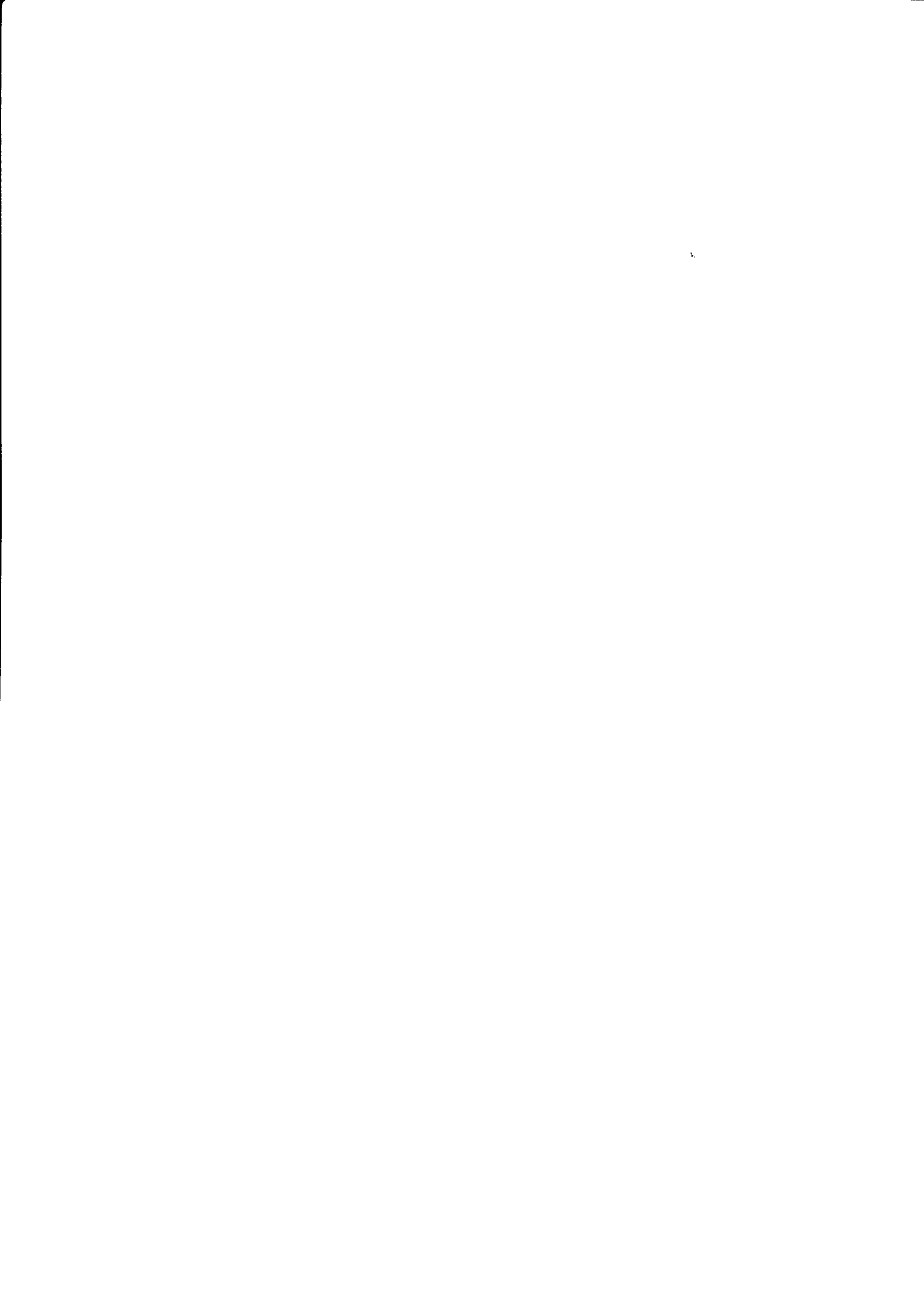


ABSTRACT

The ringing recoveries of birds marked in Britain and Ireland and of birds ringed abroad and found in Britain and Ireland were searched for evidence of the importance of the River Medway in the migration routes of six species. Records of birds marked on the Medway and found on the Medway are presented and further tables comparing information from the Medway with that available from all of Britain and Ireland for foreign movements are given for each species. The pattern and scale of ringing recoveries shows that the Medway Estuary is of considerable importance for substantial migrant populations of Shelduck, Ringed Plover, Redshank and Dunlin. The information available for Oystercatchers is too sparse for a definite conclusion to be drawn but the few distant movements of Grey Plover indicate that the Medway may be used in the autumn by passage birds which winter much further south.



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INTRODUCTION

The Birds of Estuaries Enquiry and the National Ringing Scheme conducted by the British Trust for Ornithology under contract to the Nature Conservancy Council provide substantial databanks of information relevant to estuarine conservation planning. The present report, prepared at the request of the NCC Chief Scientist Team, analyses the ringing recovery data for six important species relating to the River Medway.

All recoveries of birds to or from the Medway area between 1909 and 1978 were extracted for the six species under review: Shelduck Tadorna tadorna, Oystercatcher Haematopus ostralegus, Ringed Plover Charadrius hiaticula, Grey Plover Pluvialis squatarola, Redshank Tringa totanus and Dunlin Calidris alpinus. The main objective was to assess the degree of interchange between the Medway and other areas within Britain and abroad and thereby the relevance of the Medway for the European population of these species.

METHODS

For each species tables were produced showing (a) the month of ringing and ringing area of birds later found on the Medway and (b) the month of recovery and recovery area of birds ringed on the Medway and later recovered. A further table for each species was produced summarising the recoveries involving countries outside Britain and Ireland, to enable the Medway recoveries to be viewed in the context of the full

