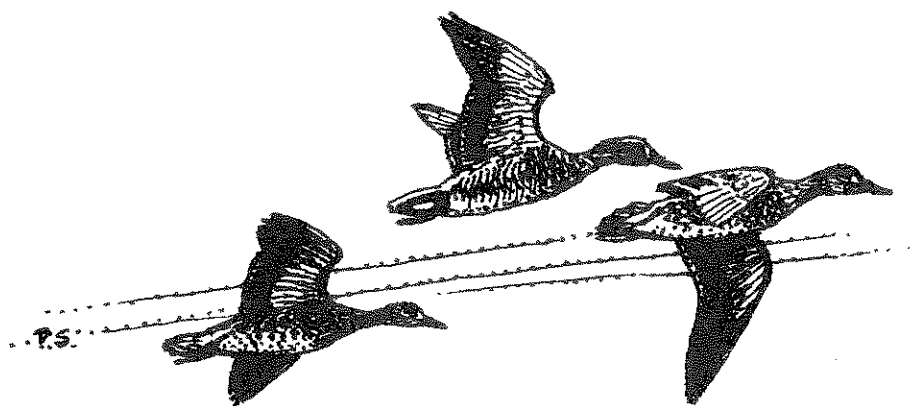


WILDFOWL AND WADER COUNTS 1981-82



Wildfowl and Wader Counts 1981 - 1982

The Results of the National Wildfowl Counts and Birds of Estuaries Enquiry

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INTRODUCTION

This is the third in the annual series of combined reports of the National Wildfowl Counts and the Birds of Estuaries Enquiry. The wildfowl section was written by D.G. Salmon of the Wildfowl Trust, and the wader section by J.H. Marchant of the British Trust for Ornithology.

We are extremely grateful to the Nature Conservancy Council for their continued financing of both schemes, and to the following for their help and advice:

G.L. Atkinson-Willes, Dr. L.H. Campbell, R.J. Fuller, Miss C. Hunt, M. Moser, Mrs. E. Murray, Dr. R.J. O'Connor, M.A. Ogilvie, Dr. M. Owen, Mrs. J. Portlock, D.M. Pusey (Meteorological Office), Mrs. G. Rance, M. Smart, Mrs. A. Wenger.

Our largest debt, as always, is owed to the hundreds of volunteer observers who undertook the counts, especially to those who braved the appalling conditions of December and January. Considering the difficulties faced in those months, the coverage for both schemes was remarkably good.

WEATHER

After a mild and generally clear autumn, dominated by westerly winds, conditions deteriorated dramatically in December. Heavy snow in England, Wales and northern Scotland on the 8th was followed by more on the 11th, two days before the official wildfowl count date (although much of northern England and southern Scotland had no heavy falls until the 20th). In most areas it did not thaw until the 28th. Throughout this period it was exceptionally cold - uniquely so in some areas. The thaw was accompanied by heavy rain, resulting in widespread flooding.

Early January was wet (bringing further flooding) and mild, except in northern Scotland, which had heavy snow. It soon turned cold again everywhere, and between the 7th and 9th January almost the entire country was covered in snow, to an exceptional depth in many places. For a week it was even colder than in December, but on the 16th - the day before the January wildfowl count - a thaw began, and by the 20th most low-lying areas were snow-free. Apart from some snow in the north in late January, and a brief cold period in mid-February, the remainder of the winter was unusually mild.

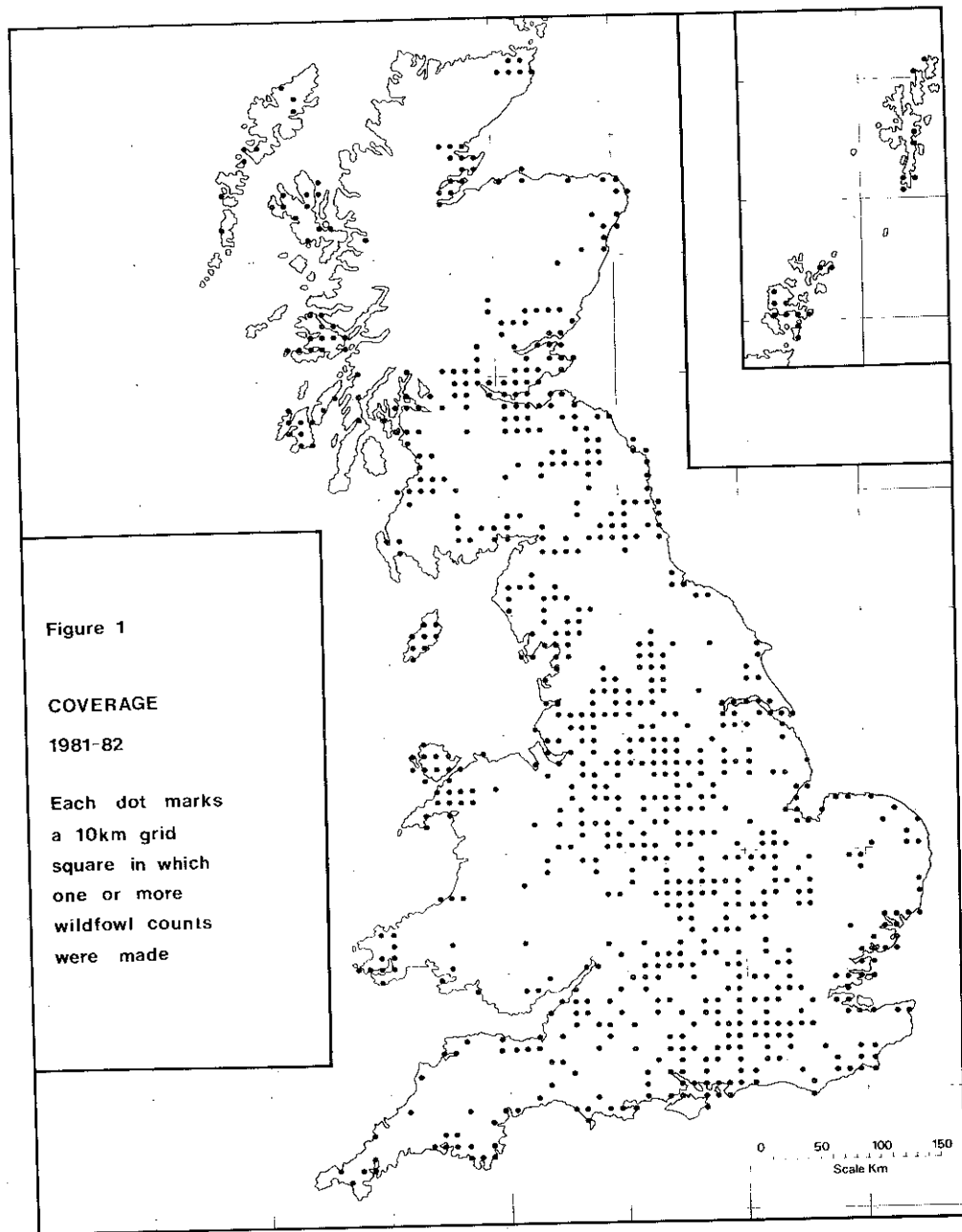
Overall, 1978-79 was a harder winter, although the period from 8th December 1981 to 16th January 1982 was of almost unprecedented severity.

Figure 1

COVERAGE

1981-82

Each dot marks
a 10km grid
square in which
one or more
wildfowl counts
were made



W I L D F O W L

1981-82 was the 35th season of the National Wildfowl Counts. The set dates were: September 13th, October 18th, November 15th, December 13th, January 17th, February 14th and March 14th. If any of these dates proved impracticable (which occurred in many places in December and January), the counters were asked to go out on the nearest available day. Extra records made in addition to the regular monthly counts have been used in the species accounts (where the numbers warrant), but the overall totals in Table 3 are derived purely from the set counts.

The Species Accounts on pages 9 - 29 cover England, Scotland, Wales and Northern Ireland. (Unfortunately, only a small part of the Lough Neagh Basin, the most important area in Northern Ireland, could be covered in 1981-82.)

Coverage in 1981-82

In January, the International Census month, a change in the system of returns resulted in a significant improvement in the number of sites visited, despite the hard weather having only just eased. 1,259 localities were covered, 102 of them for the first time, the only disappointment being that many of the new sites were still frozen. Unfortunately no coverage was possible of the south and west shores of the Wash in January.

Figure 1 (page 4) shows the extent of the cover during the season as a whole. 1,446 sites were visited at least once, 707 of them in all seven months and a further 203 in all but one. The December coverage was reduced by the bad weather.

The effect of the cold weather

The effect on the numbers and distribution of individual species of wildfowl in Britain of the severe spells during December 1981 and January 1982 is discussed in the Species Accounts which follow. However, a general review of their impact is called for.

As already stated, the last "hard winter", 1978-79, was more severe overall, being more prolonged, but it was less cold and the bad weather began later, at the end of December. The large influxes of some species which occurred then (Atkinson-Willes & Salmon 1979; Chandler 1981; Salmon 1981) were not repeated in 1981-82, probably because conditions on the Continent were less severe, relative to the normal, while in Britain they were bad enough to persuade many potential immigrants to veer southwards into France. (The results of the French counts are discussed below.) Furthermore, the frequent short mild periods of 1978-79 enabled the incoming birds to stay longer than in 1981-82, when, apart from the respite from 28th December to 7th January, there were nearly six weeks of continuous sub-zero temperatures. Nevertheless, influxes were apparent in Bean Geese, European

White-fronted Geese, Dark-bellied and Light-bellied Brent Geese, Shelduck and Smew, which were attributable to the cold weather on the Continent.

Table 1 shows how the proportion of wildfowl in each region varied during 1981-82 and, for comparison, the relatively mild winter of 1977-78 (when the only hard spell was in mid-February). It appears that following the December ice and snow there was only a small movement into the south-west, and the relative numbers in the north showed no abnormal reduction, only Pink-footed Geese obviously shifting to England. The departures from Britain in December possibly represented the usual emigration of native breeding or passage birds, which were not replaced by the normal amount of winter visitors from the Continent, except in eastern and south-eastern England. In Scotland, the recovery in February was caused mainly by the return of the Pinkfeet from northern England, but Mallard, Teal and Pochard also increased in contradiction to the trend in England and Wales. The counts from Ireland, although incomplete, suggest that there was no significant move to there during the winter.

Table 1. The total number of wildfowl in each region of Britain, 1981-82 (1977-78 in brackets), as a percentage of the national total, using only those sites counted in all six months, October to March (785 in 1981-82; 672 in 1977-78).

	OCT	NOV	DEC	JAN	FEB	MAR
S.W. England/S. Wales	5 (9)	7 (8)	9 (9)	8 (7)	6 (8)	5 (5)
S.E. England	20 (19)	25 (19)	33 (23)	41 (23)	27 (24)	26 (21)
E. England	18 (23)	19 (24)	21 (23)	23 (28)	29 (32)	29 (30)
N.W. England/N. Wales	15 (14)	16 (13)	18 (12)	12 (8)	13 (9)	11 (7)
N. England/S. Scotland	11 (14)	9 (13)	7 (10)	5 (9)	8 (9)	7 (7)
Cent. Scotland	15 (10)	8 (11)	5 (11)	5 (12)	8 (8)	10 (11)
N. Scotland	16 (11)	16 (13)	6 (11)	7 (13)	9 (9)	11 (18)
Total wildfowl						
x 1,000	460 (279)	632 (343)	583 (462)	579 (393)	518 (365)	298 (217)

Table 2 gives the proportions of individual species found on the coast (using the same sample of sites as in Table 1). Gadwall, Teal, Pochard and Tufted Duck took to estuaries in significant numbers in December and January, while the movements of Wigeon and Pintail to inland floodlands were delayed until after the January thaw. Overall, however, the estuaries proved less attractive than they might have, presumably because they themselves had extensive ice.

The thaws of December and January, accompanied by heavy rain in many areas, provided highly favourable conditions for some species at the turn of the year and from late January onwards.

Table 2. The percentages of selected species occurring on the coast (including estuaries) in 1981-82 (and 1977-78), using the same sample of sites as in Table 1. (- = total count below 10).

	OCT	NOV	DEC	JAN	FEB	MAR
Mute Swan	26 (21)	25 (25)	28 (26)	30 (24)	27 (29)	29 (29)
Bewick's Swan	- (5)	26 (17)	37 (15)	24 (12)	20 (9)	26 (6)
Whooper Swan	42 (19)	27 (50)	34 (40)	37 (34)	28 (33)	20 (28)
Canada Goose	6 (14)	7 (6)	6 (5)	11 (6)	6 (6)	8 (8)
Wigeon	80 (73)	70 (67)	69 (52)	70 (37)	39 (32)	32 (17)
Gadwall	18 (7)	12 (7)	22 (11)	37 (12)	24 (16)	27 (28)
Teal	53 (36)	55 (29)	77 (38)	56 (34)	43 (30)	36 (31)
Mallard	23 (15)	27 (15)	25 (16)	26 (17)	29 (16)	21 (14)
Pintail	82 (78)	96 (92)	97 (92)	96 (80)	88 (90)	60 (45)
Shoveler	20 (6)	16 (9)	26 (12)	25 (12)	22 (12)	20 (10)
Pochard	5 (1)	5 (1)	14 (5)	27 (11)	11 (7)	7 (1)
Tufted Duck	3 (1)	5 (1)	7 (4)	15 (4)	5 (6)	3 (2)
Goldeneye	21 (23)	42 (36)	51 (56)	65 (57)	36 (64)	25 (49)
Smew	- (-)	- (-)	3 (0)	17 (11)	7 (2)	6 (0)
Ruddy Duck	0 (0)	0 (0)	0 (0)	5 (0)	0 (0)	0 (0)

The January 1982 counts in France, where excellent cover was achieved, recorded exceptional numbers of dabbling ducks, to an even greater extent than in 1979. Wigeon were especially numerous with 92,000 counted, as against 43,000 in 1981. The origin of the extra birds was probably the Netherlands rather than Britain and Ireland. In January 1981 there was a huge increase in Pochard and Tufted Duck in France, but slightly fewer were found in 1982, despite the exodus from Britain. There was a small invasion of saw-bills, but, as in Britain, this was on a lesser scale than in 1979 (Saint-Gerand 1982). In interpreting these results it must be remembered that large numbers of all species, especially diving ducks, belonging to the Black Sea/Mediterranean populations, quite separate from our own, winter in south-eastern France. These may be subject to quite different weather patterns.

