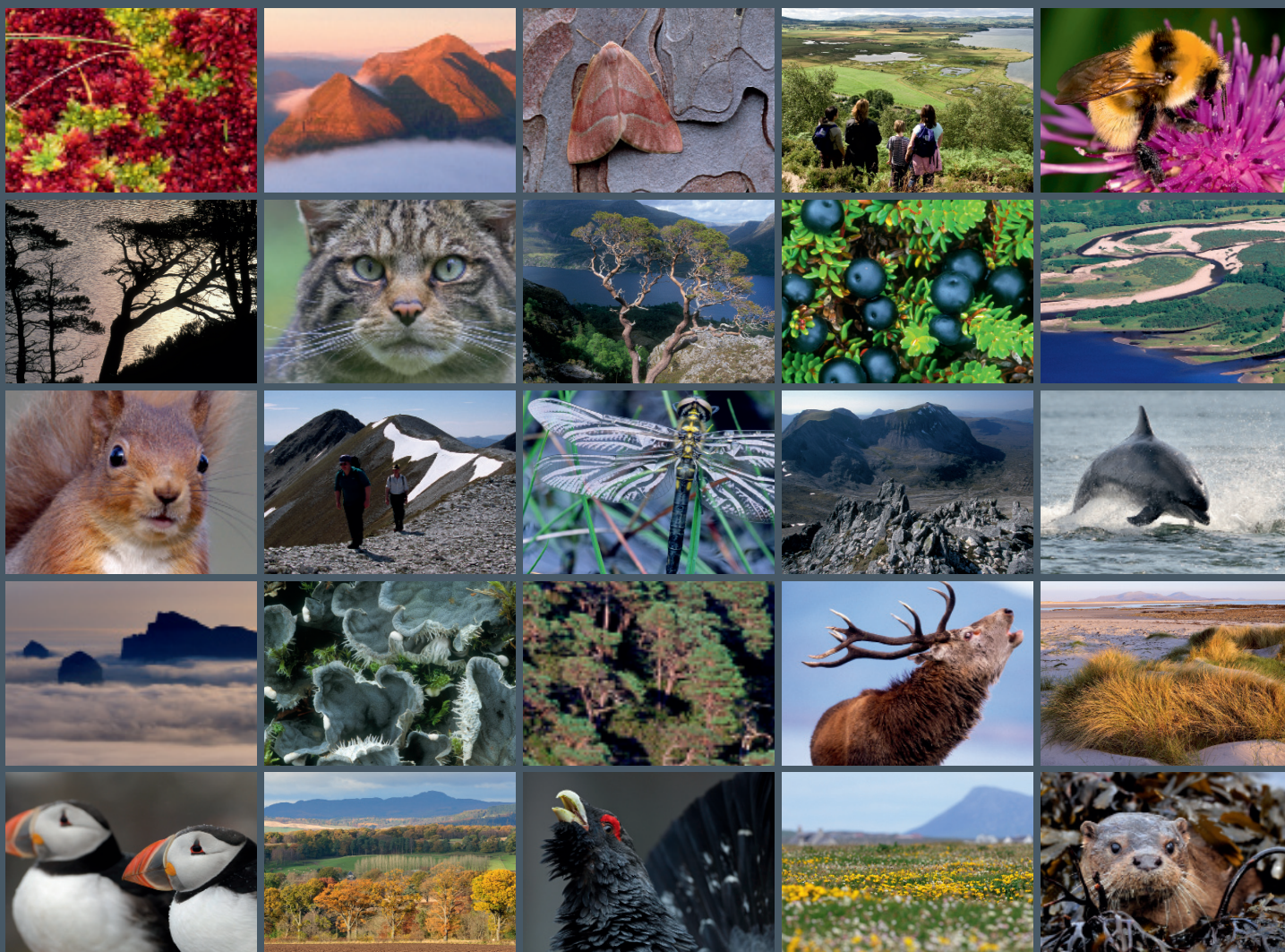


Waders and wildfowl on the Ythan Estuary 1992/1993





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Waders and wildfowl on the Ythan Estuary 1992/1993

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**WADERS AND WATERFOWL ON THE
YTHAN ESTUARY 1992/93;**

By

I J Patterson and R M Laing

NE/92/200

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SCOTTISH NATURAL HERITAGE
NORTH EAST REGION
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Summary

The 1992/93 survey is a continuation of the 91/92 work. The report provides total counts and distribution of the wader and waterfowl species on the Ythan Estuary twice each month. For each species the number of birds found in each section of the estuary from the mouth upstream and the total for the whole estuary are shown in a table.