available ringing information from Britain and Ireland. An additional table shows that the most active period of wader ringing on the Medway was not the same as for the rest of Britain and Ireland.

RESULTS

Period of Major Ringing Activity

Ringing activity on the Medway to catch and mark waders started in earnest early in the 1960's when members of the Mid-Kent and North Kent Ringing Groups were amongst the first successful wader ringers using mist nets. Their efforts continued into the latter part of the decade and some ringing has taken place on the estuary since then. There has, however, not been a regular cannon-netting group operating on the Medway and, compared with the national recovery figures, the importance of the Medway as a source of recoveries has steadily declined since the first half of the 1960's. This is clearly shown by the figures given in Table 1. It must be emphasised that this apparent decline in importance is an artefact and applies solely to the amount of information being amassed from the ringing recoveries. There is no evidence that the Medway's importance as a passage and wintering site has diminished over the same period. However, since many of the ringing recoveries listed in the species tables below have resulted from ringers catching birds already bearing rings, the fact that the Medway ringing took place at a time of increasing ringing activity necessarily means that the number of

recoveries reported from areas where ringing activity currently produces the bulk of recovery records is lowered.

Shelduck

Tables 2 and 3 summarise the available data for Medway Shelducks. In both tables the month plotted is the month that birds were ringed or recovered away from the Medway. Most of the distant movements involve birds at the important moulting grounds in Germany or on their way to or from them: this is shown by the ringing/recovery dates in late summer or autumn. The entry for Shelduck in Table 1 shows that the first half of the 1960's produced the bulk of the recoveries - many of them local birds ringed and recovered on the estuary. The overall summary of Shelduck movements to and from countries abroad given in Table 4 may indicate that the Medway is used as a passage site for birds from other estuaries which are returning from the moult grounds in Germany. Only three of the 74 recoveries of British ringed Shelduck abroad came from the Medway but 12 of the 133 ringed abroad were found there.