Total numbers of individual species

Table 3 shows the total count of each species (except for certain geese and sea-ducks) in England, Scotland and Wales in 1981-82. The figures therein are not intended as estimates of the actual British population. For the criteria for national and international importance, please see page 51.

Table 3.

Total counts of wildfowl (Britain), 1981-82

	Monthly totals (no. of sites)				Figures over 100 rounded to nearest 10.				Average maximum 1976-77 to 1980-81
	Sep (1982)	Oct (1996)	Nov (1,035)	Dec (1920)	Jan (1,259)	Feb (1,057)	Mar (1,004)		
Mute Swan	7,140	7,880	7,810	6,640	7,140	6,800	6,380	6,550	
Bewick's Swan	3	5	1,230	2,280	4,580	4,940	440	4,030	
Whooper Swan	36	1,900	2,510	1,000	1,140	1,490	1,040	2,140	
Eur Wf Goose	4	12	300	5,370	4,560	6,910	810	4,300	
Canada Goose	19,640	17,240	15,840	12,750	16,630	12,680	10,270	14,510	
*D-b Brent Goose	40	18,480	53,660	49,780	51,700	45,870	17,390	57,300	
L-b Brent Goose	62	23	350	950	1,840	1,800	5	1,070	
Shelduck	8,880	16,160	48,560	40,420	63,580	65,190	37,040	57,140	
Wigeon	15,330	84,550	147,740	183,310	209,770	143,410	64,920	175,560	
Gadwall	2,960	2,600	3,690	2,970	2,160	2,460	1,620	2,070	
Teal	39,510	58,880	71,180	102,190	68,380	53,470	26,280	72,510	
Mallard	115,140	127,170	146,210	132,340	149,900	102,890	55,360	147,450	
Pintail	5,050	12,580	19,410	17,050	19,180	14,950	2,440	19,880	
Shoveler	5,190	6,420	8,370	5,900	4,370	4,180	3,550	6,370	
Garganey	13	0	0	0	0	1	17	10	
Pochard	10,950	23,150	31,820	23,850	25,080	23,110	9,390	35,630	
Tufted	39,190	38,520	43,440	39,920	34,550	36,580	31,670	41,250	
Scaup	54	630	2,800	2,100	3,860	5,080	1,620	5,300	
Goldeneye	160	1,790	6,830	6,680	8,830	10,080	8,510	9,470	
Snow	1	3	4	40	110	52	21	87	
R-b Merganser	1,190	1,160	2,410	1,900	1,840	1,930	1,430	2,570	
Goosander	270	390	710	2,230	1,560	1,890	1,110	1,890	
Ruddy Duck	810	1,150	1,300	1,400	770	730	770	830	

*Incomplete coverage of the Wash in January and N. Norfolk throughout; seasonal maximum estimated at 60,000 (Ogilvie 1982a).

SPECIES ACCOUNTS

(In the tables, a cross indicates "no data", and brackets around a count mean that the figure has been excluded when calculating the average, because of incomplete coverage.)

SwansMute Swan Cygnus olor

The number found in the wildfowl counts has increased steadily in recent years. The numerous local declines reported in the breeding season have not been reflected in the set counts for two reasons: less than half of the British population, estimated by Ogilvie (1981a) at 18,000, is located in the counts, because many birds remain in their breeding areas at unrecorded ponds or stretches of river; and the other birds' habit of flocking together after the breeding season disguises the trend at individual breeding haunts.

The decline at Loch Eye has been caused by a severe reduction in the amount of waterplants occurring there.

In August 1981 482 were found on the Tweed Estuary, compared with 431 and 638 respectively in 1979 and 1980.

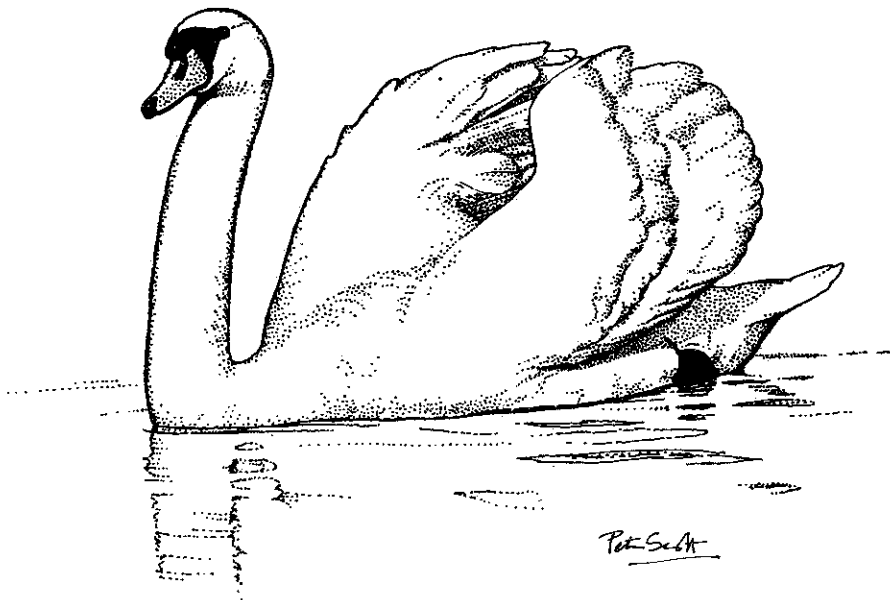


Table 4. Mute Swan: maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Chesil Fleet, Dorset	772	922	1,170	1,238	1,111 (Dec)	1,043
Ouse Washes, Cambs/ Norfolk	287	318	371	443	548 (Jan)	393
Strangford Lough, Co. Down	380	351	453	321	294 (Oct)	360
Loughs Neagh/Beg	397	x	392	276	(24) (Jan)	355
Loch of Strathbeg, Grampian	360	293	306	278	314 (Sep)	310
R. Welland Spalding- Borough Fen	x	x	245	249	243 (Oct)	246
Stour Est., Essex/ Suffolk	224	212	241	292	195 (Oct)	233
Montrose Basin, Tayside	180	200	186	200	x	192
Loch Eye, Highland	185	260	265	65	25 (Sep)	160
Colchester Hythe, Essex	140(a)	230(a)	100(a)	170	150 (Dec)	158
Grafham Water, Cambs	128	155	119	153	196 (Sep)	150

(a) From Essex Bird Report

Bewick's Swan Cygnus columbianus bewickii

The February total was a record, making 1981-82 the fourth successive season of increase. As with Wigeon (see page 17) there was a substantial gain on the Ouse Washes in February, to the second-highest number ever - 2,842. In both cases the extra birds probably came from elsewhere in southern England to take advantage of the optimum conditions (extensive but shallow flooding) then present on the washes.

There was no significant influx into Britain as a result of the hard weather of December and January, and the latter month's total was slightly below that for 1981. Unlike most species, however, there was a noticeable movement into south-west England. The counts of 580 at Slimbridge, 380 at Walmore Common (six miles from Slimbridge) and 380 on the Somerset Levels in January were well above average.

The extensive floods attracted a record 183 to the Hampshire Avon in late January, and large numbers throughout the winter to Walland Marsh, Kent, with 182 in mid-January.

At Lough Foyle, Co. Londonderry, a January count of 370 was by far the highest ever. A gathering of 267 on the Ribble Estuary in late February probably consisted largely of return migrants from Northern Ireland.

Whooper Swan Cygnus cygnus

The January count at Lough Foyle was a record, and the October return for the Loch of Strathbeg the highest for ten years.

A survey of Whooper Swans in Orkney in early November 1981 located c. 600, with 12% young, suggesting a moderate breeding season (Reynolds 1981). A similar survey in 1976 found 479 (Scottish Bird Report).

Table 5.

Whooper Swan : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Lough Foyle	521	287	315	849	1,110 (Jan)	616
Loch Eye	65	285	1,000	405	405 (Oct)	432
Loch of Strathbeg	248	502	495	388	519 (Oct)	430
Loughs Neagh/Beg	556	x	190	432	(56) (Nov)	393
Cromarty Firth, Highland	693	242	222	314	322 (Oct)	359
Strangford Lough	301	413	125	210	255 (Nov)	261

Geese

Bean Goose Anser fabalis

There was clearly an influx following the hard weather. At the main site, the Yare Valley, Norfolk (where large numbers are rare before the New Year), the flock reached a post-war record level of 220 in December, and had risen to 325 by 17th January. A peak of 329 was attained in February. Elsewhere in England Bean Geese were unusually plentiful in January and February, with 37 at Attenborough, Notts, 28 at Lindisfarne, 24 at Minsmere, 23 at the Ouse Washes (where 10-20 are now regular) and 21 at Slimbridge.

In Scotland there were some unusual sightings in the autumn, with small parties in the Outer Hebrides, the Black Isle and Islay, but Threave, Kirkcudbright, formerly Britain's second most important resort, held no more than 35 throughout the season, following a complete absence in 1980-81.

Pink-footed Goose Anser brachyrhynchus

The November Census recorded 90,000, a slight drop on last year's record total, following below-average breeding success (15.7% young in the wintering flocks). 18,240 were in Lancashire, more than normal, owing to a clean harvest of barley in Scotland and a consequent lack of spilt grain (Ogilvie 1981b). There were, however, some large autumn concentrations in the eastern lowlands of Scotland: 12,460 at Loch Leven, Tayside, 9,000 at Gladhouse Reservoir, Lothian and 6,590 at Aberlady Bay, Lothian in October; and 11,018 at Westwater Reservoir, Borders in November.

The November gathering in Lancashire was merely a prelude to the huge influx which occurred in late January, after the second hard spell. Following totals of 20,000 in early December and a record 21,000 on 10th January, 36,580 were found in the county on 22nd January, and 33,875 nine days later. In early February there were still 14,500 on the Ribble Estuary, but by the end of the month only 6,000 remained in Lancashire. The causes of this influx were probably the relatively small degree of snow cover in Lancashire and the rotting crops left after the two thaws (Forshaw 1982). Some of the Lancashire birds may have moved up from the Wash, where 10,500 were counted on the east shore alone on 17th January. Intriguingly, a Pinkfoot ringed in the Netherlands in January 1981 (from the Spitsbergen population, which does not normally reach Britain) was shot on the Ribble Estuary in February 1982.

Numerous small parties occurred at inland waters in mid-winter. In December and January they were mainly in eastern England, as far south as Kent, and possibly comprised birds from the Continent; but in February they occurred throughout the Midlands.

In March the first full spring census of grey geese since 1967 was undertaken, and 70,000 Pinkfeet were found. This was a drop of 22% on the November total, compared with an average mortality of 12%. The "missing" birds were probably overlooked, as their roosting habits are less predictable towards the end of the season (Ogilvie 1982b). The largest concentrations were of 10,247 on the inner Solway Firth and 8,300 at Wigtown Bay, on the outer Solway.

European White-fronted Goose Anser albifrons albifrons

In December and January many were probably missed by the counts as they searched for open land on which to feed away from their normal centres. A number of flocks were reported from unusual resorts in the extreme south and south-west, most notably at Walland Marsh (300), Poole Harbour, Dorset (261), Kingsbridge Estuary, Devon (201), Chesil Fleet (138), Slapton Ley, Devon (120) and Dungeness, Kent (120). The high February total suggests that more than usual had been forced across the North Sea in mid-winter, though to a lesser extent than in 1979.

Table 6. European White-fronted Goose : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Slimbridge	2,600	5,100	2,100	3,000	4,508 (Feb)	3,462
Swale, Kent	405	2,008	1,260	1,700	1,500 (Dec)	1,375
Hampshire Avon	750	1,100	230	59	1,500 (Jan)	728
N. Kent Marshes	x	1,100	460	220	635 (Feb)	604
Dryslwyn, Dyfed	x	435	x	406	720 (Jan)	520

Greenland White-fronted Goose Anser albifrons flavirostris

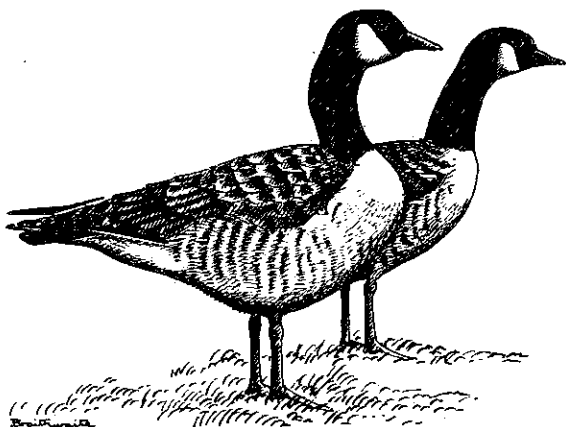
Following below-average breeding success in 1981 (14.3% young in the winter flocks) the two main centres, Islay and the Mull of Kintyre, showed substantial declines to 3,300 and 650 respectively in November, compared with 4,300 and 1,160 in 1980. Elsewhere, however, the numbers were about normal, with maxima of 330 at Loch Ken, Dumfries & Galloway, 480 at Stranraer and 250 in Caithness.