WADERS AND WATERFOWL ON THE YTHAN ESTUARY 1992/93:

A REPORT TO SCOTTISH NATURAL HERITAGE, JULY 1993

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INTRODUCTION

The surveys in 1992/93 were a direct continuation of those in the previous year, with the same objective of providing for each wader and waterfowl species the total number and distribution in the Ythan estuary twice each month. The counts were carried out from 8 June 1992 to 27 May 1993, using the same methods used in earlier years (Patterson and Laing 1992: Report to SNH).

RESULTS

a) Individual species

The data are presented in separate species accounts, arranged in taxonomic order. For each species, the number of birds found in each section of the estuary from the mouth upstream (ie Mouth, Inches, Quay, Tarty, Sleek, Haddo, Snub, Machar and Logie; Fig.1), and the total for the whole estuary, are shown in a table.

Shelduck *Tadorna tadorna*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	2	0	16	6	12	10	0	2	48
24 6 92	0	2	0	12	4	16	14	0	2	50
7 7 92	0	0	0	9	2	14	10	0	2	37
31 7 92	0	0	1	0	11	3	2	0	0	17
5 8 92	0	0	2	2	12	1	4	2	0	23
18 8 92	0	0	0	2	4	4	5	0	0	15
4 9 92	0	0	0	0	0	3	5	0	0	8
12 1 93	0	0	0	0	0	0	17	0	0	17
28 1 93	0	0	0	6	12	0	23	3	0	44
1 2 93	0	0	2	2	9	0	26	0	2	41
26 2 93	0	0	0	14	26	33	3	0	0	76
16 3 93	0	12	0	14	17	32	2	2	0	79
31 3 93	0	0	0	0	18	4	32	0	2	56
14 4 93	0	8	2	30	10	16	12	2	0	80
26 4 93	0	0	2	14	22	12	6	0	0	56
10 5 93	0	0	2	16	6	12	10	0	0	46
27 5 93	0	0	0	0	2	14	17	0	2	35

Shelducks were recorded throughout the year, except for October to December and reached a peak of 80 on 14 April compared to 70 in 1991/92. Most were found in the middle sections of the estuary. As in previous years, the total local population will be considerably higher, since the counts took no account of birds in the nesting area on Forvie, or those on freshwater pools and upstream of Logie Buchan Bridge. The maximum count of ducklings which reached fledging age was 34.

Eider Somateria mollissima

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
10 6 92	2198	787	431	0	77	14	0	0	0	3507
16 6 92	1123	116	167	0	0	9	0	0	0	1415
9 7 92	556	24	66	0	9	6	0	0	0	661
28 7 92	826	0	0	0	0	0	0	0	0	826
7 8 92	601	0	0	0	0	0	0	0	0	601
28 8 92	534	37	0	0	0	0	0	0	0	571
8 9 92	352	241	40	0	0	0	0	0	0	633
23 9 92	391	346	40	0	0	0	0	0	0	777
6 10 92	180	881	129	0	10	0	0	0	0	1200
26 10 92	27	0	545	0	18	0	0	0	0	590
10 11 92	30	378	146	0	46	0	0	0	0	600
24 11 92	43	271	75	0	0	0	0	0	0	389
8 12 92	46	332	483	0	50	0	0	0	0	911
21 12 92	25	326	511	0	53	0	0	0	0	915
8 1 93	54	324	475	0	65	0	0	0	0	918
21 1 93	67	326	482	0	55	0	0	0	0	930
3 2 93	598	65	48	0	30	0	0	0	0	741
24 2 93	81	254	164	0	122	0	0	0	0	621
8 3 93	504	96	53	0	87	0	0	0	0	740
25 3 93	215	99	382	0	158	0	0	0	0	854
16 4 93	511	28	324	0	35	0	0	0	0	898
21 4 93	563	2	342	0	51	0	0	0	0	958
26 4 93	567	52	310	0	53	0	0	0	0	982
6 5 93	1651	770	308	0	59	0	5	0	0	2793
14 5 93	3076	809	325	0	98	16	0	0	0	4324
20 5 93	1984	1061	557	0	127	6	0	0	0	3735
31 5 93	2099	1019	314	0	52	4	0	0	0	3488

Eiders were found on the estuary throughout the year, mainly in the lower sections, with a peak of 4,324 on 14 May 1993 (similar to the 4,536 found in 1991/92) and around 900 over the winter. The number of ducklings reaching the fledging stage was only 48.

