

THE SPRING MIGRATION OF RINGED PLOVERS THROUGH BRITAIN IN 1979.

(Results of the WSG Project on the Spring Passage of Dunlins, Sanderlings, Ringed Plovers and Turnstones through Britain - Part 1)

by P. N. Ferns

The amount of information collected during the course of this WSG Project was quite considerable (for a summary of what was achieved, see Bulletin No. 27, p.7), and it will therefore be necessary to present the results separately for each of the four species. The basic aim of the Project was to count and catch as many birds as possible during the period 1 April to 14 June 1979. The resulting counts of Ringed Plovers at those sites where reasonable coverage was obtained, and where numbers were sufficient to show clear evidence of passage are shown in Figs. 1-3.

At sites in south west Britain (Fig. 1), the timing of the passage was broadly similar. At my own site on the northern shores of the Severn Estuary (Collister Pill), only about a dozen Ringed Plovers overwintered during 1978/79 (though a more typical figure for this area is about 200), and these had all disappeared by the end of March. The spring passage fell into two distinct phases - one in late April and the other in mid to late May. The decline in numbers at the end of each of these phases was quite sharp, the first occurring between 30 April and 3 May, and the second between 21 and 24 May. There were, however, other declines which occurred during the course of each phase and which were too large to be accounted for by errors in counting. This site was counted mainly by two observers (D.H. Worrall and myself) and we both picked up the declines in the second phase even though we deliberately did not communicate any results to one another until the end of the Project. During the first phase of passage, there was a decline between 22 and 23 April and during the second phase there were two - one between 13 and 15 May, and one between 17 and 19 May. This clearly suggests that there was a continuous turnover of birds occurring during the course of each phase. In fact, the only significant series of departures actually observed for this species during the Project was seen at Collister Pill on 12 May (see Bulletin No. 26, p.7, Table 1), involving a total of eighty birds. This was a day in advance of the decline noted in the counts. Later departures were missed because we usually had to count in the early morning, whereas most birds left in the afternoon or evening.

At Chittingen Warth, about 8 km south east on the opposite side of the Severn Estuary, counts were not made as frequently, but the general trends in numbers were similar. For example, the peak count during the first phase of passage at Collister Pill was 400 on 21 April, whilst at Chittingen Warth it was 51 on 27 April. Peaks during the second phase of passage occurred on 21 May at Collister Pill (900) and 23 May at Chittingen Warth (200). The obvious question which arises from these counts in the Severn is whether or not the two waves of migrants represent birds heading for different breeding areas. The other counts in south west Britain show up birds only during the second phase of passage.

Counts in north west Britain (Fig. 2) are more difficult to interpret because most of them were conducted less frequently. Even so, there were peaks on the Ribble on 19 April and 21 May, in Morecambe Bay on 23 April and 23 May (also a peak of 1,500 at Pilling in Morecambe Bay, which is not illustrated, on 25 May), and in the Solway Firth on 27 May. These dates are broadly consistent with the pattern observed in the Severn, with at least some indication of two phases of passage. On the Isle of Lewis, there was a fairly distinct passage of birds in late April and early May, which coincides quite closely with the early phase of passage at Collister Pill. There is no unequivocal indication of a second wave of migration on the Isle of Lewis, however.

In southern and eastern Britain, the situation is much more complicated (Fig. 3). Counts from the three sites in the Southampton/Solent area all show at least one peak close to the 10 May, though there are other peaks too. Nearly all the west coast estuaries had very low numbers of birds in early May, since this was mid-way between the two main phases of passage there. At Sandwich and Pegwell Bays in Kent, the site with the highest frequency of counts after Collister Pill, Ringed Plover numbers were more or less constant until the beginning of May, when they started to increase. There were several fluctuations throughout May, followed by a decline in June. Peak numbers occurred on the 12 May. It is certainly not possible to distinguish separate phases of passage from these counts and the pattern is completely different from that in the west of England. On the whole, passage appears to start and finish later in the east than the west. At Teesmouth, the peak passage occurred towards the end of May, but it is not obvious whether this represents the second phase of passage which occurred in the west or a later passage of the type seen in the south and east.