In November 1982 the first-ever complete census of this subspecies (which winters exclusively in Britain and Ireland) was carried out, through the Greenland White-fronted Goose Study Group. The survey is to be repeated in the Spring, between 26th March and 10th April, with the main counts on 27th March and 3rd April. Anyone wishing to help with the Spring census, who has not already arranged to do so, should contact David Stroud, School of Biological Sciences, University College of Wales, Aberystwyth, Dyfed. It is hoped to include the results of the censuses in next year's report.

Greylag Goose Anser anser

The November Census found 96,000, an improvement on last year's record figure of 90,000. The flocks contained 13.9% young, indicating a fairly poor breeding season (Ogilvie 1981b). As with Pinkfeet, their distribution was affected by the exceptionally clean harvest. In East Central Scotland, usually the main area, the numbers were the lowest for many years, but farther south there were more than usual. However, on one farm (of 146 hectares) in Easter Ross the barley was not harvested, and phenomenal numbers of Greylags took advantage of this unexpected bonus. At the time of the November census (8th) there were just over 20,000 in the area, but by the middle of the month 38,000 (40% of the British population) had discovered the bonanza. They roosted at Loch Eye (where the previous highest count was 9,000), but in a few weeks all had gone.

Apart from a small movement into Ayrshire, where there was relatively little snow, the Greylags showed no clear reaction to the hard weather. In the March census only 52,000 were found, showing them to be even more widely dispersed and elusive than the Pinkfeet at that time of year (Ogilvie 1982 b).



Canada Goose Branta canadensis

For the third successive season, the largest concentrations (all in September) were at Shavington, Staffordshire (1,600), Stratfield Saye, Hampshire (1,460) and Kedleston, Derbyshire (1,050). The September total (undoubtedly incomplete) reflected a continuing overall rise, and surpassed the estimate made from the complete census of July 1976 (Ogilvie 1977).

Barnacle Goose Branta leucopsis

A poor breeding season in Greenland contributed to the continuing decline on Islay. 14,800 were counted in November (with only 7.3% young) and 17,000 in March, compared with 20,500 in November 1980.

The Spitsbergen population fared even worse. Only 3.2% of the 8,300 on the Inner Solway were young, although the total numbers were still the third highest on record.

Dark-bellied Brent Goose Branta bernicla bernicla

Despite a complete breeding failure (for the second year running and the fifth out of ten) almost as many reached Britain in 1980-81, presumably because a higher proportion crossed the North Sea in search of milder conditions. The lack of a complete count on the Wash in January 1982 makes the exact picture unclear, however.

Table 7.

Dark-bellied Brent Goose : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Foulness, Essex	9,327	11,088	15,390	13,758	14,820 (Nov)	12,877
The Wash	6,418	9,067	11,390	16,997	(6,982) (Feb)	10,968
Blackwater Est, Essex	7,205	13,287	12,490	9,167	9,003 (Jan)	8,430
Chichester Harbour	5,669	8,143	9,502	7,088	8,632 (Dec)	7,807
Langstone Harbour, Hants	4,969	5,529	6,419	7,400	6,185 (Dec)	6,100
Hamford Water, Essex	3,310	4,000	8,200	4,500	4,000 (Jan)	4,802
Leigh Marsh, Essex	4,090	1,100	5,000	4,500	5,246 (Dec)	3,987
Crouch/Roach Est, Essex	550	2,392	4,288	3,120	3,550 (Jan)	2,780
Portsmouth Harbour	1,465	1,559	2,454	1,476	3,316 (Nov)	2,054
Scolt Head, Norfolk	1,800	2,000	2,000	2,000	2,000 (Feb)	1,960
Exe Estuary, Devon	920	1,575	2,400	1,945	1,700 (Nov)	1,708
Pagham Harbour, Sussex	650	1,500	2,700	1,500	1,863 (Dec)	1,643

Light-bellied Brent Goose Branta bernicla hrota

As in 1978-79 the weather was cold enough to cause the entire Spitsbergen breeding population to leave Denmark. Several hundred were seen in the Netherlands but most came to Lindisfarne, where 1,800 were present from mid-January to early February.

At Strangford Lough the annual autumn gathering of Greenland/Canada breeding birds reached 11,738 in November, compared with 14,363 in 1980.

DucksShelduck Tadorna tadorna

Recent analyses (Owen & Atkinson-Willes in prep.) suggest that contrary to previous accounts, there is a significant immigration of continental Shelduck to Britain in the New Year in all but the mildest winters. In 1981-82 some apparently left Britain in December, as many estuaries froze (although some sites could not be counted, and that month's total is misleadingly low). Conversely, 3,776 occurred on the Welsh Severn, by far the most ever. In January there was clearly a large influx, and in February even more were counted as birds returned to those estuaries which had been frozen.

In July 1981 4,335 Shelduck congregated on the Dee Estuary, apparently preparing to migrate to the German moulting grounds, and 1,200 were found moulting off Lynn Point, Norfolk (Norfolk Bird Report). Tasker (1982) describes the discovery of a small moulting flock at Foulholme Sands, on the Humber, in 1978.

Table 8. Shelduck : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
The Wash	9,754	11,754	20,050	19,010	17,233 (Feb)	15,560
Mersey Estuary	3,884	7,082	7,325	11,800	12,170 (Nov)	8,454
Dee Estuary	(1,094)	x	4,419	7,315	3,740 (Oct)	5,158
Hamford Water	1,230	10,000	1,616	1,200	5,500 (Jan)	3,909
Medway Estuary	x	5,150	2,146	3,096	(2,504) (Feb)	3,464
Firth of Forth	2,496	2,943	2,920	2,857	(343) (Mar)	2,804
Chichester Harbour	1,432	3,130	2,007	2,754	4,552 (Jan)	2,775
Blackwater Estuary	1,648	3,004	2,433	1,668	3,518 (Jan)	2,454
Stour Estuary	1,367	2,511	2,514	2,053	1,866 (Mar)	2,062
Teesmouth	2,165	2,100	1,613	1,876	2,289 (Jan)	2,009
Ribble Estuary	699	1,790	1,503	2,218	2,119 (Jan)	1,666
Eden Est., Fife	1,503	1,740	1,324	1,604	1,974 (Feb)	1,629
Bridgwater Bay	2,400	2,164	1,250	1,157	914 (Sep)	1,577
Poole Harbour, Dorset	1,717	1,017	1,223	1,905	1,900 (Feb)	1,552
Morecambe Bay	1,002	1,635	828	887	3,230 (Jan)	1,516
Swale	868	1,308	2,785	912	1,642 (Feb)	1,503

Wigeon Anas penelope

A quarter of those counted in Britain in October (when the Icelandic breeders have arrived) were on the coast between Littleferry, Sutherland and Findhorn, Moray - 7,000 of them in Nigg Bay on the Cromarty Firth.

For the second year running the main arrival of Scandinavian and Siberian immigrants into southern England was early, in November. In that month there was an exceptional gathering at Chesil Fleet (see Table 9). Further, smaller influxes in December and January brought the numbers to the level attained in January, 1979. The winter distribution was largely governed by the expansive floods available, and the following held record concentrations for a while: Elmley Marshes; Wet Moor, Somerset Levels (13,000); Slimbridge; and the Hampshire Avon (6,200). In February, when most other areas showed a sharp reduction, the numbers at the Ouse Washes rose fivefold to their highest for seven years, and an unprecedented 7,500 occupied the Yare Valley floods.

Table 9. Wigeon : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Lindisfarne	21,550	29,500	22,000	30,000	25,410 (Nov)	25,962
Ouse Washes	26,532	17,684	19,340	26,737	39,368 (Feb)	23,932
Lough Foyle	5,080	8,051	4,377	22,000	21,000 (Oct)	12,102
Cromarty Firth	(2,950)	6,972	7,200	10,812	15,022 (Oct)	10,001
Elmley, Swale, Kent	x	5,400	7,000	5,092	18,500 (Jan)	8,998
Mersey Estuary	4,060	3,470	8,040	15,200	10,800 (Dec)	8,314
Humber	5,487	9,569	7,929	6,340	5,202 (Nov)	6,905
Ribble Estuary	(1,550)	4,480	6,640	6,380	7,242 (Feb)	6,186
Abberton Res., Essex	3,550	11,574	4,475	5,725	5,000 (Dec)	6,065
Chesil Fleet	3,800	4,298	2,630	5,860	10,210 (Nov)	5,360
Exe Est. Devon	6,800	5,280	3,450	5,750	3,464 (Nov)	4,949
Dornoch Firth, Highland	6,724	4,637	5,416	3,516	4,026 (Nov)	4,790
The Wash	2,255	7,898	3,492	2,604	7,281 (Dec)	4,706
Slimbridge	1,000	5,000	5,000	4,000	8,000 (Dec)	4,600
Strangford Lough	6,367	4,380	6,331	3,375	2,280 (Nov)	4,587
Lower Derwent Ings	4,000	3,350	5,584	5,200	4,511 (Jan)	4,529

Gadwall *Anas strepera*

The autumn peak exceeded 3,000 for the first time, over half being in East Anglia. Gunton Park, Norfolk held a record 630 in September; Stanford Training Area, Norfolk 290 (September; Norfolk Bird Report); Little Paxton Pits, Cambridgeshire 232 (November); and Hickling Broad, Norfolk 228 (November).

Winter maxima occurred at Slimbridge (440, December); Rutland Water (380, December); and the Ouse Washes (266, February).

Teal *Anas crecca*

A further substantial increase has occurred, on a par with that of the early 1970's, and in December the total count passed 100,000 for the first time. The Mersey Estuary is now even farther to the fore, with 35% of the total in December.

In January, however, all areas away from floodland showed a marked decline. This was arrested in February by an unusually early return passage in the east and north.

Table 10.

Teal : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Mersey Estuary	5,310	12,870	17,400	25,850	35,000 (Dec)	19,286
Martin Mere, Lancs	5,000	4,000	3,000	6,000	6,000 (Nov)	4,800
Hamford Water	3,000	2,500	3,780	4,500	5,400 (Dec)	3,836
Rainham Marsh, Gt London	x	4,000	2,000	3,000	2,000 (Nov)	2,750
Lower Derwent Ings	2,000	420	2,966	3,682	4,000 (Jan)	2,614
Abberton Reservoir	5,237	997	1,320	3,370	1,200 (Dec)	2,425
Ouse Washes	2,755	1,714	1,874	2,378	2,970 (Feb)	2,338
Elmley Marshes	x	2,000	2,000	3,000	2,000 (Oct)	2,250
Chichester Harbour	1,233	1,636	1,990	2,760	3,253 (Dec)	2,174

Mallard *Anas platyrhynchos*

As Table 11 shows, there was little movement within Britain during the winter. The only appreciable regional changes were a small influx into the south-east in December and January and a slight reduction in Scotland in January.

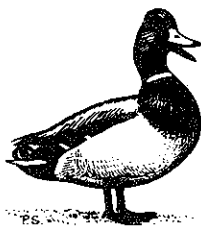
However, birds were attracted to the floods. The Lower Derwent Ings and the Ouse Washes held record numbers: 8,142 (March) and 6,262 (January) respectively.

Although Table 2 suggests no shift to the coast during the hard weather, it disguises some unusual events in eastern England. There were exceptional gatherings on the Wash (4,977, November), the Essex/Suffolk Stour (3,000, February) and Hamford Water (12,800, January), whereas on the Humber, normally the principal locality in Britain, the 4,190 of November remained the season's highest.

Elsewhere there were record counts at Loch Leven (3,686, September), Stodmarsh, Kent (3,550, December), Lough Foyle (3,100, January) and the Dee Estuary (2,830, September), and 3,000, the second highest ever, at Martin Mere in December.

Table 11. Mallard : percentage in each region, 1981-82 (1977-78 in brackets), taking only those sites counted in all six months, October to March (1981-82 : 785; 1977-78 : 672).

	Oct	Nov	Dec	Jan	Feb	Mar
S.W. England/S.Wales	8 (10)	7 (10)	7 (9)	7 (7)	6 (8)	6 (5)
S.E. England	22 (23)	23 (20)	28 (23)	30 (21)	24 (23)	21 (23)
E. England	33 (37)	35 (42)	36 (39)	40 (40)	36 (41)	40 (44)
N.W. England/N.Wales	14 (13)	14 (11)	11 (10)	9 (8)	12 (9)	13 (8)
N.England/S.Scotland	7 (4)	7 (4)	4 (6)	3 (5)	5 (3)	4 (5)
Cent. Scotland	11 (9)	9 (8)	9 (9)	6 (11)	13 (10)	10 (9)
N. Scotland	6 (5)	6 (5)	5 (5)	6 (8)	5 (5)	5 (5)
Total in sample (x 1,000)	107 (83)	117 (85)	119 (81)	117 (80)	86 (74)	47 (32)



Pintail Anas acuta

The combined totals on the Dee, Mersey and Ribble estuaries and Martin Mere, and the percentages which they represented of the total British count, were as follows: September 4,415 (87%); October 11,000 (88%); November 15,758 (81%); December 12,151 (72%); January 10,404 (55%); February 7,079 (47%); March 929 (38%). The individual maxima were Mersey 11,440 (November); Dee 5,395 (January); Martin Mere 2,000 (October); Ribble 1,273 (October, the highest for six years). Recently, the Dee has been the only one to carry a mid-winter peak.