Wigeon *Anas penelope*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	0	0	0	0	8	0	0	8
7 7 92	0	0	0	0	0	3	0	0	0	3
4 9 92	0	0	0	0	0	6	6	0	0	12
21 9 92	0	18	4	0	0	18	28	0	0	68
12 10 92	0	0	16	0	0	23	29	0	0	68
30 10 92	0	0	0	0	29	0	12	0	0	41
13 11 92	23	42	12	0	42	12	0	0	0	131
27 11 92	36	29	14	16	65	0	18	0	0	178
14 12 92	47	53	36	53	103	0	0	0	0	292
17 12 92	36	42	40	61	77	12	23	0	0	291
12 1 93	23	21	14	0	23	0	36	0	0	117
28 1 93	33	58	122	29	43	0	0	0	0	285
1 2 93	46	78	103	18	33	0	0	0	0	278
26 2 93	19	24	21	17	0	0	0	0	0	81
16 3 93	0	14	0	0	0	0	0	0	0	14
14 4 93	0	0	0	0	6	0	4	0	0	10
26 4 93	0	0	0	0	6	6	0	0	0	12

Wigeon were recorded in all months except for August, with highest numbers from November to early February, which were slightly higher than in the previous year (peak; 272). Most were found in the lower part of the estuary, except for the small numbers in spring and summer, which tended to be upstream of the Snub. As in 1991/92, however, wigeon were not seen at Machar or Logie.

Teal *Anas crecca*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	0	0	0	0	0	0	12	12
24 6 92	0	0	0	0	0	0	0	0	9	9
7 7 92	0	0	0	0	0	0	0	0	7	7
31 7 92	0	0	0	0	0	0	0	0	6	6
5 8 92	0	0	0	0	0	0	0	0	6	6
18 8 92	0	0	0	0	0	0	0	0	9	9
4 9 92	0	0	0	0	0	0	0	0	14	14
21 9 92	0	0	0	0	0	0	0	0	15	15
12 10 92	0	0	0	0	0	0	0	0	11	11
30 10 92	0	0	0	0	0	0	0	0	12	12
13 11 92	0	0	0	0	0	0	0	0	9	9
27 11 92	0	0	0	0	0	0	0	0	5	5
14 12 92	0	0	0	0	0	0	0	0	3	3
17 12 92	0	0	0	0	0	0	0	0	9	9
12 1 93	0	0	0	0	0	0	0	0	5	5
28 1 93	0	0	0	0	0	0	0	0	3	3
1 2 93	0	0	0	0	0	0	0	0	4	4
26 2 93	0	0	0	0	0	0	0	0	7	7
16 3 93	0	0	0	0	0	0	0	0	9	9
31 3 93	0	0	0	0	0	0	0	0	12	12
14 4 93	0	0	0	0	0	0	0	0	9	9
26 4 93	0	0	0	0	0	0	0	0	12	12
10 5 93	0	0	0	0	0	0	0	0	8	8
27 5 93	0	0	0	0	0	0	0	0	5	5

As in 1991/92, Teal were found only in small numbers and only at Logie, but occurred throughout the year (compared to only February to May in the previous year). Numbers were lower than in 1991/92, with a peak of 15 (21 September) compared to 28 (10 April 1992).

Mallard *Anas platyrhynchos*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	2	6	0	8	2	0	0	18
24 6 92	0	0	0	0	0	12	6	2	0	20
7 7 92	0	0	0	0	0	4	3	4	0	11
31 7 92	0	0	0	0	0	0	0	0	6	6
5 8 92	0	0	0	0	0	0	0	7	4	11
18 8 92	0	0	0	0	0	0	6	2	0	8
4 9 92	0	0	0	0	4	2	0	6	3	15
21 9 92	0	6	0	0	0	0	4	0	2	12
12 10 92	0	0	0	6	0	0	4	2	2	14
30 10 92	0	0	0	0	6	0	4	0	0	10
13 11 92	0	0	0	0	0	6	0	2	3	11
27 11 92	0	0	0	0	0	0	8	2	4	14
17 12 92	0	6	0	0	0	4	8	0	0	18
12 1 93	0	0	0	4	6	2	8	0	0	20
28 1 93	0	0	0	0	4	0	4	6	2	16
1 2 93	0	0	0	0	0	4	2	0	0	6
26 2 93	0	0	0	4	4	6	0	5	0	19
16 3 93	0	6	0	0	0	8	8	4	0	26
31 3 93	0	6	0	4	0	0	8	6	2	26
14 4 93	0	0	0	0	0	0	0	3	6	9
26 4 93	2	6	0	0	4	0	0	2	0	14
10 5 93	0	4	0	0	0	0	6	0	2	12
27 5 93	0	4	0	0	6	0	6	3	4	23

Mallard were again found in low and variable numbers throughout the year, mainly on the upper estuary, with a peak of 26 in March 1993, compared to 34 in January 1992. This reduction continues a trend of decrease from the peak of 100 in 1988/89.