Interpretation of these numerical trends might appear to be a formidable task, but in fact there are one or two pieces of additional evidence which are very helpful. One of the Ringed Plovers captured at the Solway Firth on 13 May (a summary of catches is given in Table 1) had been ringed by Harry Green as a breeding adult at Antarctica's Havn in north east Greenland in 1974. This clearly shows that the May passage includes some Greenland breeders. The measurements of this individual, sexed as a female, were: wing - 129 mm, bill - 14 mm, and weight - 55 g. The low weight suggests that it was a bird which still had a good deal of pre-migratory fattening to undertake before onward departure, and this appears to suggest it was early in the passage period of Greenland breeders. Other spring controls of Greenland birds have occurred on 19 May 1972 in Lancashire and 20 May 1973 in Dumfriesshire. This and other evidence (Green 1978, Taylor 1980) suggests that the main passage of Greenland Ringed Plovers occurs in the second half of May. It is therefore logical to suggest that the second wave of migrants through the Severn, and the May peaks at other west coast estuaries, consisted to a considerable extent of Greenland and Baffin Island breeding birds.

This leaves the first wave of westerly migrants still to be accounted for. British breeders cannot be involved since, even in the north, birds are already on territory at the beginning of April and on the Hebrides, for example, the peak number of first eggs were laid between 15 and 20 April in 1976 (Wilson 1978). During the Spring Passage Project, several observers noted birds on territory, e.g. six pairs at Kenfig (Mid Glamorgan) on 12 April, several pairs displaying on Rhum and four pairs at Portsmouth Harbour, all on the same date. The first chicks were also observed at Southampton on 16 May, Foryd Bay (near Bangor, north Wales) on 13 May and Rhum on 23 May. On the other hand, Icelandic breeders are not on territory until mid-May (Morrison & Wilson, 1972). It thus seems most likely that the first phase of passage observed in the Severn Estuary and other west coast sites consisted of Icelandic breeding birds. With a few exceptions, nearly all departures of birds from the Severn from the second half of April onwards (during the last eight years) have been to the west of north. The 80 which left Collister Pill on 12 May took an average course of 336.5° ($=6^\circ$ west of true north). Such a line would take them directly towards the Dee, the Solway and on to Iceland/Greenland. The potential flight ranges of Ringed Plovers leaving this site in previous years (at weights of 80-85g) would be sufficient (c. 1900 miles) to take them directly to north east Greenland without the necessity of a further stop-over (Green, 1978). Obviously, Icelandic and Greenland breeders cannot be distinguished on the basis of their direction of departure. The counts on the Isle of Lewis perhaps suggest that some Icelandic breeders stop off there, but Greenland breeders do not appear to do so.

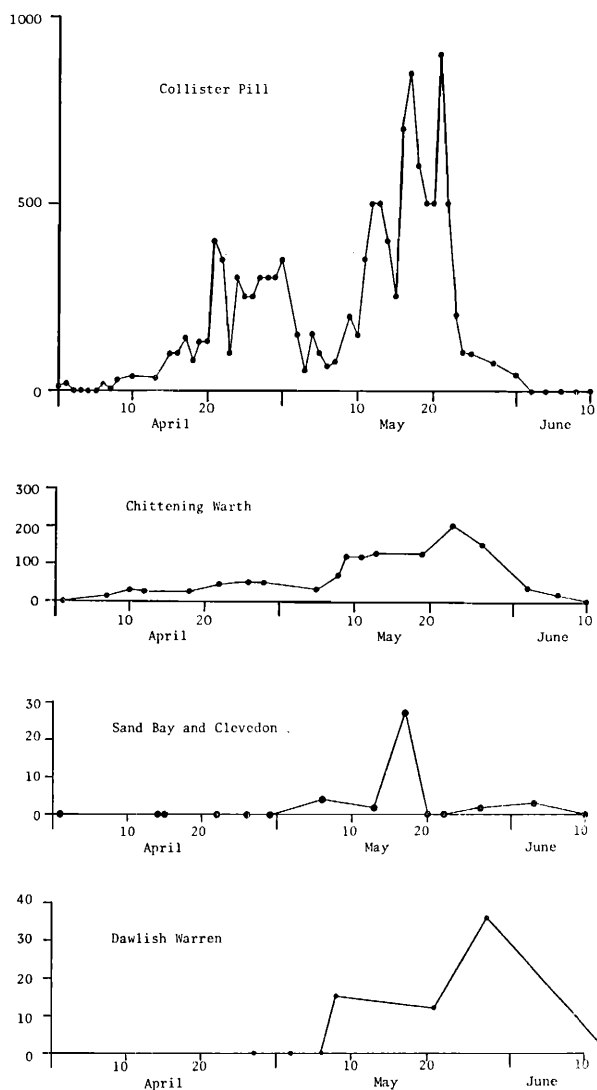


Figure 1. Counts of Ringed Plovers at sites in south west Britain in spring 1979. (The sites in Figs 1-3 are arranged with the most northerly ones at the top).