Oystercatcher

Wader ringing on the Medway has not resulted in the capture of many Oystercatchers and the information summarised in Tables 5 and 6 is sparse. It seems that the wintering birds from the Continent come only from the southern shore of the North Sea but a few distant records within Britain indicate some southern penetration by northern breeding birds. Table 7 shows that less than 0.5 per cent of foreign movements

reported from Britain and Ireland were from Medway birds. It seems unlikely that many birds from the Norwegian breeding population, which are involved extensively with many other estuaries further north in Britain on both the west and east coasts, reach the Medway. However, further ringing of this species on the Medway would be needed before any firm conclusion might be drawn.

Ringed Plover

Tables 8 and 9 show the wide-ranging movements of Ringed Plover found or ringed on the Medway. Large numbers of recoveries are not involved but, as Table 10 shows, the foreign records amount to 6 per cent of all such movements to or from British and Irish areas. Most long-distance movement involves birds from Iceland (and probably also Greenland) in the north and from Fenno-Scandia in the north-east arriving in Britain for the winter. The Medway may be the winter home of these birds or they may travel further to winter elsewhere in southern Britain or possibly northern France. Whichever is the case the Medway is obviously of some significance over an extensive area of the species' breeding range.

Grey Plover

Ten of the 14 entries in Tables 11 and 12 come from five local recoveries of Grey Plovers marked on the Medway which therefore are entered on both tables. Two of only 20 records abroad of British-ringed Grey Plover also resulted from Medway ringing (Table 13). Unlike other species dealt with,

Grey Plovers are solely winter visitors to Britain; their nearest breeding grounds are those in north parts of the Soviet Union. In this case, therefore, the presence of the species on the Medway is by itself evidence of the importance of the estuary to distant populations of the species.

Redshank

Tables 14 and 15 show that many of the recorded movements to and from the Medway are relatively short distance. Nevertheless some northern birds, represented by two from Iceland (where there is a separate race robusta), and birds from Fenno-Scandia also use the estuary. Onward movement southward, probably of migrant birds from the distant areas, is shown by the recoveries in Portugal, Morocco and Senegal. In one sense the Medway is at the cross-roads of the European migration routes of this species. Table 16 shows that there have been 15 foreign movements reported from Medway birds which are 9 per cent all British and Irish foreign movements. Three of the eight southern-most records of British-ringed Redshanks were from birds marked on the Medway as were all three Fenno-Scandian birds. This may be taken to indicate that the main stream of migrants from Fenno-Scandia miss the rest of Britain but regularly use the Medway. Southern North Sea birds are also involved but the data in Table 16 seem to indicate that they use a wider area within Britain than do birds from further north and east.

Dunlin

A very great deal of information is available from ringing sources about

the movements of this, the commonest small wader found in Britain. The Medway recoveries are summarised in Tables 17 and 18. Most of the British records are from the late summer, autumn or winter and often concern birds moving relatively short distances (less than 100 km) over the same season (autumn or winter) or entering the country at a different site in subsequent years. Some of the longer internal movements are of birds from much further north in Britain and others have travelled further west to south-west England or even Ireland in winter. There are 45 such records - indicative of the species' well documented mobility. The majority of records abroad refer to autumn passage through Fenno-Scandia and along the southern shores of the Baltic and the North Sea. Spring passage is only represented by two birds from Iceland and a few from the southern North Sea and France. Some Medway ringed birds winter in northern France but then, as the Dunlin flies, the nearest suitable wintering area in France is less than 100 km away. Onward passage to wintering areas much further to the south is indicated by the ten records in Spain, Portugal and Morocco.