Scaup *Aythya marila*

No scaup were seen on the estuary in 1992/93, whereas up to 14 had been found at the mouth in the previous year (January to March).

Long-tailed Duck *Clangula lyemalis*

The only record of Long-tailed Duck in 1992/93 was of four at the mouth of the estuary on 14 April. This represents a return to the low numbers of 1988/89 to 1990/91 after the higher peak of 14 in 1991/92.

Goldeneye *Bucephala clangula*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
13 11 92	0	0	0	0	6	4	0	0	0	10
27 11 92	0	0	0	0	12	0	0	0	0	12
14 12 92	0	4	0	0	0	0	0	0	0	4
17 12 92	0	0	6	0	4	6	0	0	0	16
12 1 93	0	0	0	0	6	3	4	0	0	13
28 1 93	0	0	4	0	6	2	0	0	0	12
1 2 93	0	0	6	0	3	0	0	0	0	9
26 2 93	0	0	0	0	4	2	0	0	0	6
16 3 93	0	0	4	0	4	0	0	0	0	8
31 3 93	0	0	4	0	0	0	8	0	0	12

Goldeneye occurred from November to March, with a peak of 16 on 17 December, rather fewer than the peak of 25 in the previous year and only half of the peak numbers in 1988/89 to 1990/91. Goldeneye were found in the middle sections of the estuary, not at Mouth, Machar and Logie.

Red-breasted Merganser *Mergus serrator*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	0	0	5	0	0	0	0	5
18 8 92	0	0	4	0	2	0	0	0	0	6
4 9 92	0	0	0	0	4	2	0	0	0	6
21 9 92	0	3	4	0	2	4	0	0	0	13
12 10 92	0	0	6	0	2	0	0	0	0	8
30 10 92	0	6	0	0	0	0	0	0	0	6
13 11 92	2	0	2	0	4	0	0	0	0	8
27 11 92	4	6	2	0	4	0	0	0	0	16
14 12 92	14	0	0	0	0	0	0	0	0	14
17 12 92	0	6	6	0	0	0	0	0	0	12
12 1 93	0	0	0	0	0	6	0	0	0	6
28 1 93	8	6	7	0	0	3	0	0	0	24
1 2 93	6	9	6	0	2	0	0	0	0	23
26 2 93	4	6	4	0	0	0	0	0	0	14
31 3 93	6	0	3	0	4	3	2	0	0	18
14 4 93	4	6	0	0	2	2	0	0	0	14
26 4 93	2	2	0	0	4	0	0	0	0	8
10 5 93	0	3	0	0	4	0	0	0	0	7
27 5 93	0	0	2	0	0	0	0	0	0	2

Mergansers were seen in low numbers throughout the year, in all parts of the estuary except Tarty, Machar and Logie. The peak number of 24 on 28 January 1993 was the same as the peak in the previous year (27 December 1991).

Oystercatcher *Haematopus ostralegus*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	9	11	0	4	8	10	0	3	0	45
24 6 92	23	33	12	16	6	12	12	0	0	114
7 7 92	12	18	15	6	12	19	14	0	0	96
31 7 92	152	69	9	6	17	12	23	26	3	317
5 8 92	189	49	17	29	33	23	31	6	0	377
18 8 92	87	55	12	21	22	31	37	4	0	269
4 9 92	53	25	38	21	31	18	12	4	0	202
21 9 92	67	38	40	12	36	42	0	0	0	235
12 10 92	42	43	23	16	36	29	0	0	0	189
30 10 92	37	23	14	37	29	10	0	0	0	150
13 11 92	52	53	19	33	14	6	12	0	0	189
27 11 92	56	47	23	43	12	4	12	1	0	198
14 12 92	170	29	12	6	6	14	26	0	0	263
17 12 92	98	36	12	9	7	21	36	0	0	219
12 1 93	86	72	43	29	18	4	0	0	4	256
28 1 93	97	24	30	12	10	19	14	0	0	206
1 2 93	158	18	36	22	16	12	6	0	2	270
26 2 93	44	49	24	0	31	17	6	0	0	171
16 3 93	23	33	12	9	16	9	0	0	0	102
31 3 93	31	23	12	12	18	33	19	0	0	148
14 4 93	39	21	23	16	23	14	12	0	0	148
26 4 93	14	8	8	9	8	15	6	0	2	70
10 5 93	6	9	14	12	4	3	3	0	0	51
27 5 93	17	15	12	16	26	9	0	0	0	95