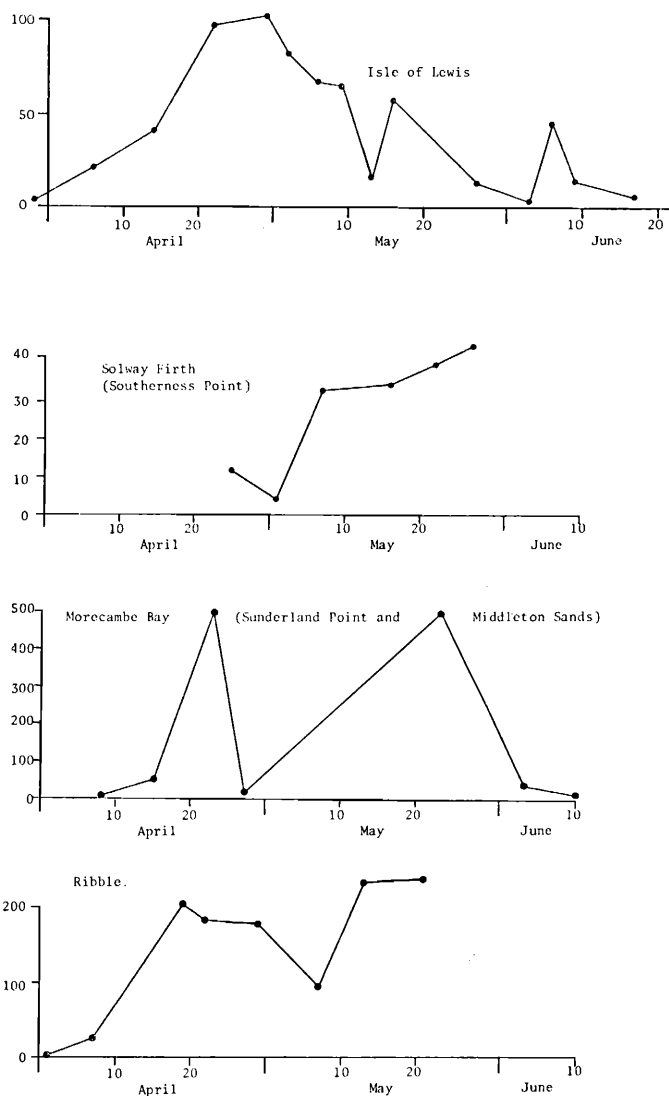


Figure 2. Counts of Ringed Plovers at sites in north west Britain in spring 1979.

TABLE 1. SUMMARY OF RINGED PLOVER CATCHES OBTAINED DURING THE SPRING PASSAGE PROJECT

Site	Date	Number, age & sex	Wing length (mean + S.D. in mm)	Bill length (mean + S.D. in mm)	Weight (mean + S.D. in mm)
Solway Firth (Waterfoot Annan)	140479	5 adults	132.6	13.4	58.1
		1 Juvenile	135	14	70
	150479	1 adult	140	15	64
		1 juvenile	157	15	84
120579	37 adult males		134.5 + 3.2	14.1 + 0.5	67.2 + 6.5
		17 adult females	134.7 + 3.2	14.3 + 0.8	68.8 + 9.0
	(68.5% males, 31.5% females)				
	18 juveniles	133.3 + 3.4	14.2 + 0.7	63.9 + 6.6	
(25.0% juveniles, 75.0% adults)					
130579	110 adult males	131.0 + 2.5	13.8 + 0.7	66.3 + 7.8	
	37 adult females	132.0 + 2.9	14.1 + 0.7	67.4 + 8.0	
	(74.8% males, 25.2% females)				
	12 unsexed adults	130.9 + 3.6	13.8 + 0.6	65.9 + 9.6	
17 juveniles	131.4 + 3.1	13.8 + 0.6	70.4 + 8.6		
(9.7% juveniles, 90.3% adults)					
Morecambe Bay (Biggar)	150479	3 adult males	135.0	-	66.7
		4 adult females	135.8	-	64.5
		3 unsexed adults	136.0	-	64.0
(Hest Bank)	070579	2	131.5	-	57.5
(Conishead)	230579	29 adult males	132.2 + 3.0	-	67.8 + 7.8
		29 adult females	133.2 + 2.3	-	68.2 + 7.2
	(50.0% males, 50.0% females)				
	8 unsexed adults	134.3 + 4.5	-	65.1 + 7.5	
3 juveniles	133.7	-	67.0		
(4.4% juveniles, 95.6% adults)					
Southport (Marshside)	270579	1 adult male	137	13.5	64.5
		4 adult females	135.3	13.3	84.8
Severn	130479	10 males	135.8 + 2.3	14.7 + 0.8	60.1 + 2.4
		9 females	134.4 + 2.5	14.3 + 0.7	56.6 + 2.4
		6 unsexed	134.2 + 3.8	14.2 + 0.8	57.8 + 4.6