Table 19 summarises the 200 recoveries involving the Medway with localities abroad and enables their distribution to be compared with the 2342 which have arisen from the whole of British and Irish ringing activities. Roughly a twelfth of the total might therefore be expected from any one area if it is equally represented. This seems to be roughly the case except for Norway, Poland and Other. In Norway the catching of adult birds, that is ones that may have been ringed in Britain in earlier years, has never produced many records but 581 birds

ringed there, (though the very great majority of these are young birds) have been found in Britain. This ringing activity began even before wader catching had started properly in Britain and it is fairly clear that the population of young Dunlin caught in autumn in Norway is under-represented on the Medway. On the other hand, Polish wader ringing started after the contribution of Medway Dunlin ringing had started to decline in the late 1960's (see Table 1). Polish birds are probably as well represented on the Medway as elsewhere. The single 'Other' record from the Medway, a bird found in the North Sea, has to be compared with a total of 32 in the 'Other' category for Britain as a whole. Of these six were 'At sea', four from Greenland, one on Bear Island, one each in Italy and Czechoslovakia and 19 from north and west Africa. No firm conclusion can be reached for the African records since almost all relate to ringing expeditions carried out in the 1970's when Dunlin marking on the Medway declined to about 2 per cent of the national total.

It is clear that Dunlin populations from a very wide area use the Medway both as a passage area and also for wintering. Only Norway seems to be under-represented and France, where suitable areas are within 100 km of the Medway, over-represented.

CONCLUSION

The ringing recoveries by themselves provide evidence that the Medway Estuary is of considerable importance for migrant populations of Shelduck, Ringed Plover, Redshank and Dunlin. Oystercatcher data are too sparse to form a firm conclusion but the few distant movements of Grey Plover indicate passage use of the Medway during the autumn by birds wintering further south.

Table 1. Temporal distribution of Medway recoveries compared with those resulting from all ringing in Britain and Ireland.

The differences between the two distributions reflect the variations in ringing effort on the Medway compared with other areas.

	1909 - 1959		1960 - 1964		1965 - 1969		1970 - 1974		1975 - 1978	
	Medway	All	Medway	All	Medway	All	Medway	All	Medway	All
Shelduck	.	43	24	74	3	80	4	128	.	84
Oystercatcher	3	297	2	485	.	816	8	1076	.	893
Ringed Plover	1	65	4	51	3	39	2	83	.	109
Grey Plover	.	2	5	7	5	21	.	18	4	32
Redshank	5	147	63	209	31	147	13	250	14	370
Dunlin	1	37	192	307	142	488	43	818	8	1123
Totals	10	591	292	1133	184	1591	70	2373	26	2611
Medway as % of total	1.7%		25.8%		11.6%		2.9%		1.0%	

NB. Some local records on the Medway may have been counted twice, both as recoveries to and as recoveries from the estuary. Nonetheless this table gives a good impression of the difference between the time of peak effort on the Medway and the continuing high level of recoveries being obtained from British and Irish ringing of these species over the last decade.

Table 2. Ringing areas of Shelduck later found on the Medway, tabulated by month of ringing.

Region ringed	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	2	2	7	.	.	.	.	.	11
0-9 Km	2	.	.	.	.	.	.	.	2
10-99 Km	1	.	.	.	.	.	.	1
100 + Km	1	.	.	.	.	.	1
Sweden	1	.	.	.	.	.	1
Denmark	1	1	.	.	.	.	.	.	2
Germany	2	1	5	.	.	.	.	.	8
Belgium	1	.	.	.	.	.	.	1
Totals	7	6	13	.	.	.	.	.	26

Table 3. Recovery areas of Shelduck ringed on the Medway, tabulated by month of recovery.

Region recovered	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland 0-9 Km	1	.	.	.	1	1	1	3	3	1	.	.	.	11
10-99 Km	.	.	.	.	1	.	.	.	.	.	1	.	.	2
100 + Km	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Germany	.	.	.	.	.	.	.	.	.	1	.	.	.	1
Netherlands	1	.	.	.	.	.	.	.	.	.	.	.	.	1
France & C.I.	.	.	.	.	.	.	.	.	.	1	.	.	.	1
Totals	2	.	.	.	2	1	1	3	3	4	1	.	.	16

Table 4. Summary of foreign recovery information for Shelduck.

All Medway recoveries to the end of 1978 are included. Information for the whole of British and Irish ringing is taken from the 1976 Ringing Report and does not include records from 1977 and 1978.