Oystercatchers were recorded throughout the year, with highest numbers in late summer and in mid-winter. The peak number of 377 on 5 August 1992 was lower than the 1991/92 peak of 486 (27 December 1991). The highest count in December 1992 was only 263 (on 14 December).

Ringed Plover *Charadrius hiaticula*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	0	0	0	12	0	0	0	12
12 10 92	0	0	0	0	0	12	14	0	0	26
13 11 92	0	0	0	0	0	16	6	0	0	22
27 11 92	0	0	0	0	0	0	12	0	0	12
12 1 93	0	0	0	0	0	12	0	0	0	12
28 1 93	0	23	0	0	0	12	0	0	0	35
1 2 93	0	18	0	0	0	6	0	0	0	24
16 3 93	0	0	0	0	0	8	12	0	0	20
26 4 93	0	0	0	0	4	6	0	0	0	10
10 5 93	0	0	0	0	0	6	2	0	0	8

Ringed Plovers were found throughout the year apart from July, August and September, mainly in the Inches, Haddo and Snub sections. Numbers were considerably lower, with a peak of 35 on 28 January 1993, than in 1991/92 (peak 178) but were similar to those in 1988/89 to 1990/91 (peak numbers 29-60).

Golden Plover *Pluvialis apricaria*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
31 7 92	0	12	0	0	65	28	0	0	0	105
18 8 92	0	0	0	0	42	165	33	0	0	240
4 9 92	0	0	0	0	0	115	43	0	0	158
21 9 92	0	0	0	0	0	36	0	0	0	36
12 10 92	0	48	0	0	0	0	0	0	0	48
13 11 92	18	0	0	0	0	33	0	0	0	51
14 12 92	0	780	0	0	0	0	0	0	0	780
17 12 92	0	263	0	43	0	0	0	0	0	306
12 1 93	0	62	0	0	0	22	0	0	0	84

Golden Plovers were recorded from July till mid-winter, mainly on the Inches and Haddo sections. As in previous years, numbers varied widely, presumably as birds moved to the estuary from inland, with a peak of 780 on 14 December 1992 (similar to the peak of 850 on 9 January 1992).

Lapwing *Vanellus vanellus*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	0	6	12	6	3	0	0	27
24 6 92	0	0	6	12	3	23	33	12	3	92
7 7 92	0	0	0	6	20	27	14	6	0	73
31 7 92	0	0	0	0	12	14	82	23	9	140
5 8 92	0	0	0	12	11	37	49	12	0	121
18 8 92	0	0	0	14	23	37	21	18	0	113
4 9 92	0	0	0	17	25	43	62	4	6	157
21 9 92	0	0	55	24	67	71	25	0	0	242
12 10 92	0	0	56	0	14	12	26	0	0	108
30 10 92	0	0	24	33	21	6	0	0	0	84
13 11 92	0	82	67	21	34	12	16	0	0	232
27 11 92	0	102	56	26	85	29	27	0	0	325
14 12 92	0	86	56	135	103	0	195	0	0	575
17 12 92	0	93	85	103	98	17	110	13	0	519
12 1 93	0	0	0	12	0	32	21	0	0	65
28 1 93	0	0	56	62	75	63	29	0	0	285
1 2 93	0	0	0	86	52	89	29	0	12	268
26 2 93	0	0	0	29	211	106	0	0	0	346
16 3 93	0	0	0	0	0	0	29	6	4	39
26 4 93	0	0	0	5	0	9	6	0	0	20
10 5 93	0	0	0	0	0	6	0	0	0	6
27 5 93	0	0	3	0	0	0	0	0	0	3

Lapwings were found on the estuary in every month of the year, with highest numbers in mid-winter. The peak count of 575 on 14 December 1992 was little over half the peak count of 1041 in the previous year (6 February 1992), but was comparable to the peak of 645 in 1990/91. It was noticeable that the birds tended to occur more in the downstream sections (Inches and Quay) in November and December, compared to before and after these months (see table).