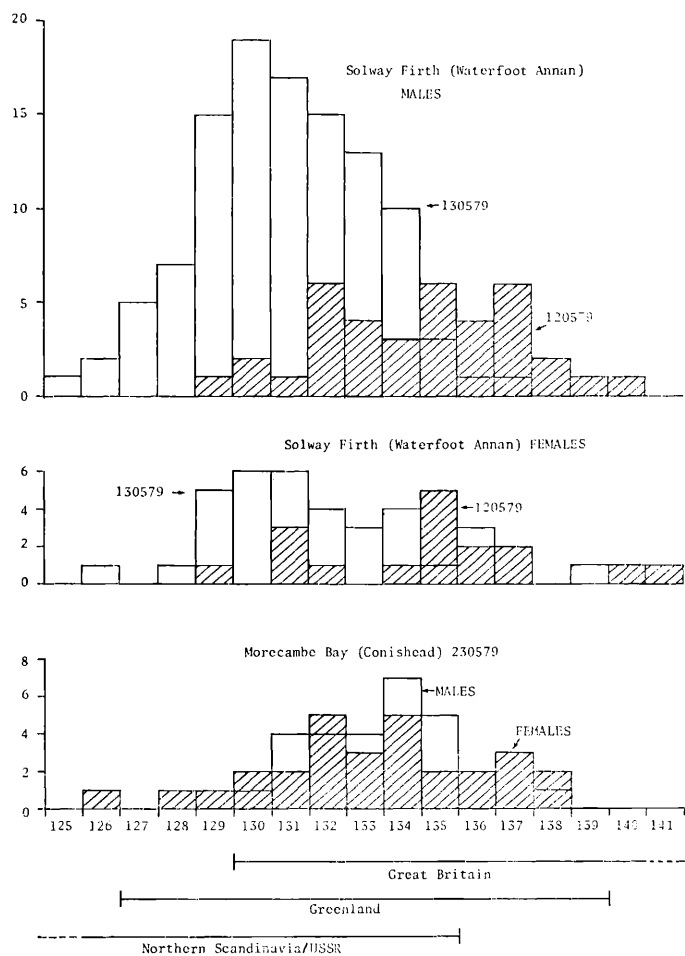
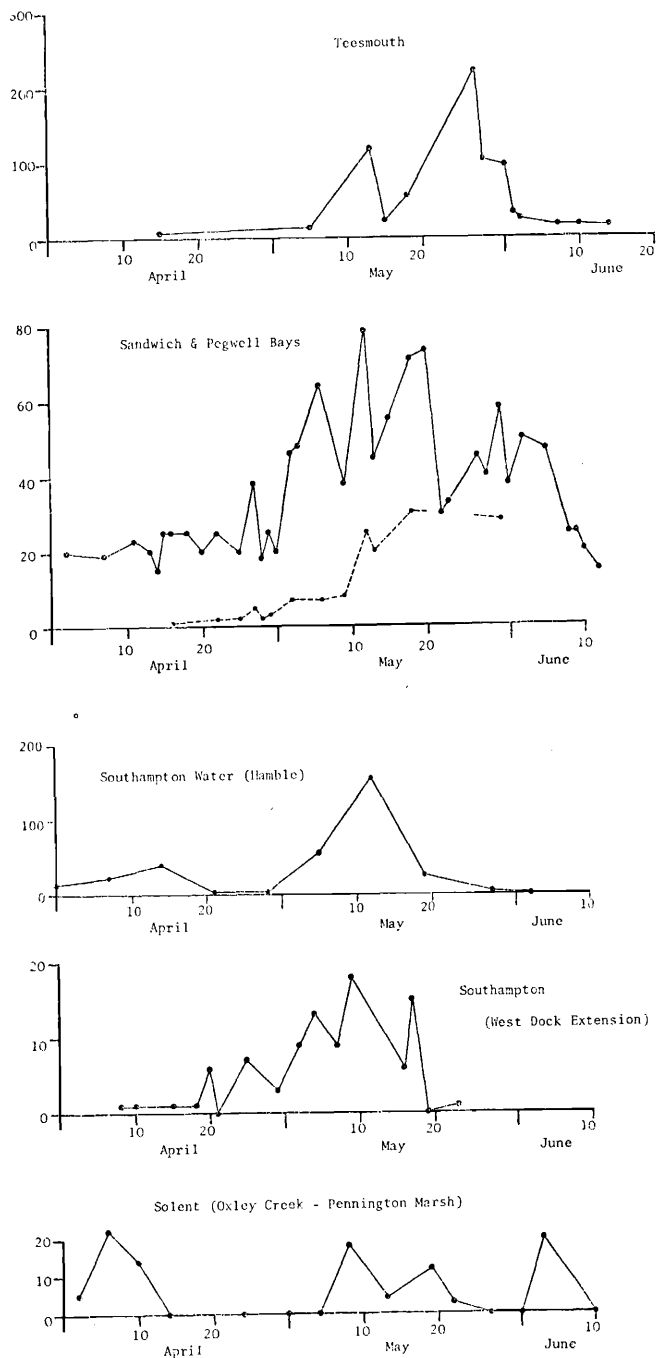