Elsewhere, there was a large February gathering on the Wash for the second year running, comprising 2,943, compared with 1,672 in 1981, and two other estuaries held record numbers: the Burry Inlet, Glamorgan (2,426, late December) and Hamford Water (1,450, January). Although a fresh influx had occurred in the south around the New Year, this was no larger than in many mild winters.

Garganey Anas querquedula

More were found on passage than for several years. The highest count in autumn was 5 at the Ouse Washes (September), and in spring 9 at Portsmouth Harbour (March).

Shoveler Anas clypeata

Although individual sites show great variation from year to year, the total numbers in Britain (which always peak in autumn) have remained fairly constant until last year's big increase.

At Loch Leven the autumn passage has returned to the level of the early and mid-1970's. (The average peak for 1972-73 to 1976-77 was 518).

The general increase on the coast in 1981-82 suggested by Table 2 is misleading; most of the extra birds were at one site - Elmley Marshes.

Table 12.

Shoveler : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Abberton Reservoir	852	328	310	281	485 (Nov)	451
Rutland Water	450	471	471	316	317 (Nov)	405
Ouse Washes	513	212	334	411	296 (Feb)	353
Aqualate Mere, Staffs	520	300	358	380	150 (Oct)	342
Loch Leven	95	100	293	431	696 (Sep)	323
King George VI Resr, Surrey	(38)	311	109	488	299 (Sep)	302
Chew Valley Lake, Avon	326	139	480	359	185 (Nov)	299
Q. Elizabeth II Resr, Surrey	192	370	298	290	290 (Jan)	288
Belvide Resr, Staffs	130	240	245	127	570 (Nov)	262
Elmley Marshes	x	110	200	274	398 (Dec)	246
Wraybury Resr, Surrey	52	720	111	136	117 (Sep)	227
Stanford Resr, Leics	170	480	170	168	26 (Sep)	203

Pochard Aythya ferina

After some high autumn counts (with 1,061 at the Loch of Boardhouse, Orkney and 1,008 at Fairford Gravel Pits, Gloucestershire in October, and 1,101 at Kingsbury Water Park, Warwickshire in November) there was a substantial decline during the December and January ice. Those inland sites with significant amounts of open water held large concentrations, including the normally less favoured Cliffe Pools, Grain, Kent (1,620), Chesil Fleet (1,442), Coton Pools, Warwickshire (1,150) and the pens at Slimbridge (986), together with the following regular centres: the Loch of Harray, Orkney (1,613); Lower Derwent Ings (1,350); Ouse Washes (1,310); and Staines Reservoir, Surrey (1,100). There were 2,480 in the south-east corner of Lough Neagh in January. Movement to the coast in December and January was small, presumably because so many estuaries had ice, although sizeable gatherings did occur at Hamford Water (950), the Firth of Forth (890), Teesmouth (810), Poole Harbour (683) and the Welsh Severn (609).

It is not known where the "missing" birds were in mid-winter, but the Irish counts, though incomplete, suggest that few went there. The total French count in January, which is greatly influenced by the number of immigrants from southern Europe, was high (45,000), but below that for 1981 (Saint-Gerand 1982).

Tufted Duck Aythya fuligula

The autumn totals were the highest ever, suggesting a further increase in the native breeding population. In September 4,560 were counted at Loch Leven, 2,670 at Abberton Reservoir, 1,343 at Wraybury Gravel Pits, Berkshire and 1,147 at Queen Mary Reservoir, Surrey; in October, 1,804 at Rutland Water, 1,350 at the Loch of Strathbeg and 1,322 at the Loch of Harray.

The December numbers were surprisingly high, considering the conditions (and included 1,218 at the Loch of Stenness), but by January a minor exodus had occurred. Nevertheless, 1,600 assembled at Coton Pools, 1,037 at Walthamstow Reservoirs and 1,000 at Drakelow, Derbyshire, while the south-east corner of Lough Neagh held 1,853. On the coast there were 1,854 on the Firth of Forth, 1,038 on the Welsh Severn and 833 on the Firth of Tay. By February most had returned, and that month's total was the second highest on record. (Ringing recoveries indicate that Tufted Duck from Britain head for France in cold weather - Ogilvie 1982c).

The moulting flock at Abberton reached 2,150 in August.

Scaup Aythya marila

Figure 2 shows the trend in the January numbers of Scaup in Britain over the last twenty years. The indices were calculated by comparing consecutive years' total counts from the sites covered in both years, and, working backwards and forwards from 1971 (which was given an index of 100), relating the resultant ratios to the following (or previous) year's index.

The high indices of the late 1960's and early 1970's coincided with the period of the greatest numbers on the south shore of the Firth of Forth, around Edinburgh. This flock, which had comprised up to 90% of the British population, virtually disappeared in the late 1970's, largely in response to the closure of the raw sewage outfalls at Edinburgh (see Campbell 1978b, 1979; Salmon 1980). As a result, the index plummeted, but it has now stabilised, all other areas having maintained their numbers.

Table 13 gives the seasonal maxima at the main British centres. (Note that the table covers all months, not just January.) It shows that any changes at other resorts have been too small to be related to the decline at Edinburgh.

What has happened to the birds which no longer visit the southern Forth is unclear. The Icelandic breeding population declined greatly during the 1960's and early 1970's, but has since largely recovered. It is likely, therefore, that the "lost" birds belonged to the much larger Scandinavian/Siberian group, and that they have been absorbed in the huge concentrations, mainly of the latter population, which winter in the west Baltic, Waddensee and IJsselmeer.

There was apparently a small influx of continental weather migrants into south-east England in January 1982; 280 Scaup were found in Hamford Water. The largest flock reported from Ireland in 1981-82 was at Carlingford Lough, with 940 in January, compared with an average maximum of 529 for 1976-77 to 1980-81. A number of other important Irish centres were not covered, however.

Trends in numbers of Scaup in January, 1963 to 1982 (based on 1971 = 100)

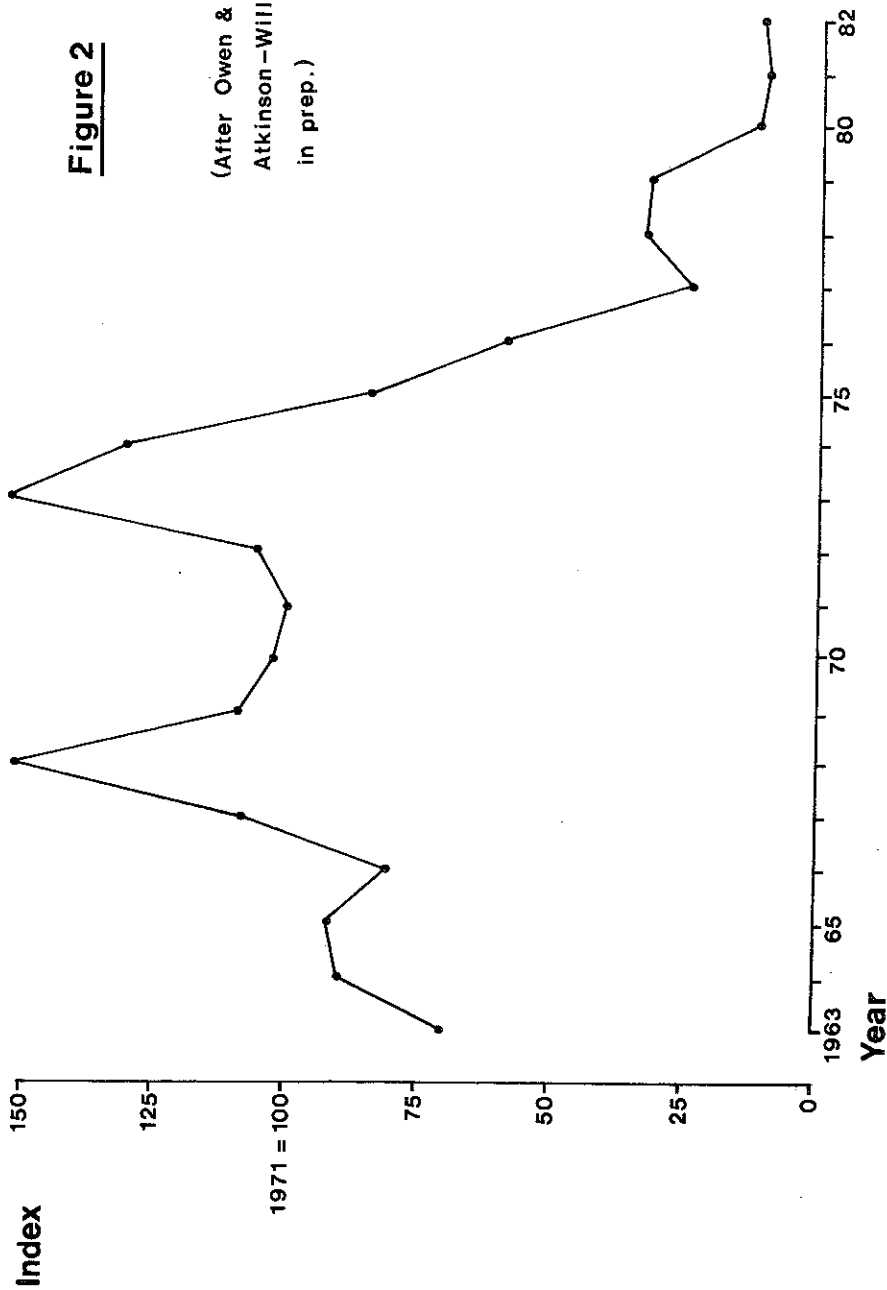


Table 13. Scaup : maxima at main British resorts

	Average Max. 1962-63 to 1966-67	Average Max. 1967-68 to 1971-72	Seasonal Maxima									
			72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82 (Month)
Firth of Forth: Edinburgh (Granton-Musselburgh)	10,900	25,000	20,100	26,000	20,000*	10,800	3,240	3,640(a)	2,270(a)	1,100*	44	114 (Jan)
Firth of Forth: Largo Bay	750	1,970	1,840(a)	1,400	800	1,779(a)	1,311(a)	1,600(a)	2,447(a)	2,530	2,750	2,680 (Feb)
Loch Indaal, Islay	x	1,125	1,500	1,000	1,000	1,300	1,180	1,200	950	950	500	975 (Nov)
Inner Solway Firth	x	780	1,111	1,260	1,515	902	974	(600)	(600)	(600)	(610)	322 (Nov)
Dornoch Firth: Edderton Bay	145	212	450	270	170	300	230	130	250	266	482	418 (Jan)
Dee Estuary	155	109	0	0	8	107	200	130	x	383	347	290 (Jan)
Inner Firth of Clyde	x	107	137	235	132	61	98	x	225	201	85	226 (Feb)

* Scottish Bird Report

(a) Campbell 1976 et seq.

Eider *Somateria mollissima*

The current peak period on the Tay is apparently mid-October; the only two seasons out of the last five in which the area has been counted at that time (1979-80 and 1980-81) produced much the highest returns. In November 1981 Milne found 12,600 between Aberdeen and Bass Rock.

The counts for Don Mouth - Balmedie refer to the moulting flock at Murcar, the largest in Britain. In 1981 this had dispersed by September, and no earlier figures are available.

Half of the September total for the Firth of Forth was in Gullane Bay; farther west, around Edinburgh, there has been a similar, though less spectacular, decline to that of other species.

At Lindisfarne 4,090 were present in June 1981, including 1,500 young. The Northumberland coast was fully covered in 1981-82. South of Lindisfarne there were 2,183 in September and 2,197 in January. In the rest of England and Wales, south of Northumberland and Cumbria, 513 were found in January and 460 in March, the latter including a record 282 on the Blackwater.

Table 14.

Eider : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Outer Firth of Tay	9,360(a)	9,015(a)	15,460	13,600	8,700 (Nov)(a)	11,227
Don Mth-Balmedie, Grampians	6,140	10,500*	5,500*	6,500*	(1,150) (Sep)	7,160
Firth of Forth	7,460(a)	5,010(a)	3,619	3,380	4,472 (Sep)	4,788
Walney Island, Cumbria	x	4,000	x	3,150	4,400 (Jan)	3,850
Lindisfarne	2,800	1,670	3,063	3,060	3,085 (Dec)	2,736
Usan, Tayside	x	2,350*	x	x	x	
Inner Clyde	1,400*	2,500*	2,988	1,459	2,489 (Feb)	2,167
Ythan Est, Grampian	1,729	1,849	1,695	1,445	1,962 (Oct)	1,736
Loch Fleet, Highland	1,900	1,500	1,450	1,500	2,000 (Nov)	1,670
Fraserburgh, Grampian	x	x	x	x	1,600 (Dec)	
Rattray Hd, Grampian	x	x	1,950*	x	1,100 (Mar)	1,525
Sumburgh, Shetland	2,000*	1,050*	x	x	x	1,525

(a) Milne 1977 et seq.

* Scottish Bird Report

Long-tailed Duck Clangula hyemalis

A count of 15,637 flying into roost at Burghhead Bay on 15th February, during the survey of the Moray Firth carried out by the RSPB for Britoil Ltd., was by far the largest ever made in Britain. It compares with counts at the same site of 5,000 in 1977-78 and 6,500 in 1978-79 (Mudge and Allen 1980). Over 4,000 were discovered roosting off Brora, at the northern extremity of the firth, in early March.