Knot *Calidrus canutus*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
18 8 92	0	31	0	0	0	0	0	0	0	31
21 9 92	0	12	0	0	0	0	0	0	0	12
13 11 92	0	0	21	0	0	0	0	0	0	21
27 11 92	0	27	0	0	0	0	0	0	0	27
14 12 92	12	22	0	0	0	0	0	0	0	34
12 1 93	0	0	0	0	0	18	0	0	0	18
28 1 93	0	29	0	0	0	0	0	0	0	29
1 2 93	46	0	0	0	0	0	0	0	0	46
31 3 93	18	0	0	0	0	0	0	0	0	18
14 4 93	36	0	0	0	0	0	0	0	0	36

Knot occurred on the estuary from August 1992 to April 1993, a longer period than in the previous year, when the last record was on February 1992. The birds were also found further upstream, in the Inches and Quay sections, compared to their occurrence only at the mouth of the estuary in 1991/92. The peak count of 46 on 1 February 1993 was much lower than the peak of 139 in 1991/92 but was similar to the peak numbers in 1989/90 and 1990/91.

Greenshank *Tringa nebularia*

None was found on the estuary on any of the count dates.

Dunlin *Calidrus alpina*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
31 7 92	0	24	0	0	0	0	64	6	0	94
5 8 92	0	0	0	0	0	0	33	17	0	50
18 8 92	0	0	0	0	0	23	63	23	0	109
4 9 92	0	0	36	0	49	28	103	0	0	216
21 9 92	38	0	0	0	29	49	56	0	0	172
12 10 92	0	0	0	14	39	0	68	0	0	121
30 10 92	0	0	0	0	0	261	44	0	0	305
13 11 92	36	0	0	23	0	124	56	0	0	239
27 11 92	24	0	0	14	0	0	232	0	0	270
14 12 92	0	550	0	37	0	12	0	0	0	599
17 12 92	0	206	23	49	0	0	69	0	0	347
12 1 93	25	22	14	12	37	12	63	0	0	185
28 1 93	98	39	112	36	18	97	14	0	0	414
1 2 93	155	26	153	18	0	165	33	0	0	550
26 2 93	0	18	19	0	12	15	27	0	0	91
16 3 93	0	0	56	0	0	0	0	0	0	56
31 3 93	0	0	0	0	0	0	42	0	0	42
14 4 93	21	0	0	0	0	0	29	0	0	50
26 4 93	9	0	0	6	0	10	9	0	0	34
10 5 93	0	0	43	0	0	25	18	0	0	86

Dunlin were recorded throughout the year and in all parts of the estuary except Logie. Peak numbers (599 on 14 December 1992) were higher than those of previous years (421, 513, 382 and 483 in 1988/89 to 1991/92 respectively).

Black-tailed Godwit *Limosa limosa*

The only record of Black-tailed Godwits on the estuary was of two on the Sleek on 16 March 1993.

Bar-tailed Godwit *Limosa lapponica*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	6	0	4	6	0	0	0	16
24 6 92	0	0	9	0	2	2	0	0	0	13
7 7 92	0	0	0	2	0	2	0	0	0	4
31 7 92	0	6	5	6	5	7	3	0	0	32
5 8 92	0	17	9	4	0	4	0	0	0	34
18 8 92	0	0	0	6	2	4	0	0	0	12
4 9 92	0	0	15	6	4	0	7	0	0	32
21 9 92	0	6	9	0	12	3	6	0	0	36
12 10 92	0	0	16	12	6	2	4	0	0	40
30 10 92	0	2	6	9	12	4	2	0	0	35
13 11 92	0	12	2	0	6	0	8	0	0	28
27 11 92	0	12	4	2	9	0	6	0	0	33
14 12 92	0	4	4	0	0	0	0	0	0	8
17 12 92	0	6	12	3	2	0	0	0	0	23
12 1 93	2	6	2	9	12	0	0	0	0	31
28 1 93	12	1	4	6	11	3	0	0	0	37
26 2 93	0	4	0	4	6	4	4	0	0	22
16 3 93	0	0	0	2	3	0	4	0	0	9
31 3 93	2	0	2	2	1	2	2	0	0	11
14 4 93	0	0	3	3	0	2	2	0	0	10
26 4 93	0	0	3	0	0	0	0	0	0	3
10 5 93	0	0	2	0	0	0	0	0	0	2
27 5 93	0	0	2	2	6	4	2	0	0	16

Bar-tailed Godwits were found on the estuary throughout the year, with the highest numbers in autumn. The peak count of 40 on 12 October 1992 was somewhat lower than in previous years, except for 1988/89 (39). This species occurred throughout the estuary, apart from Machar and Logie.