Recoveries 'From' are birds ringed abroad, recoveries 'To' are found abroad.

	Medway estuary		All British ringing	
	From	To	From	To
Norway	0	0	0	2
Sweden	0	1	0	5
Denmark	0	2	5	9
Germany	1	8	43	103
Netherlands	1	0	11	11
Belgium	0	1	0	3
France & C.I.	1	0	10	0
Totals	3	12	74	133

Table 5. Ringing areas of Oystercatchers later found on the Medway, tabulated by month of ringing.

Region ringed	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	1	.	.	.	.	1
0-9 Km	1	.	1	.	.	.	.	.	2
10-99 Km	1	1	2	.	.	.	.	.	4
100 + Km	1	1	2	.	.	.	.	.	4
Totals	2	1	3	1	.	.	.	.	7

Table 6. Recovery areas of Oystercatchers ringed on the Medway, tabulated by month of recovery.

Region recovered	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	1	.	.	.	1	.	.	.	.	.	.	.	.	2
0-9 Km	.	.	.	.	.	.	.	.	.	.	.	.	.	0
10-99 Km	.	.	.	.	.	.	1	.	.	.	.	.	.	1
100 + Km	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Netherlands	.	.	1	.	.	.	.	.	.	.	.	.	.	1
France & C.I.	.	1	.	.	.	.	.	.	.	.	.	.	.	1
Totals	1	1	1	1	1	.	1	.	.	.	.	.	.	6

Table 7. Summary of foreign recovery information for Oystercatcher.

All Medway recoveries to the end of 1978 are included. Information for the whole of British and Irish ringing is taken from the 1976 Ringing Report and does not include records from 1977 and 1978.

Recoveries 'From' are birds ringed abroad, recoveries 'To' are found abroad.

	Medway estuary		All British ringing	
	From	To	From	To
Iceland	0	0	23	23
Norway	0	0	238	43
Sweden	0	0	3	1
Soviet Union	0	0	2	1
Denmark	0	0	13	2
Germany	0	0	4	1
Netherlands	2	0	30	18
Belgium	0	0	1	0
France & C.I.	1	0	93	0
Spain	0	0	19	0
Portugal	0	0	5	0
Morocco	0	0	3	0
Faeroes	0	0	84	19
TOTALS	3	0	518	109

Table 8. Ringing areas of Ringed Plover later found on the Medway, tabulated by month of ringing.

Region ringed	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	1	.	.	.	.	1
0-9 Km	1	.	.	1	.	.	.	.	2
10-99 Km	0
100 + Km	1	.	.	.	.	.	.	.	.	1
Iceland	1	.	.	.	.	.	1
Norway	1	.	.	.	.	.	1
Sweden	1	.	.	.	.	.	.	.	1
Germany	1	.	.	.	.	.	.	.	.	1
Totals	2	2	.	1	2	.	.	.	.	7

Table 9. Recovery areas of Ringed Plover ringed on the Medway, tabulated by month of recovery.

Region recovered	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	1	.	.	.	.	1
0-9 Km	1	1	.	.	.	2
10-99 Km	1	.	.	.	.	.	.	.	.	1
100 + Km	1	.	.	.	.	.	1
Finland	1	.	.	.	.	.	1
Denmark	1	.	.	.	.	.	1
France & C.I.	1	.	.	.	.	1
Totals	1	.	.	2	3	1	.	.	.	7

Table 10. Summary of foreign recovery information for Ringed Plover.

All Medway recoveries to the end of 1978 are included. Information for the whole of British and Irish ringing is taken from the 1976 Ringing Report and does not include records from 1977 and 1978.

Recoveries 'From' are birds ringed abroad, recoveries 'To' are found abroad.