In Orkney a total of 1,156 was counted in January, including 630 in Eynhallow Sand and 486 in Scapa Flow. The latter compares with 1,158 in February 1978, the last time Scapa Flow was fully surveyed (Lea 1978). There were 349 on the Inner Bay of Firth in October and 161 at the Loch of Stenness in November. Elsewhere the highest counts were at Melbost Sands/Tong Saltings, Lewis (200, April) and Lindisfarne (173, January).

Common Scoter Melanitta nigra and Velvet Scoter Melanitta fusca

The RSPB/Britoil aerial survey in the Moray Firth on 27th February located 14,242 scoter. The shore-based counts in the same period found 13,907, including 5,733 Common and 1,704 Velvet, with 6,470 indistinguishable. These compare with peak counts of 8,122 Common and 5,029 Velvet Scoter in the late 1970's (Mudge 1978), and 14,000 Common Scoter in January 1974.

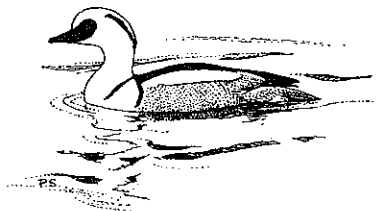
Four other gatherings of over 1,000 Common Scoter were reported in 1981-82: 2,360 in Dundrum Bay, Co. Down (February); 1,500 between Hunstanton and Heacham, the Wash (November; Norfolk Bird Report); 1,490 between Balmedie and the Ythan (September), and 1,200 off Tentsmuir, Fife (October).

The largest report of Velvet Scoter away from the Moray Firth was of 75 in Gullane Bay in September.

Goldeneye Bucephala clangula

This species usually moves to estuaries in mid-winter, and December and January's ice encouraged this. Especially noteworthy was a count of 799 on the Blackwater Estuary in January, when the frozen Abberton Reservoir, four miles inland, held only 15. By February there were 610 at Abberton, but the Blackwater was down to 176. In fact the numbers inland in February were unusually large, suggesting that an earlier immigration may have been concealed by birds temporarily leaving Britain, or that the extra birds had avoided Britain on their way south.

Apart from the above the highest counts were on the Firth of Forth (1,278, January); Inner Firth of Clyde (535, March); Teesmouth (440, January); Wash (359, February) and Poole Harbour (315, November). The south-east corner of Lough Neagh held 323 in January.



Smew Mergus albellus

Although much larger than in most recent years, the mid-winter influx was not on the scale of 1978-79, when at least 380 reached Britain (Chandler 1981); by February, following several mild weeks, the extra birds had gone.

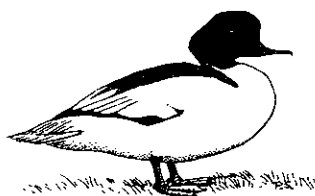
31 out of the January total of 110 were at Dungeness, Kent, which has now held more than any of the London reservoirs (formerly of prime importance) for four successive winters. A total of 26 was found in the London area in January, compared with 4 in 1981.

Elsewhere, the highest counts were of 11 at Hamford Water (the only estuary to have more than one) and 10 at Bewl Bridge Reservoir, Kent/E. Sussex in January.

Red-breasted Merganser Mergus serrator

1,054 were found in the Moray Firth in November, by the RSPB/Britoil survey. Otherwise the highest counts were in the Beaulieu Firth (743, December), Firth of Forth (653, November), Poole Harbour (397, November), Cromarty Firth (300, February) and Dundrum Bay (296, September).

Recent analyses suggest that the British population is appreciably higher than previously thought. By summing the average January counts for the last five available years from each site, a total of 5,278 is reached (although the total count in any one year has never exceeded 3,440). Allowing for those parts of the coast which have never been recorded, which in western Scotland are extensive, 10,000 seems a reasonable estimate of the British population, substantially higher than most previous estimates.



Goosander Mergus merganser

The remarkable concentration on the Beaully Firth reached a record level last winter, but the impression from Table 15 that it has suddenly attained a new importance is misleading; 1,290 occurred there in 1974-75.

There must be a number of waters in areas where Goosander are plentiful which hold few during the day - when the wildfowl counts are carried out - but act as major roosts at night. One site has been discovered where in 1981-82 over 200 flew in at dusk, and others surely await detection.

Table 15.

Goosander : maxima at main resorts

	1977-78	1978-79	1979-80	1980-81	1981-82 (Month)	Average
Beaully Firth	355	600 *	900	1,550	1,620 (Dec)	1,005
Castle Loch, Lochmaben, Dumf. & Galloway	115 *	x	x	125	115 (Feb)	118
Eccup Resr., W. Yorks	83	54	121	112	132 (Feb)	100
Thrapston GPs, Northants	71	97	x	80	99 (Jan)	87
Blithfield Resr., Staffs	112	137	40	39	82 (Mar)	82
Foremark Resr., Derbys	30	161	64	51	x	77
Queen Mary Resr., Surrey	20	70	38	47	146 (Jan)	64
Loch Leven	50	44	73	25	64 (Feb)	51
Dorchester GPs, Oxon	57	67	38	39	49 (Feb)	50

* Scottish Bird Report

Ruddy Duck *Oxyura jamaicensis*

The remarkably low February and March totals suggest that during the cold weather there was high mortality, probably in excess of 40%, among this resident feral population. In 1978-79 no such setback occurred, presumably because the cold was neither so severe nor so sustained. However, given only moderate breeding success in 1982, the numbers should promptly recover to at least their level of 1979-80 (c. 1,000).

As Table 16 shows, the distribution was also abnormal, not so much in December - when a movement into Somerset and Avon is usual - as in January, when a total of 161 was found in Dorset, Devon and Cornwall, including 79 at Slapton Ley. In the latter month there was, for the first time, a sizeable influx into south-east England, centred on the London reservoirs, and record numbers appeared in Anglesey, with 66 at Llyn Traffwll. The Midlands were almost deserted. Apart from 31 in Poole Harbour and 3 in the Exe Estuary, none were reported from the coast, but it is known that at least a few reached France. By the end of the season most had returned to Staffordshire but they were much reduced in the remainder of the Midlands and North Wales.

Table 16. Ruddy Duck : total count in each area, 1981-82

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Devon/Dorset	0	2	1	5	155	72	24
Somerset/Avon	29	80	290	484	326	175	157
Surrey/Gt London	5	0	0	16	38	4	3
Leicestershire	92	130	129	55	5	20	23
Warwickshire	24	43	22	15	19	5	15
Staffordshire	381	457	512	571	22	368	415
Shropshire	98	54	49	40	1	10	18
Cheshire	64	271	168	115	43	31	51
Clwyd	8	36	30	0	1	7	0
Anglesey	26	25	33	61	101	34	13
Elsewhere	87	56	68	37	60	8	55
Total	814	1,154	1,302	1,399	771	734	774
1980-81	560	840	1,130	930	1,490	1,570	1,070

WILDFOWL PROJECTS IN BRITAIN

The following should be added to the list of current projects, amateur and professional, which appeared in the last report:

Greylag Goose

Movements and feeding of feral population in west Kent -
A. Heaton, Tadorna, Sevenoaks Wildfowl Reserve, Bradbourne Vale Road,
Sevenoaks, Kent, TN13 3DH.

Barnacle Goose

Feeding ecology on Islay -
Brathay Trust, c/o S. Newton, 11 Jameson Place, Leith, Edinburgh, EH6 8NZ.

British Association for Shooting and Conservation

(Marford Mill, Rossett, Wrexham, Clwyd).
Various research projects, including Duck Production Survey and National
Shooting Survey.

W A D E R S

This section of the report deals with the wader counts made during the twelfth season of the BTO/RSPB/WT Birds of Estuaries Enquiry. Over the last six seasons the Enquiry has concentrated on the mid-winter months - December, January and February - and the report deals chiefly with this period.

There was some increase in the UK coverage of the Enquiry over that achieved in 1980-81, but coverage in the Republic of Ireland was poor (partly owing to diversion of effort from the Estuaries Enquiry to the BTO/IWC Winter Atlas Project). Most major British sites received some cover during the season, but an unfortunate exception was Morecambe Bay, which in most winters holds the highest individual totals of waders. A welcome trend was an increase in the number of smaller sites, some counted for the first time in 1981-82. There is still, however, considerable scope for expansion: Cornwall, west Wales, Scotland (away from the major sites) and north Norfolk are particularly poorly covered.

The future of the Enquiry

From October 1982, the Birds of Estuaries Enquiry has a new full-time co-ordinator, in the person of Mike Moser. This three-year appointment is funded equally by BTO, NCC and RSPB. Its aim is to extend the range and scope of the Enquiry and to support and encourage the use of BoEE data by conservation bodies.

The results of the Enquiry are at the front line of estuary conservation, and have already played an important role in the opposition to numerous development threats. However, a number of sites have not been treated comprehensively since the end of the initial period of the Enquiry in 1975. Conservationists urgently require up-to-date information for use in public enquiries, and a major goal of the new appointment is to restore participation in the BoEE back to the 1975 level, with annual series of counts being made at most sites.

Many readers of this report will be former contributors to the Enquiry, and some may feel that since the "Estuaries book" has been published (Prater 1981a) the results of the Enquiry are now of decreased value. This is most definitely not the case - on the contrary, a continuing series of well co-ordinated counts is needed to provide late information for the conservation of our estuaries. A close liaison between the Enquiry and projects organised by the Wader Study Group will for the first time allow a detailed interpretation of the factors which determine the numbers and movements of our wintering shorebird populations.

Please contact the Estuaries Officer (Mike Moser, BTO, Beech Grove, Tring) if you feel you can help.

The 1981-82 winter

The prolonged spells of cold weather in December and again in mid-January had severe effects on the waders on British estuaries. The very low day and night temperatures, combined with a period of neap tides, led to prolonged glazing of intertidal flats and took a severe toll of several species, particularly Redshank and Oystercatcher (Clark 1982). Some 341 Redshanks and 104 Oystercatchers were found dead in the Montrose Basin in mid-January, while over 150 dead waders, mainly Oystercatcher and Curlew, were found in Findhorn Bay. At the BTO Ringing Office, recoveries of Redshanks ran at six times the normal national rate, and three times as many Oystercatchers were reported dead than would normally be expected in January.

Other species were perhaps more ready to move in response to the onset of cold weather; mortality of Dunlin, for example, was apparently about average. In some places influxes of waders were noted, presumably as birds moved away from the worst-affected sites within Britain and the Continent.

Monthly Totals

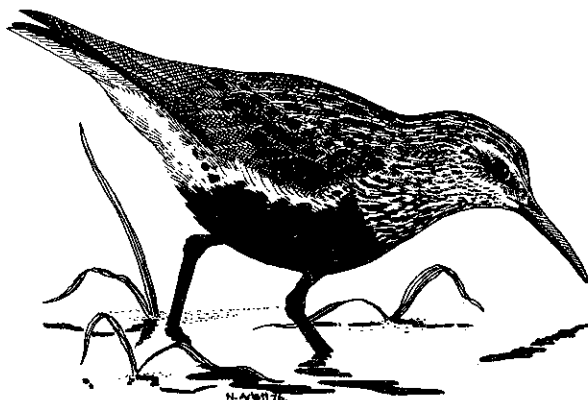
Table 17 shows totals for the priority mid-winter counts for each wader species recorded during this period. These are the grand totals summed across all sites at which counts were made. The official count dates were December 13th, January 10th and February 7th, but alterations were made to these at several places to accord with local conditions. The totals for the Republic of Ireland January counts at estuarine sites are also shown for comparison; note, however, that rather few of the major localities in the Republic were counted in January 1982.

The January total was the lowest recorded since the initial season of the Enquiry, 1969-70. This was the result of the low population levels of many species (see Table 38) and the lack of counts at several sites owing to the cold weather and the difficulty of travel.

In addition to the species tabulated, the following were also recorded in Britain or Ireland during official counts but only at passage times: Oriental Pratincole Glareola maldivarum; Little Ringed Plover Charadrius dubius; Temminck's Stint Calidris temminckii; White-rumped Sandpiper C. fuscicollis; Pectoral Sandpiper C. melanotos; Buff-breasted Sandpiper Tryngites sub-ruficollis; Hudsonian Godwit Limosa haemastica; Wood Sandpiper Tringa glareola. Oriental Pratincole (from India or SE Asia) and Hudsonian Godwit (from N America) were not previously recorded from the West Palearctic region.

Table 17. Total counts of winter waders on United Kingdom estuaries, 1981-82, and Republic of Ireland totals, January 1982.

	Dec 81	Jan 82	Feb 82	Republic of Ireland, January 1982
Oystercatcher	137,693	134,253	137,728	1,614
Avocet	86	148	231	0
Ringed Plover	5,447	5,809	5,152	836
Kentish Plover	0	0	2	0
Golden Plover	10,941	10,091	16,415	3,976
Grey Plover	11,608	11,319	17,387	324
Lapwing	41,319	29,088	95,486	9,757
Knot	128,871	103,886	164,518	292
Sanderling	2,286	4,226	3,340	62
Little Stint	3	9	1	0
Curlew Sandpiper	0	1	0	0
Purple Sandpiper	959	964	983	106
Dunlin	292,040	304,207	284,826	13,452
Ruff	69	152	186	0
Jack Snipe	38	14	13	1
Snipe	2,395	1,445	1,823	235
Long-billed Dowitcher	1	1	1	0
Woodcock	19	13	1	3
Black-tailed Godwit	1,571	3,484	3,030	3,074
Bar-tailed Godwit	30,255	43,970	46,279	706
Whimbrel	1	4	0	0
Curlew	23,420	30,104	42,406	1,449
Spotted Redshank	36	41	29	1
Redshank	35,615	32,708	40,914	2,440
Greenshank	115	119	107	49
Lesser Yellowlegs	1	1	1	0
Green Sandpiper	9	8	9	0
Common Sandpiper	9	10	6	0
Turnstone	7,888	8,216	8,650	399
Grey Phalarope	0	0	1	0
GRAND TOTALS	732,695	724,291	869,525	38,776



SPECIES ACCOUNTS

An account of the winter distribution and numbers of all wader species found during the mid-winter period is given below.