Curlew *Numenius arquata*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	9	0	2	6	9	0	0	0	26
24 6 92	0	18	3	2	2	6	9	3	1	44
7 7 92	0	0	7	5	19	8	6	0	0	45
31 7 92	0	35	6	12	18	14	21	2	1	109
5 8 92	15	19	9	14	21	16	18	2	2	116
18 8 92	7	23	9	12	14	11	15	4	3	98
4 9 92	3	24	9	4	24	23	36	7	0	130
21 9 92	2	37	4	12	14	19	21	1	0	110
12 10 92	1	41	12	6	12	14	12	0	0	98
30 10 92	1	6	2	6	14	6	20	0	0	55
13 11 92	6	15	9	10	14	7	14	0	0	75
27 11 92	2	19	12	12	14	9	6	1	12	87
14 12 92	54	12	9	220	14	22	42	2	2	377
17 12 92	23	46	12	106	12	18	51	3	4	275
12 1 93	9	53	23	14	9	11	3	0	0	122
28 1 93	12	121	14	72	16	33	4	0	0	272
1 2 93	6	171	14	87	12	49	9	2	1	351
26 2 93	2	21	4	12	9	17	11	0	0	76
16 3 93	2	41	6	16	4	50	14	2	2	137
31 3 93	6	14	6	9	6	12	17	2	1	73
14 4 93	0	9	0	12	4	3	12	2	1	43
26 4 93	2	6	3	0	4	4	22	2	3	46
10 5 93	0	3	3	2	12	7	12	0	0	39
27 5 93	0	2	6	6	24	6	3	0	2	49

Curlews occurred throughout the estuary and in every month, with highest numbers in winter. The peak of 377 was higher than the peak counts in all of the previous years except for 1989/92.

Redshank *Tringa totanus*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
8 6 92	0	0	0	9	3	3	4	2	0	21
24 6 92	0	0	6	12	6	14	27	24	0	89
7 7 92	0	0	0	8	6	18	23	20	0	75
31 7 92	0	41	12	24	71	54	136	33	2	373
5 8 92	12	9	24	46	56	66	47	29	12	301
18 8 92	10	7	21	27	33	41	77	35	6	257
4 9 92	12	28	14	15	46	23	53	36	0	227
21 9 92	14	26	20	36	38	28	38	62	0	262
12 10 92	16	22	14	29	35	18	49	36	0	219
30 10 92	6	14	12	49	36	81	121	0	0	319
13 11 92	24	26	12	42	29	18	53	3	2	209
27 11 92	6	21	14	36	49	12	76	3	2	219
14 12 92	21	36	24	43	29	39	38	5	0	235
17 12 92	18	26	28	51	33	34	41	2	0	233
12 1 93	33	25	46	72	25	33	56	12	0	302
28 1 93	14	23	20	43	39	29	42	9	4	223
1 2 93	6	21	14	69	43	33	27	13	6	232
26 2 93	9	23	18	68	28	20	96	16	9	287
16 3 93	4	14	6	29	23	19	24	12	4	135
31 3 93	18	21	11	37	29	56	72	12	3	259
14 4 93	6	26	48	53	61	33	56	6	2	291
26 4 93	4	12	14	25	30	25	88	0	2	200
10 5 93	17	4	15	23	15	18	31	9	2	134
27 5 93	3	6	12	19	24	14	12	6	3	99

Redshanks were found throughout the year, although numbers were low in early June. The peak count of 319 on 30 October 1992 was lower than in previous years (925, 516, 510 and 551 in 1988/89 to 1991/92 respectively).