Figure 4. Non-accumulative histograms of the numbers of adult Ringed Plovers of different wing lengths captured at different sites and on different dates. The lines at the bottom indicate the ranges of measurements in birds obtained from different breeding areas (after Prater *et al.* 1977).

Figure 3. Counts of Ringed Plovers at sites in southern and eastern Britain in spring 1979.

Two subspecies of Ringed Plovers are generally recognised - *Charadrius hiaticula tundrae* from the U.S.S.R. and Fennoscandia, and *C.h.hiaticula* from the rest of the breeding range. The nominate race is typically large and pale, whilst *tundrae* is small and dark, though the situation is greatly complicated by clines in the sizes of both races (Prater *et al.*, 1977). It is possible to distinguish some *tundrae* in the field, and the interpretation of the east coast passage is rendered much easier because observers at Sandwich and Pegwell Bays were able to count some *tundrae* separately. The number of individuals of this race at this site is shown by the dotted line in Fig. 3 (note that the overall counts include individuals of all races). A considerable proportion of the birds which passed through Kent were of the race *tundrae*, and there is an indication that the proportion of "typical" (i.e. indistinguishable) *tundrae* increased during the later stages of the migration. This might be expected if the earlier stages of passage consisted of more southerly breeding birds (perhaps from northern Scandinavia) with less clear-cut *tundrae* characteristics, followed later by those from further north and east in the U.S.S.R. No *tundrae* were observed at any of the sites in the west of Britain. In fact, the majority of this race probably passes up the northern coast of the mainland of Europe, with only a small proportion of the total flyway population occurring in southern and eastern Britain. Nevertheless, it seems likely that most of the birds observed at the sites in Fig. 3 (with the possible exception of Teesmouth) were from breeding areas in the eastern part of the range. This accounts for the different pattern of migration observed in the east and west of Britain.

Because the breeding areas in the west are geographically discrete (Iceland, Greenland, Baffin Island), and because of the timing of breeding in the first two of these areas is different, the spring migration in the west of Britain is divided into two distinct phases - but it does require very fine grained counts to distinguish them. In the east, however, the breeding areas are extensive and continuous, and thus the migration observed in the east of Britain tends to be long and drawn out - as successive waves of migrants pass through continually.