The number of sites at which the species was found in the mid-winter period is given after each heading. The total number of sites counted in the mid-winter months was 152. The tables give the chief localities for each species in the order of the highest of their mid-winter counts. An asterisk indicates that no count was made, while a zero indicates that no birds of that species were found during the count. References are made in the text to the population changes between seasons as measured by the January index (see Table 38) and to the criteria for national and international importance (see Appendix).

The present series of January indices has now been running for ten years, and some preliminary assessment is given of the long-term trends.

Oystercatcher Haematopus ostralegus 126 sites (Table 18)

	Dec	Jan	Feb
Dee	25,125	42,505	23,350
Solway Firth	31,604	16,596	17,162
Wash	19,223	*	16,327
Burry Inlet	7,862	9,625	14,300
Duddon	6,158	12,680	10,307
Foulness	3,966	5,000	7,890
Ribble	6,953	6,407	7,324
Firth of Forth (partial)	5,058	4,465	5,576
Clyde (inner)*	2,691	4,122	3,797
Swale	3,487	2,305	2,774
Strangford Lough	1,382	3,041	2,014

The sites listed are those where the criterion for national importance was exceeded in 1981-82. The top six further qualified at the international level. Morecambe Bay is usually the best site for this species. Last season's exceptionally high numbers on the Dee were maintained.

The January index decreased by 3%, but the overall trend is of shallow increase throughout the index period.

Avocet Recurvirostra avosetta 12 sites (Table 19)

	Dec	Jan	Feb
Ore (Havergate)	*	37	97
Exe	50	32	70
Butley Creek	*	63	60
Tamar (inner)	32	*	*
North Kent marshes	0	8	0
Plym	0	3	0

Six other sites between the Humber and Kingsbridge recorded one or two birds during the winter months. The wintering numbers at Havergate Island have grown over the last fourteen seasons from 16 (1968-69) to 54 (1975-76) and 104 (1980-81). The peak is always in November, however, outside the months formally covered by this report; there were 131 in November 1981. In 1979 and 1980 there were sharp increases in the numbers of Avocets wintering in western Europe (Prater 1981b).

Ringed Plover Charadrius hiaticula 120 sites (Table 20)

	Dec	Jan	Feb
Langstone Harbour	531	547	48
Galway Bay (inner)	*	477	*
Orwell	230	370	208
Swale	106	158	333
Solway Firth	285	32	129
Southampton Water	277	218	70
Medway	216	120	268
Humber	*	241	181
Leigh/Canvey	220	41	35
Blackpill	123	218	165

The top ten sites are tabulated. All are of national importance but none qualify at the international level. The Langstone Harbour counts returned to high levels after three seasons of relatively low numbers. In the previous cold winter, 1978-79, the winter peak was only 82 birds.

The January index decreased by 17%, but the overall picture during the index period is of stability.

Kentish Plover Charadrius alexandrinus 2 sites

Singles were seen on the February count at Ferring and in Chichester Harbour, both West Sussex. Since both records were from February 13th, and the Ferring bird was seen on several other dates, it seems certain that there were two individuals.

Golden Plover Pluvialis apricaria 78 sites (Table 21)

	Dec	Jan	Feb
Humber	*	235	2,940
Burry Inlet	0	2,250	1,510
Strangford Lough	238	286	2,200
Galway Bay (inner)	*	1,915	*
Lindisfarne	1,600	82	68

The top five sites are tabulated. Only the first three exceeded the national 1% level of 2,000.

There was a drop of 70% in the January index, bringing it well below the previous lowest value which followed a 66% drop in 1978-79. It is likely that birds desert British sites in hard winters in favour of milder parts of Europe, probably including Ireland where few estuaries contribute to the index.

Grey Plover Pluvialis squatarola 95 sites (Table 22)

	Dec	Jan	Feb
Foulness	346	217	2,213
Chichester Harbour	1,510	716	1,666
Wash	1,214	*	1,616
Dengie coast	545	1,380	100
Burry Inlet	43	120	1,240
Stour	385	233	1,084
Hamford Water	723	1,000	33
Ribble	903	510	614
Blackwater	276	874	564
Southampton Water	504	495	860

The results from those sites where more than 1% of the west European population was recorded are shown in the table. The February count at Foulness was exceptionally high. At the Wash, fewer than usual were seen - less than a fifth of last year's February count, which was the largest ever made at a British site.

The January index fell by 13%. The British numbers have shown a very slight upward trend since 1973, but the western European index (Prater 1981b) has more than doubled over the same period.

Lapwing Vanellus vanellus 121 sites (Table 23)

	Dec	Jan	Feb
Swale	1,889	882	16,127
Humber	*	32	7,934
Strangford Lough	1,897	1,372	7,019
Cork Harbour	*	6,299	*
Solway Firth	1,225	161	5,632

Lapwing were generally much scarcer this winter on estuaries. The January index fell by 55% from 1981, presumably because cold-weather movements had earlier taken most birds farther south and west. In the severe weather of January 1979 the index was 71% lower than the previous year, but the numbers had recovered well by 1981. The large February counts at four of the five sites listed suggest that mortality in the cold periods cannot have been severe, unless there had been large compensating movements from other wintering areas.

Knot Calidris canutus 70 sites (Table 24)

	Dec	Jan	Feb
Wash	54,139	*	52,590
Humber	*	34,734	18,009
Foulness	5,600	6,440	33,380
Dee	25,315	4,300	6,525
Ribble	4,874	2,630	16,262
Strangford Lough	8,595	9,075	10,330
Solway Firth	4,095	8,460	2,080
Teesmouth	4,500	6,400	7,100
Alt	270	6,200	800
Dengie coast	140	5,530	0
Firth of Forth	2,611	1,957	3,843
Burly Inlet	2,000	3,500	1,420

All sites supporting 1% or more of the west European population of Knot are listed. Morecambe Bay, where counts are usually comparable to those on the Wash, was not covered in 1981-82. The February count at Foulness was exceptionally high - there were more than twice as many birds as in any winter during 1976-81.

The numbers were 17% lower than in 1981, as recorded by the January index.

Sanderling Calidris alba 55 sites (Table 25)

	Dec	Jan	Feb
Ribble	106	1,790	1,089
Blackpill	155	365	222
Alt	60	355	356
Arun - Middleton	336	220	198
Firth of Tay	200	100	300
Hamford Water	120	250	152
Teesmouth	31	131	214
Wash	212	*	113
Duddon	169	70	30

Sites exceeding the international criterion of 150 birds are listed. As usual, the Ribble was by far the most important area. The counts on the Wash returned to more normal levels following last winter's peak of over a thousand.

The index showed an 18% increase. This species is highly variable from year to year but shows no long-term trend.

Little Stint Calidris minuta 4 sites

Apart from a most unusual record of 6 on the Bann in January, there were 3 on the Dengie coast, also in January, 2 at Rye Harbour in December, and singles in Chichester Harbour in December and February.

Curlew Sandpiper Calidris ferruginea 1 site

One at Clevedon on the Severn on January 10th was the sole record.

Purple Sandpiper Calidris maritima 42 sites (Table 26)

	Dec	Jan	Feb
Budle Point - Seahouses	182	*	102
Firth of Forth (partial)	151	178	171
Beadnell - Seahouses	23	166	90
Saltwick - Whitby	145	154	119
Brora - Golspie	125	114	115

Counts are tabulated for the top five sites, all of which were in the north-east. Only at Budle Point - Seahouses did the winter peak exceed 1% of the estimated British total. This species is at present particularly poorly covered by the Enquiry - only 5% of those thought to winter in Britain are accounted for in Table 17.

Dunlin Calidris alpina 127 sites (Table 27)

	Dec	Jan	Feb
Severn	44,801	52,605	31,158
Humber	*	32,203	18,294
Langstone Harbour	28,000	19,400	21,000
Wash	7,831	*	27,572
Mersey	25,400	*	*
Chichester Harbour	23,803	14,892	12,264
Blackwater	6,100	21,558	6,200

The seven estuaries listed above are those where more than 20,000 Dunlin, the international 1% level, were counted in mid-winter. Morecambe Bay is usually at the top of the league, but no counts were made there this year. The Ribble held 61,100 in December 1976 (Marchant 1981) but the winter numbers have since decreased to only 15,094 in January 1982.

A small decrease (5%) in the January index brought it to its lowest recorded level. There has been a trend of shallow decrease throughout the 1973-82 period, following an increase prior to 1973 (Prater 1981a).

Ruff Philomachus pugnax 23 sites (Table 28)

	Dec	Jan	Feb
Pagham Harbour	0	16	114
Swale	1	97	25
Solent (north-west)	19	0	0
Teesmouth	0	9	15
Firth of Forth	14	2	0
Southampton Water	13	0	12

All estuaries recording double figures are shown. At none of these was a flock present throughout the mid-winter period. The pattern suggests some birds attempting to winter but then disappearing, and a large early return passage beginning in January. The high count on the Swale was made on 21st January, by which time the weather had improved substantially.

The January index (to which the Swale could not contribute) fell by 34% to reach its lowest recorded value. In 1978-79, also a severe winter, 69% fewer Ruff were found in January than in the previous year.

Jack Snipe Lymnocyrtus minimus 26 sites

Many fewer Jack Snipe were reported than last year. The highest counts were 9 on the Dee in December and 7 on the Severn in February.

Snipe Gallinago gallinago 94 sites (Table 29)

	Dec	Jan	Feb
Southampton Water	493	67	214
Pett Level	150	80	400
Cuckmere	300	70	1

All counts of 300 and above are shown in the Table. The highest count during the January cold spell was 294 in Chichester Harbour. As usual, Sussex and Hampshire were the best counties for this species.

Long-billed Dowitcher Limnodromus scolopaceus 1 site

One wintered at Pennington Marshes on the Solent (north-west) and was seen on all three mid-winter counts.

Woodcock Scolopax rusticola 17 sites

The numbers of Woodcock reported were greatly increased from last year's two single birds, presumably as a result of cold-weather influxes. 19 were found in December, 13 in January, but only one in February. The highest counts were 8 at Lindisfarne in December and 4 at Beadnell - Howick in January. Thirteen of the seventeen sites were on the east coast. A similar influx occurred in 1978-79, when the total monthly counts were 17 in December, 35 in January and 13 in February. These figures correct an error in the report for that year (Marchant 1981).

Black-tailed Godwit Limosa limosa 33 sites (Table 30)

	Dec	Jan	Feb
Cork Harbour	*	2,984	*
Dee	34	1,290	385
Ribble	2	0	868
Stour	426	213	91
Chichester Harbour	391	266	229

The international 1% level of 400 was only exceeded at four sites, and relatively few places held any wintering Black-tailed Godwits this year, but the January numbers as measured by the index were 28% higher than in 1981. This increase continues the recovery in numbers evident since 1978.

Cork Harbour is the most important area for which there are recent counts, but the numbers were more than twice as high as expected. Black-tailed Godwits are notoriously mobile between adjacent sites and this may explain the patterns in the January and February counts on the Dee and the Ribble.

Bar-tailed Godwit Limosa lapponica 92 sites (Table 31)

	Dec	Jan	Feb
Ribble	5,071	4,586	15,885
Foulness	2,316	14,131	3,697
Wash	5,064	*	8,359
Solway Firth	4,604	7,022	2,353
Alt	60	6,540	42
Firth of Forth (Partial)	2,023	1,633	3,840
Dee	3,480	1,055	285
Lindisfarne	2,600	510	1,280
Lough Foyle	155	1,831	1,350
Strangford Lough	430	289	1,678

Only the top five sites exceeded the international 1% criterion, but these ten, plus another seven, provided counts higher than the British 1% level of 400 birds.

Whereas several species (notably Lapwing and Golden Plover) showed strong decreases in numbers this year in response to the cold weather, there was a huge 64% increase in the January index for Bar-tailed Godwits, possibly as a result of continental influxes. The numbers at Foulness in January and on the Ribble in February were two or three times higher than normal. In the previous cold winter of 1978-79, the numbers increased by 46%, following a period of stability from 1973-78.

Whimbrel Numenius phaeopus 2 sites

A single was reported on the Solway in December, and a party of 4 on the Plym in January.

Curlew Numenius arquata 127 sites (Table 32)

	Dec	Jan	Feb
Solway Firth	2,023	824	3,543
Lough Foyle	3	3,241	1,632
Wash	1,262	*	2,871
Foulness	1,412	629	2,858
Dee	1,745	2,135	2,545
Strangford Lough	1,420	1,925	1,416
Severn	836	1,621	1,813
Duddon	1,715	1,542	662
Taw/Torridge	582	250	1,497
Foryd Bay	*	1,300	*

Sixteen estuaries, of which the top ten are listed, held more than the British 1% level of 1,000 Curlew in a mid-winter month. Only two exceeded the international criterion of 3,000. Morecambe Bay is usually the best site for this species.

The January index continues to follow an apparent cyclic pattern, although it remains to be seen whether this can be maintained. A 12% decrease was recorded in 1982.

Spotted Redshank Tringa erythropus 18 sites

Double figure counts were recorded on the Beaulieu River in December (16) and on the north-west Solent in January (21). At Hamford Water, last year's top site, there were 21 in November but none during mid-winter. There was no change from last year's very low index level.