Turnstone *Arenaria interpres*

DATE	MO	IN	QU	TA	SL	HA	SN	MA	LO	TOTAL
31 7 92	0	14	12	0	6	9	6	0	0	47
5 8 92	14	12	21	6	6	6	0	0	0	65
18 8 92	9	12	0	8	6	14	12	0	0	61
4 9 92	6	6	9	0	21	14	17	0	0	73
21 9 92	0	12	12	0	14	12	8	0	0	58
12 10 92	0	12	14	0	22	17	6	0	0	71
30 10 92	0	7	0	0	6	0	0	0	0	13
13 11 92	4	6	0	0	9	12	3	0	0	34
27 11 92	3	6	3	0	12	0	0	0	0	24
14 12 92	25	12	9	12	6	6	0	0	0	70
17 12 92	18	14	10	10	3	14	0	0	0	69
12 1 93	14	12	9	0	0	21	12	0	0	68
28 1 93	18	23	6	0	12	9	0	0	0	68
1 2 93	12	18	2	0	6	3	0	0	0	41
26 2 93	6	14	12	0	10	14	0	0	0	56
16 3 93	4	6	3	0	0	6	12	0	0	31
31 3 93	6	3	9	0	2	12	9	0	0	41
14 4 93	12	3	6	0	6	0	0	0	0	27
26 4 93	6	7	0	0	4	8	8	0	0	33
10 5 93	0	9	6	0	0	12	3	0	0	30
27 5 93	0	6	4	0	6	3	0	0	0	19

As in the previous year, Turnstones were recorded in all months except June, in all parts of the estuary except Machar and Logie. The peak count of 73 on 4 September 1992 was lower than the previous year's peak of 93, which was itself lower than the peaks of the two preceding years (101 and 175 in 1988/89 and 189/90 respectively).

b) Total number of birds on the estuary

The total number of birds of all species was calculated for each count and the mean taken for each month. Eiders, the most abundant species, were considered separately.

Mouth	Eiders	Other Species	Total
1992			
June	2,461	335	2,796
July	734	799	1,533
August	586	1,166	1,752
September	705	1,261	1,966
October	895	1,026	1,921
November	495	1,345	1,840
December	913	2,796	3,709
1993			
January	924	1,637	2,561
February	681	1,698	2,379
March	797	692	1,485
April	946	625	1,571
May	3,585	388	3,973

As in 1991/92, there was very clear seasonal variation in the total number of birds in the estuary (Fig. 2), with a peak in May and June (mainly of Eiders) and another in December (made up of other species). The latter peak occurred later than in the previous year, when it was recorded in October (Patterson and Laing 1992: Report to SNH). Lower numbers, around 1,500-1,900 birds, were found in July to November and in March/April, between the peaks (Fig. 2).

The spring peak in 1992/93 was very similar (at 3,973 in May 1993) to the equivalent total in the previous year (3,851 in April 1992), and the autumn/winter peaks were exactly the same (3,709) in both years, in spite of the difference in timing and in the composition of the total between Eiders and other species.

c) Comparison between 1992/93 and 1991/92

(i) Total number of birds (other than eiders)

The peak number of birds, of species other than eiders, was higher, at 2,796, than the peak in 1991/92 (2,563) but was reached in December compared to October in the previous year. The mean total from August to February (inclusive) was 1,561 compared to 1,918 in 1991/92 but the minimum total, 335 in June 1992, was higher than that in the previous year (262 in June 1991).

(ii) Individual species

For each species, the mean of the three highest counts in 1992/93 was compared with the same measure for 1991/92.

Mean of three highest counts:

Species	1991/92	1992/93	Change
Shelduck	56	78	+
Eider	4,187	3,855	-
Wigeon	250	289	+
Teal	25	14	-
Mallard	32	25	-
Scaup	3	0	-
L.-t. Duck	13	1	-
Goldeneye	21	14	-
R.-b. Merganser	22	22	=
Oystercatcher	423	321	-
Ringed Plover	115	28	-
Golden Plover	693	442	-
Lapwing	998	521	+
Bk.-t. Godwit	15	<1	-
Bar-t. Godwit	55	38	-
Curlew	144	334	+
Redshank	483	331	-
Greenshank	2	0	-
Turnstone	89	71	-

Of the nine duck species, two increased in peak numbers between 1991/92 and 1992/93 while six decreased and one (Red-breasted Merganser) remained the same, so that the ducks showed some decrease between the two years.

Similarly, 10 of the 12 wader species decreased in their peak numbers between the two years, in some cases by a substantial amount, with only Dunlin and Curlew showing an increase. However, most wader species had had higher numbers in 1991/92 than in previous years, so that many were returning to the levels found in 1988/89 to 1990/91. Redshanks were an exception, having had very similar peak numbers in 1989/90 to 1991/92 (471, 482 and 483 respectively) following an decrease from 655 in 1988/89. Peak numbers of Redshank have (45%) thus halved over the five years of the survey.

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