Unfortunately, measurements of Ringed Plovers are of relatively little value in confirming or refuting the above interpretation of the counts, since there is a considerable overlap in size between the various populations. All the catches (Table 1) were obtained in the west of Britain, which also limits their usefulness. The bill is so short in this species that errors of measurement become a significant factor, and the differences in wing length between populations (Fig. 4) are so small that tiny errors can again be critical. The catch from the Solway which contained the Greenland ringed bird had, on average, the smallest wings and bills, and this is consistent with their probable northern origin. The low percentage of juveniles in this catch is indicative of a breeding population. The low weights and the high proportion of males are consistent with them being part of the first phase of a migration of Greenland breeding birds (males generally arrive on the breeding grounds a few days in advance of females). However, the most striking feature of the Solway's catches as a whole, is the lack of consistency between the catches obtained on the 12 and 13 May (Table 1 and Fig. 4). On the earlier date, bill lengths, wing lengths and weights were all slightly larger, on average. This is shown most clearly in Fig. 4. The proportion of juveniles was also much higher on the 12. Variation in the composition of catches from the same site occurs quite commonly (see e.g. Pienkowski & Dick, 1976), and in this case suggests that the roosting Ringed Plover population at Waterfoot Annan was segregated in some way. It is not just that the earlier catch was diluted by juveniles, because the wing lengths in Fig. 4 refer only to adults. Clearly, the earlier catch included a residue of larger birds which might, for example, have included some late Icelandic migrants. The Morecambe Bay birds in Fig. 4 were intermediate in wing length between the two Solway catches. Coming from later in the passage period, they had an equal sex ratio. The highest weights were obtained in the last small catch of four adult females at Southport on 27 May (85g). These birds must clearly have been close to their departure weights.

These captured samples indicate the need for caution when interpreting the counts. While it is fair to talk about the general trends of migration which may be revealed by counts, it is important to bear in mind that in reality, the birds at any one site at any one moment of time consist of a complex mixture of individuals of different breeding status and geographical origin.

Future attempts to unravel the complexity of the spring migration of Ringed Plovers through Britain are unlikely to be successful unless counts are conducted at extremely frequent intervals, and such an intensity of effort is probably beyond the capacity of amateur observers with limited time. In any case, some evidence is needed before particular waves of migrants can be associated with specific breeding areas. The lack of reliable morphometric criteria for distinguishing the different breeding populations of this species is rather discouraging. However, there is one possibility that is worth exploring further. Icelandic breeders do have consistently shorter tarsi (Prater et al., 1977), and it is therefore recommended that tarsi should be measured in preference to bills in future catches obtained in Britain. Also efforts to trap *tundrae* in south-east England and obtain morphometric data would be of value and interest. This could be of considerable value in distinguishing Icelandic breeders from others during the spring migration period.

Acknowledgements

I am grateful to all those who participated in this Wader Study Group Spring Passage Project. A complete list of contributors will appear in the final report in this series.

References

- Green, G.H. (1978). Discussion of wader measurements and migrations. Pp. 61-68 in G.H.Green & J.J.D.Greenwood (Eds) Report of the Joint Biological Expedition to N.E.Greenland, 1974. Dundee University N.E. Greenland Expedition, Dundee.
- Morrison, R.I.G. & Wilson, J.R. (1972). Report of the Cambridge Iceland Expedition, 1971.
- Pienkowski, M.W. & Dick, W.J.A. (1976). Some biases in cannon- and mist-netted samples of waders. Ringing and Migration 1: 105 - 107.
- Prater, A.J., Marchant, J.H. & Vuorinen, J. (1977). Guide to the identification and ageing of Holarctic waders. B.T.O.Tring.
- Taylor, R.C. (1980). Migration of the Ringed Plover *Charadrius hiaticula*. Ornis Scand. 11: 30 - 42.
- Wilson, J.R. (1978). Agricultural influences on waders nesting on the South Uist machair. Bird Study 25: 198 - 206.

LETTER TO THE EDITORS

Lack of sportsmanship in British wader-ringers

From Miss C. M. Lessells, Edward Grey Institute of Field Ornithology, South Parks Road, Oxford OX1 3PS, England.

Dear Mike, I am writing to express my deepest horror and concern at the unsporting behaviour of British wader ringers, revealed to me by your journal. I refer, of course, to the habit, alluded to in the latest Bulletin (Clark, pp2-3), of racing Dunlin and Oystercatcher, unless of course, sir, the Dunlin are given a suitable handicap.

Yours in disgust, Kate.

(The Editors are giving up racing - the risks of slipping are too great - Eds.)