Wintering sites were chiefly in the south and south-west, but small numbers were scattered as far north as the Firth of Forth and the Dee.

Redshank Tringa totanus 133 sites (Table 33)

	Dec	Jan	Feb
Dee	2,680	1,615	2,880
Stour	1,604	2,125	2,748
Clyde (inner)	1,226	2,609	1,406
Wash	1,349	*	2,446
Hamford Water	2,131	2,000	607
Ribble	1,199	848	1,955
Strangford Lough	1,794	1,902	1,347
Cork Harbour	*	1,827	*
Humber	*	1,776	1,055
Chichester Harbour	1,148	1,399	1,645

The top ten localities for Redshank are listed, only the top five provided counts exceeding the international 1% level. Once again Redshanks wintered at a higher proportion of sites than any other wader.

In spite of the heavy mortality reported in some areas (Clark 1982) the numbers at several of the main sites peaked in February, and nationally the February count was the highest of the three (Table 17).

The January index decreased by 18% and the 1982 value was, marginally, the lowest yet recorded.

Greenshank Tringa nebularia 50 sites (Table 34)

	Dec	Jan	Feb
Galway Bay (inner)	*	16	*
Cork Harbour	*	16	*
Medway	14	9	0
Clyde (inner)	10	8	12
Strangford Lough	8	12	4
Taw/Torridge	8	0	12
Carlingford Lough	*	7	12
Southampton Water	11	8	2
Lough Foyle	5	10	10

All double-figure counts are tabulated. Decreases presumably resulting from the severe weather were noted at most resorts, and the data show only half as many occupied sites as last year. The January index fell by 19% but remained at a relatively high level.

Lesser Yellowlegs Tringa flavipes 1 site

One wintered on the Avon (Devon) and was found on all three mid-winter counts.

Green Sandpiper Tringa ochropus 13 sites

No more than 3 were seen at any one locality. All the December-February sites lay on coasts between north Devon and east Norfolk.

Common Sandpiper Actitis hypoleucos 11 sites

There were 3 in Southampton Water in December and on the Exe in January, while 2 on the Tavy in December rose to 3 in February. Other counts were of singles only.

Turnstone Arenaria interpres 105 sites (Table 35)

	Dec	Jan	Feb
Firth of Forth (partial)	811	888	1,034
Wash	824	*	395
Guernsey	188	302	484
Pagham Harbour	81	253	448
Southampton Water	330	316	437
Dengie coast	92	396	40
Boulmer - Alnmouth	313	184	385
Blackwater	283	375	72
Stour	366	318	128
Colne	15	350	*

The sites tabulated are the top ten. These, plus another five, supported at least 1% of the estimated British wintering population in a mid-winter month, but only the Firth of Forth and the Wash surpassed the international criterion. Counts from the south shore of the Forth only were available in time for this report, but these were sufficient to indicate the importance of the area. Morecambe Bay also supports large numbers, but was not counted in 1981-82.

There was virtually no change from last year's January population level.

Grey Phalarope Phalaropus fulicarius 1 site

A single was found on the Taw/Torridge in February.

SITES FOR WADERS

The most important sites for wintering waders in Britain and Ireland are shown in Table 36 in the order of the winter peak counts recorded for 1981-82. The winter peak is calculated by listing the highest counts made for each species during the December to February period, irrespective of the month in which they were made, and then totalling these counts. This procedure makes allowance for any poor counts that may have been made in particular winter months, and also gives due importance to peaks of wintering numbers occurring early or late in the mid-winter period. Where only one or two counts were made during these three months, the estimate of the winter peak is likely to be reduced; sites with less than three mid-winter counts are marked with asterisks in the Table. Only those with a winter peak of more than 2,000 are listed. Sites regularly supporting more than 20,000 waders are regarded as internationally important (see Appendix).

Also shown in Table 36 are the all-year peaks for each site. These are calculated by adding the maxima recorded for each species during the whole July to June period. The number of months for which data are available is appended in brackets. Where only the winter counts were made the all-year peak is identical to the winter peak, but where there were extra counts the difference between the two peaks reflects the importance of the site to waders on passage. Note that in a few cases, counts for the latter part of the 1981-82 counting season arrived too late for inclusion in this report.

Table 36. Peak counts of waders, 1981-82

	Winter	All-year
Wash	119,708*	165,655 (4)
Dee	99,891	111,745 (7)
Humber	83,502*	87,609 (6)
Foulness	69,625	79,201 (8)
Solway Firth	66,151	84,209 (9)
Ribble	65,917	92,366 (8)
Severn	62,023	64,110(12)
Strangford Lough	36,689	37,276 (7)
Chichester Harbour	36,145	38,675 (7)
Langstone Harbour	34,555	40,578 (9)
Swale	34,234	35,188 (9)
Burry Inlet	31,872	33,357(12)
Blackwater	30,215	31,500 (8)
Mersey	26,593**	30,645 (6)
Forth	25,986	25,986 (3)
Lindisfarne	24,753	54,807 (9)
Duddon	23,469	24,832(12)
Cork Harbour	22,805**	40,691 (2)
Stour	20,664	22,288 (6)
Southampton Water	19,472	20,624 (9)
Hamford Water	17,267	21,188 (7)
Teesmouth	16,363	20,844(12)
Alt	15,522	15,522 (3)
Portsmouth Harbour	13,538	14,962(12)
Clyde (inner)	13,102	13,638 (4)
Tay	12,643	12,986 (4)
Exe	12,342	17,794(11)
Dengie	11,933	15,311 (4)
Taff/Ely	9,901*	9,940 (4)
Leigh/Canvey	9,811	16,932 (8)
Lough Foyle	8,994	16,913 (8)
Pagham Harbour	8,694	9,777 (7)
Taw/Torridge	8,341	12,986 (8)
Blackpill	7,540	7,983(12)
Galway Bay (inner)	7,019**	7,032 (2)
Dornoch Firth	6,995	7,118 (8)
Crouch/Roach	6,850	8,513 (8)
Medway	6,621	7,152 (6)
Orwell	6,453	6,453 (3)
Breydon Water	5,906*	6,273 (8)
Solent (north-west)	5,866	7,496(11)
Beddmanarch Bay/Inland Sea	5,181	5,389 (6)
Carlingford Lough	5,131*	5,131 (2)
Guernsey	4,490	4,877(11)
Menai Straits/Lavan Sands	4,408	11,645 (9)
Colne	4,246	6,881 (8)
Dungarvan Bay	4,010**	4,532 (2)
Pett Level	3,665	3,729 (7)
Dundrum	3,551	4,430(12)
Ythan	3,511	11,407 (7)

Table 36, continued

	Winter	All-year
Rye Harbour	3,247	3,756 (7)
Seaton Sluice - Tynemouth	2,694	3,756 (5)
Beaulieu River	2,683	2,866 (8)
Foryd Bay	2,670**	3,204 (2)
Loch Fleet	2,620	3,258 (9)
Hayle	2,619	3,604 (6)
Ballylongford Bay	2,493	3,431 (2)
Adur Saltings	2,468	2,524 (7)
Newtown Marsh	2,411	2,595(11)
Piltanton/Luce	2,271	2,788 (4)
Red Wharf Bay	2,212*	2,893 (3)
North Kent marshes	2,158	2,184 (7)
Kingsbridge	2,122	2,845(11)
Beadnell - Howick	2,058	2,927 (6)

* only two of the three priority winter counts were performed

** only one of the three winter counts was performed

() number of months in which counts were made

The approximate locations of estuaries mentioned in Table 36 can be found by reference to the full list of sites covered, given in Table 37. In total, counts were made at 162 localities, an improvement over last year's 131, although in a few cases sites treated as a unit in 1980-81 have now been split.

No counts were received this year from Morecambe Bay, the prime British site for waders. Of last year's top ten sites, the winter peak increased this year on the Ribble, the Solway, the Severn, the Alt and at Foulness, and decreased on the Wash and the Dee, while no comparison was possible for the Humber (only partly covered in 1980-81) and Morecambe Bay. A welcome sign of improvement in the temporal spread of counts was that the average number of monthly counts per site rose to 7.7 from last year's 6.4.

Table 37. Sites at which waders were counted, 1981-82.

<p>EAST SCOTLAND (11)</p> <p>Beaully Firth, Highland</p> <p>Brora - Golspie, Highland</p> <p>Cromarty Firth, Highland</p> <p>Deveron, Grampian</p> <p>Dornoch Firth, Highland</p> <p>Firth of Forth, Lothian/Central/Fife</p> <p>Firth of Tay, Fife/Tayside</p> <p>Loch Fleet, Highland</p> <p>Lossie, Grampian</p> <p>Moray Firth, Highland</p> <p>Ythan, Grampian</p>	<p>SOUTH-WEST ENGLAND (16)</p> <p>Avon, Devon</p> <p>Axe, Devon</p> <p>Dart, Devon</p> <p>Erme, Devon</p> <p>Eze, Devon</p> <p>Hayle, Cornwall</p> <p>Kingsbridge, Devon</p> <p>Millbrook/St. John's Lake, Cornwall</p> <p>Otter, Devon</p> <p>Plym, Devon</p> <p>Severn, Avon/Somerset</p> <p>Tamar (inner), Devon/Cornwall</p> <p>Tavy, Devon</p> <p>Taw/Torrige, Devon</p> <p>Teign, Devon</p> <p>YeaIm, Devon</p>
<p>WEST SCOTLAND (31)</p> <p>Ardrossan - SeamiIl, Strathclyde</p> <p>Arran, Strathclyde</p> <p>Ayr - Pow Burn, Strathclyde</p> <p>Broadford Bay, Highland</p> <p>Clyde (inner), Strathclyde</p> <p>Dipple - Chapeldonan, Strathclyde</p> <p>Doon, Strathclyde</p> <p>Hunterston, Strathclyde</p> <p>Irvine (Garnock), Strathclyde</p> <p>Loch Ainort, Highland</p> <p>Loch Brittle, Highland</p> <p>Loch Burue, Western Isles</p> <p>Loch Dunvegan, Highland</p> <p>Loch Eyre, Highland</p> <p>Loch Greshornish, Highland</p> <p>Loch Harport, Highland</p> <p>Loch Ryan, Dumfries & Galloway</p> <p>Loch Shawbost, Western Isles</p> <p>Loch Snizort, Highland</p> <p>Loch Suardal, Highland</p> <p>Luskentyre, Western Isles</p> <p>Maidens, Strathclyde</p> <p>Melbost Sands, Western Isles</p> <p>Northton, Western Isles</p> <p>Piltanton - Luce, Dumfries & Galloway</p> <p>Port Mhor Bragar, Western Isles</p> <p>Portree Bay, Highland</p> <p>Solway Firth, Dumfries & Galloway</p> <p>Troon, Strathclyde</p> <p>Uig Bay, Highland</p> <p>Urr, Dumfries & Galloway</p>	<p>SOUTHERN ENGLAND (19)</p> <p>Adur Saltings, West Sussex</p> <p>Arun - Middleton, West Sussex</p> <p>Beaulieu River, Hampshire</p> <p>Brading Harbour, Isle of Wight</p> <p>Chichester Harbour, West Sussex/Hampshire</p> <p>Cuckmere, East Sussex</p> <p>Goring - Ferring, West Sussex</p> <p>Langstone Harbour, Hampshire</p> <p>Medina, Isle of Wight</p> <p>Newhaven Tide Mills, East Sussex</p> <p>Newtown Harbour, Isle of Wight</p> <p>Pagham Harbour, West Sussex</p> <p>Pett Level, East Sussex</p> <p>Portland Harbour/Ferrybridge, Dorset</p> <p>Portsmouth Harbour, Hampshire</p> <p>Ryde Sands, Isle of Wight</p> <p>Rye Harbour, East Sussex</p> <p>Solent (north-west), Hampshire</p> <p>Southampton Water, Hampshire</p>
<p>NORTH-WEST ENGLAND (6)</p> <p>Alt, Merseyside</p> <p>Dee, Merseyside/Cheshire</p> <p>Duddon, Cumbria</p> <p>Mersey, Merseyside/Cheshire</p> <p>Ribble, Lancashire/Merseyside</p> <p>Solway, Cumbria</p>	<p>EASTERN ENGLAND (41)</p> <p>Alnmouth - Amble, Northumberland</p> <p>Amble - Chevington, Northumberland</p> <p>Beadnell - Howick, Northumberland</p> <p>Blackwater, Essex</p> <p>Blakeney Harbour, Norfolk</p> <p>Blyth, Suffolk</p> <p>Blyth - Seaton Sluice, Northumberland</p> <p>Boulmer - Alnmouth, Northumberland</p> <p>Breydon Water, Norfolk</p> <p>Budle Point - Seahouses, Northumberland</p> <p>Butley Creek, Suffolk</p> <p>Chevington - Cresswell, Northumberland</p> <p>Colne, Essex</p> <p>Coquet, Northumberland</p> <p>Cresswell - Newbiggin, Northumberland</p> <p>Crouch/Roach, Essex</p> <p>Deben, Suffolk</p> <p>Dengie, Essex</p> <p>Foulness, Essex</p> <p>Hamford Water, Essex</p> <p>Howick - Boulmer, Northumberland</p> <p>Humber, Humberside/Lincolnshire</p> <p>Jackson's Bay, North Yorkshire</p> <p>Leigh - Canvey, Essex</p> <p>Lindisfarne, Northumberland</p> <p>Medway, Kent</p> <p>Newbiggin - Wansbeck, Northumberland</p> <p>North Kent marshes</p> <p>Ore/Havergate, Suffolk</p> <p>Orwell, Suffolk</p>
<p>WALES (15)</p> <p>Angle Bay, Dyfed</p> <p>Artro, Gwynedd</p> <p>Beddmanarch Bay/Inland Sea, Gwynedd</p> <p>Blackpill, West Glamorgan</p> <p>Burry Inlet, West Glamorgan/Dyfed</p> <p>Cledau, Dyfed</p> <p>Dee, Clwyd</p> <p>Foryd Bay, Gwynedd</p> <p>Gann, Dyfed</p> <p>Menai Straits/Lavan Sands, Gwynedd</p> <p>Nyfer, Dyfed</p> <p>Red Wharf Bay, Gwynedd</p> <p>Severn, Gwent/South Glamorgan</p> <p>Taff/Ely, South Glamorgan</p> <p>Traeth Bach, Gwynedd</p>	