	Medway estuary		All British ringing	
	From	To	From	To
Iceland	0	1	1	2
Finland	1	0	1	3
Norway	0	1	3	8
Sweden	0	1	2	2
Soviet Union	0	0	1	0
Denmark	1	0	9	8
Germany	0	1	4	15
Netherlands	0	0	1	9
France & C.I.	1	0	33	0
Spain	0	0	7	0
Portugal	0	0	5	0
MOROCCO	0	0	3	0
Other	0	0	7	0
Totals	3	4	77	47

Table 11. Ringing areas of Grey Plover later found on the Medway, tabulated by month of ringing.

Region ringed	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	4	.	.	1	.	.	5
0-9 Km	1	.	.	.	.	.	1
10-99 Km	0
100 + Km	0
Totals	5	.	.	1	.	.	6

Table 12. Recovery areas of Grey Plover ringed on the Medway, tabulated by month of recovery.

Region recovered	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	3	2	.	.	.	5
0-9 Km	1	.	.	.	1
10-99 Km	0
100 + Km	1	.	.	.	.	.	1
Denmark	1
Ghana	1	.	1
Totals	1	3	3	.	1	.	8

Table 13. Summary of foreign recovery information for Grey Plover.

All Medway recoveries to the end of 1978 are included. Information for the whole of British and Irish ringing is taken from the 1976 Ringing Report and does not include records from 1977 and 1978.

Recoveries 'From' are birds ringed abroad, recoveries 'To' are found abroad.

	Medway estuary		All British ringing	
	From	To	From	To
Soviet Union	0	0	1	0
Denmark	1	0	8	1
Germany	0	0	1	0
Netherlands	0	0	1	0
France & C.I.	0	0	5	1
Spain	0	0	1	0
Morocco	0	0	2	0
Ghana	1	0	1	0
Totals	1	0	20	2

Table 14. Ringing areas of Redshank later found on the Medway, tabulated by month of ringing.

Region ringed	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland														
0-9 Km	.	1	2	.	.	5	1	10	5	2	2	2	.	30
10-99 Km	.	.	2	1	2	4	4	3	1	2	2	.	.	21
100 + Km	2	1	2	.	.	.	.	.	5
Poland	1	.	.	.	.	.	.	1
Netherlands	1	.	.	.	.	1
Totals	.	1	4	1	2	11	7	15	7	4	4	2	.	58

Table 15. Recovery areas of Redshank ringed on the Medway, tabulated by month of recovery.

Region recovered	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	7	2	1	4	.	.	1	4	9	3	2	2	1	36
0-9 Km														
10-99 Km	3	.	3	4	.	.	1	.	2	2	2	2	.	19
100 + Km	1	.	.	.	.	.	1	.	.	.	.	.	.	2
Iceland	.	.	.	.	1	.	1	.	.	.	.	.	.	2
Finland	.	.	.	.	.	1	.	.	.	.	.	.	.	1
Norway	.	.	.	.	1	.	1	.	.	.	.	.	.	2
Germany	.	.	.	.	1	.	.	.	.	.	.	.	.	1
Netherlands	.	.	.	.	.	1	.	.	.	.	.	.	.	1
France & C.I.	1	.	.	.	.	.	1	.	.	.	.	.	.	3
Portugal	.	1	.	.	.	.	.	.	.	.	.	.	.	1
Morocco	.	.	.	.	.	.	.	1	.	.	.	.	.	1
Senegal	.	.	.	.	.	.	.	.	.	.	.	1	.	1
Totals	12	3	4	8	3	2	6	6	11	5	4	5	1	70

Table 16. Summary of foreign recovery information for Redshank.

All Medway recoveries to the end of 1978 are included. Information for the whole of British and Irish ringing is taken from the 1976 Ringing Report and does not include records from 1977 and 1978.

Recoveries 'From' are birds ringed abroad, recoveries 'To' are found abroad.