EASTERN ENGLAND (Continued)

Saltwick - Whitby, North Yorkshire
 Seahouses - Beadnell, Northumberland
 Seaton Sluice - Tynemouth, Tyne and Wear
 Stour, Essex/Suffolk
 Swale, Kent
 Teesmouth, Cleveland
 Thames (inner), Essex
 Tweed, Northumberland
 Wansbeck - Blyth, Northumberland
 Wash, Lincolnshire/Norfolk
 Wear, Tyne and Wear

CHANNEL ISLANDS (1)

Guernsey

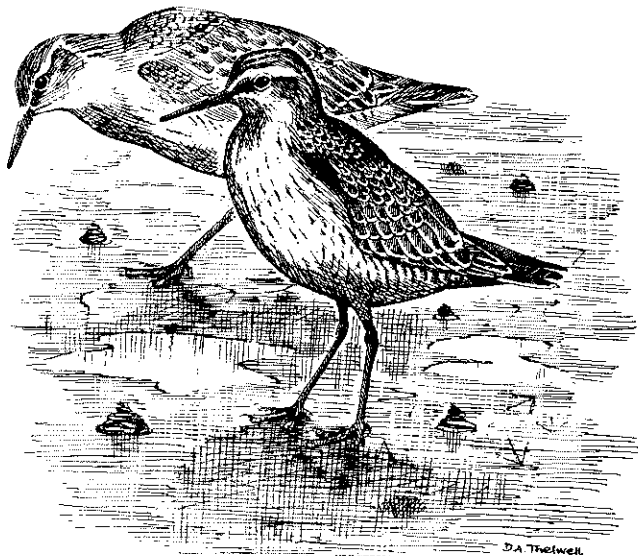
NORTHERN IRELAND (5)

Bann, Londonderry
 Carlingford Lough, Down
 Dundrum Bay, Down
 Lough Foyle, Londonderry
 Strangford Lough, Down

REPUBLIC OF IRELAND (17)

(Counts for wetlands in the Republic of Ireland are held by the Irish Wildbird Conservancy. Data from the sites listed are also available from Birds of Estuaries Enquiry files.)

Ballinskelligs Bay, Kerry
 Ballybunnion, Kerry
 Ballyconneely, Galway
 Ballycotton, Cork
 Ballylongford Bay, Kerry
 Beal, Kerry
 Bunclogga Bay, Kerry
 Carrowabinna - Aughris, Sligo
 Cashla - Carna, Galway
 Cork Harbour, Cork
 Dungarvan Bay, Waterford
 Galway Bay (inner), Galway
 Killala Bay, Mayo
 Lough Swilly, Donegal
 Lurga Point, Clare
 Rinneveilla, Clare
 Tarbert Bay, Kerry



D.A. Threlwell

Indices of Wintering Numbers

The geographical coverage achieved by the Estuaries Enquiry varies from year to year, and so it is not possible to derive satisfactory data on population changes between winter seasons by simply examining the totals of the birds counted, as given for example in Table 17 of this report.

To overcome this problem, an index of numbers has been devised, based on the January counts. Only sites where coverage has been consistent over a two-year period have been allowed to contribute to the index totals for those years. As each year's data become available, the percentage change recorded between the index totals for the incoming year and the previous year is applied to the index value for the previous year to give the new index value. All indices were arbitrarily set at 100 in 1973. The values for the years 1973-80 were shown as index graphs by Marchant (1981).

Prater (1981b) gives January index graphs for the whole of western Europe for the years 1973-81, covering 12 species. The trends are substantially similar to those of the British populations.

Table 38. January indices for British and Irish wader populations, 1973-1982

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Oystercatcher	100	123	126	152	160	147	156	177	186	180
Ringed Plover	100	125	117	143	116	134	124	128	151	125
Golden Plover	100	96	127	127	75	99	34	36	73	22
Grey Plover	100	140	160	161	189	99	145	191	171	148
Lapwing	100	175	166	236	119	106	31	89	180	81
Knot	100	121	74	83	86	61	112	80	100	83
Sanderling	100	101	196	199	109	51	96	143	102	120
Dunlin	100	125	112	113	105	80	84	82	79	75
Ruff	100	113	80	44	46	90	28	51	39	26
Black-tailed Godwit	100	90	83	52	43	21	22	27	27	34
Bar-tailed Godwit	100	119	107	108	115	103	150	207	143	234
Curlew	100	135	143	136	96	85	87	111	113	100
Spotted Redshank	100	54	67	70	63	84	34	35	18	18
Redshank	100	103	111	125	97	78	92	92	91	75
Greenshank	100	95	101	136	99	101	84	123	148	119
Turnstone	100	130	124	145	150	140	143	139	127	126

NOTE: January indices for all species were set at an arbitrary level of 100 in 1973.

REFERENCES

- Atkinson-Willes, G.L. & Salmon, D.G. 1979. Duck counts. Wildfowl 30: 164.
- Campbell, L.H. 1976, 1977, 1978a and 1979. Forth estuary winter seaduck surveys 1975-76 to 1978-79. Reports to Nature Conservancy Council, S.E. Scotland Region.
- Campbell, L.H. 1978b. Patterns of distribution and behaviour of flocks of seaducks wintering at Leith and Musselburgh, Scotland. Biol. Conserv. 14: 111-124.
- Chandler, R.J. 1981. Influxes into Britain and Ireland of Red-necked Grebes and other waterbirds during winter 1978/79. British Birds 74: 55-81.
- Clark, N.A. 1982. The effects of the severe weather in December 1981 and January 1982 on waders in Britain. Wader Study Group Bull. 34: 5-7.
- Forshaw, D. 1982. Report on wild geese and swans in Lancashire 1981/1982. Unpub. report. 15 pp.
- International Waterfowl Research Bureau 1980. Conference on the Conservation of Wetlands of International Importance Especially as Waterfowl Habitat. Cagliari, Italy, 24-29 November 1980. 42 pp.
- Lea, D. 1978. Seafowl in Scapa Flow 1974-78. Report by RSPB to NCC. NCC CST Report No. 292. 10 pp.
- Marchant, J.H. 1981 (ed.) Birds of Estuaries Enquiry 1976-77 to 1978-79. British Trust for Ornithology, Tring.
- Milne, H. 1977. Air survey of seaducks in Firths of Tay and Forth, 29th November 1977. Report to NCC, S.E. Scotland Region.
- Milne, H. 1978. Air survey of seaducks on east coast of Scotland, 30th November 1978. Report to NCC, S.E. Scotland Region.
- Milne, H. 1981. Air Survey of ducks at sea, 27th November, 1981. Report to NCC, S.E. Scotland Region.
- Mudge, G.P. 1978. Seaducks in the Moray and Dornoch Firths, Scotland, winter of 1977/78. Report to NCC and RSPB. 79 pp.
- Mudge, G.P. & Allen, D.S. 1980. Wintering seaducks in the Moray and Dornoch Firths, Scotland. Wildfowl 31: 123-30.
- Norfolk Bird Report 1981. Norfolk Naturalists Trust/Norfolk & Norwich Naturalists Society.
- Ogilvie, M.A., 1977. The numbers of Canada Geese in Britain, 1976. Wildfowl 28: 27-34.
- Ogilvie, M.A. 1981a. The Mute Swan in Britain, 1978. Bird Study 28: 87-106.
- Ogilvie, M.A. 1981b. Greylag and Pink-footed Geese in Britain, 7th/8th November 1981. Unpublished report. 4 pp.
- Ogilvie, M.A. 1982a. Numbers of geese in Britain and Ireland, 1981-82. Wildfowl 33: 172.

REFERENCES (Continued)

- Ogilvie, M.A. 1982b. Greylag and Pink-footed Geese in Britain, 20th/21st March 1982. 4 pp.
- Ogilvie, M.A. 1982c. Winter 1978/79 hard weather movements and mortality of ducks ringed in the United Kingdom. Proc. Second Tech. Meeting on Western Palearctic Migratory Bird Management, Paris, 11-13 December 1979: 174-180.
- Owen, M. & Atkinson-Willes, G.L. In prep. Wildfowl in Great Britain (Revised Edition). Poyser, Calton.
- Prater, A.J. 1981a. Estuary Birds of Britain and Ireland. Poyser, Calton.
- Prater, A.J. 1981b. Wader Research Group Report, Debrecen. IWRB Bulletin 47: 74-78.
- Reynolds, P. 1981. Whooper Swan Survey, Orkney, 7th/8th November 1981. Unpublished report to NCC. N.E. Scotland Region. 3 pp.
- Saint-Gerand, T. 1982. Analyse des denombrements d'anatides et de foulques en France, Janvier 1982. Unpublished report. 20 pp.
- Salmon, D.G. 1980. (ed.) Wildfowl and Wader Counts 1979-80. Wildfowl Trust, Slimbridge.
- Salmon, D.G. 1981. (ed.) Wildfowl and Wader Counts 1980-81. Wildfowl Trust, Slimbridge.
- Scottish Bird Reports 1975-1980. Scottish Birds Vols. 10 and 11.

Appendix

Criteria and Qualifying Levels for National and International Importance

A wetland is considered Internationally Important if it:

- (a) regularly supports either 10,000 ducks, geese and swans; or 10,000 coots; or 20,000 waders.
- (b) regularly supports 1% of the individuals in a population of one species or subspecies of waterfowl.
- (c) regularly supports 1% of the breeding pairs in a population of one species or subspecies of waterfowl.

(IWRB 1980)

A wetland in Britain is considered Nationally Important if it regularly holds at least 1% of the estimated British wintering population of one species or subspecies (Prater 1981a; Salmon 1981).

Table 39 (over) gives qualifying levels among wildfowl and waders for both categories of importance. Note that "regularly", as used above, implies that the average maximum for the most recent FIVE seasons exceeds the appropriate qualifying level.

Recent analyses (Owen & Atkinson-Willes in prep.) suggest that previous estimates of the British population of many species of wildfowl have been far too low, as insufficient allowance has been made for the number of sites not covered in the counts in any given year. Counts have been made on at least one occasion at some 3600 different sites since 1960, but the most covered in any one season has been the 1446 of 1981-82. As explained in the account of the Red-breasted Merganser (page 27), by using the data from all sites ever counted, and estimating the total number at places which have never been recorded, it has been possible to make a more realistic guess at the true British population of each species. The subsequent findings mean that the qualifying levels for National Importance have had to be revised for the following species: Shelduck, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Long-tailed Duck, Goldeneye and Red-breasted Merganser. Additionally, recent increases in the numbers of Pinkfeet, Greenland White-fronts and Greylags mean that their qualifying levels, both National and International, have been amended.

Table 39. Qualifying levels for national and international importance

	National (Great Britain only)	International (Northwest/west European pop.)
Mute Swan	180	1,200
Bewick's Swan	50	120
Whooper Swan	* 50	100
Bean Goose	-	700
Pink-footed Goose: Iceland/Greenland pop.	900	900
European White-fronted Goose	60	2,000
Greenland White-fronted Goose	60	150
Greylag Goose: Iceland pop.	900	900
Barnacle Goose: Greenland pop.	200	300
Svalbard pop.	80	* 100
Dark-bellied Brent Goose	600	1,300
Light-bellied Brent Goose		
Canada/Greenland pop.	-	150
Svalbard pop.	* 50	* 100
Shelduck	750	1,250
Wigeon	2,000	5,000
Gadwall	* 50	550
Teal	1,000	2,000
Mallard	4,000	+10,000
Pintail	250	750
Shoveler	90	1,000
Pochard	500	2,500
Tufted Duck	600	5,000
Scaup	50	1,500
Eider	500	+10,000
Long-tailed Duck	200	5,000
Common Scoter	350	+10,000
Velvet Scoter	* 50	2,000
Goldeneye	150	2,000
Smew	-	200
Red-breasted Merganser	100	400
Goosander	* 50	750
Oystercatcher	3,000	7,500
Avocet	-	260
Ringed Plover	120 (Passage: 300)	1,000
Golden Plover	2,000	10,000
Grey Plover	100	800
Lapwing	5,000	+20,000
Knot	2,500	3,500
Sanderling: Passage	300	500
Winter	100	150
Purple Sandpiper	180	?
Dunlin	5,500 (Passage: 2,000)	+20,000
Ruff	-	10,000
Snipe	?	10,000
Black-tailed Godwit	50	400
Bar-tailed Godwit	450	5,500
Whimbrel	100	500
Curlew	1,000	3,000
Spotted Redshank	50	500
Redshank	1,000 (Passage: 1,200)	2,000
Greenshank	50	500
Turnstone	250	500

(* minimum permissible; represents over 1%

+ maximum permissible; represents under 1%

- British population too small for meaningful figure to be obtained)