	Medway estuary		All British ringing	
	From	To	From	To
Iceland	2	0	18	32
Finland	1	0	1	0
Norway	2	0	2	0
Baltic States	0	0	0	1
Poland	0	1	0	1
Denmark	0	0	3	4
Germany	1	0	2	1
Netherlands	1	1	12	10
Belgium	0	0	1	1
France & C.I.	3	0	73	2
Spain	0	0	1	0
Portugal	1	0	3	0
Morocco	1	0	3	0
Senegal	1	0	1	0
Totals	13	2	120	51

Region ringed	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	1	4	2	.	.	.	.	7	8	13	7	5	.	47
0-9 Km	.	3	3	.	1	.	2	10	12	13	14	3	.	61
10-99 Km	.	1	.	.	1	.	2	5	.	1	1	.	.	11
100 + Km	2	4	1	.	.	.	.	7
Finland	2	4	1	.	.	.	.	7
Norway	4	8	2	.	.	.	14
Sweden	18	13	4	2	.	.	.	37
Poland	1	2	.	.	.	.	.	3
Denmark	4	2	.	.	.	.	.	6
Germany	2	3	.	.	.	.	5
Netherlands	.	.	.	1	1	.	.	1	.	.	.	.	.	3
Belgium	1	1	.	.	.	2
France & C.I.	.	.	.	1	.	.	.	.	.	.	.	.	.	1

Totals 1 8 5 2 3 29 50 37 31 22 8 197

Table 18. Recovery areas of Dunlin ringed on the Medway, tabulated by month of recovery.

Region recovered	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Total
Britain and Ireland	3	2	4	.	1	.	3	7	4	6	4	15	1	50
0-9 Km														
10-99 Km	2	4	1	.	1	.	2	4	13	14	13	7	.	61
100 + Km	2	1	2	.	5	.	3	13	2	2	1	3	.	34
Iceland	.	.	.	.	2	.	.	.	.	.	.	.	.	2
Finland	.	.	.	.	.	.	9	2	.	.	.	.	.	11
Norway	.	.	.	.	.	.	.	2	.	.	.	.	.	2
Sweden	.	.	.	.	.	.	17	18	1	.	.	.	.	36
Baltic States	.	.	.	.	.	.	.	1	.	.	.	.	.	1
Soviet Union	.	.	.	.	.	.	.	.	3	.	.	.	.	3
Poland	.	.	.	.	.	.	3	.	.	.	.	.	.	3
Denmark	.	.	.	1	.	.	6	4	2	2	.	.	.	15
Germany	.	.	.	1	4	.	.	2	1	.	1	.	.	9
Netherlands	.	.	.	.	1	.	1	2	.	.	1	.	.	5
France & C.I.	2	2	3	.	.	.	.	1	3	3	4	5	1	24
Spain	.	.	.	.	.	.	.	.	.	.	1	1	.	2
Portugal	.	.	.	.	.	.	.	.	1	.	2	.	.	3
MOROCCO	.	.	.	.	.	.	.	1	.	.	3	1	.	5
At Sea	.	.	.	.	1	.	.	.	.	.	.	.	.	1
Totals	9	9	10	2	15	.	44	57	30	27	30	32	2	267

Table 13. Summary of foreign recovery information for Dunlin.

All Medway recoveries to the end of 1978 are included. Information for the whole of British and Irish ringing is taken from the 1976 Ringing Report and does not include records from 1977 and 1978.

Recoveries 'From' are birds ringed abroad, recoveries 'To' are found abroad.

	Medway estuary		All British ringing	
	From	To	From	To
Iceland	2	0	6	11
Finland	11	7	82	117
Norway	2	14	12	378
Sweden	36	37	235	581
Baltic States	1	0	4	2
Soviet Union	3	0	28	11
Poland	3	3	42	56
Denmark	15	6	107	106
Germany	9	5	44	79
Netherlands	5	3	62	29
Belgium	0	2	3	10
France & C.I.	24	1	202	8
Spain	2	0	22	0
Portugal	3	0	41	0
MOROCCO	5	0	28	4
Other	1	0	22	10
TOTALS	122	78	940	1402