The first members went up at the beginning of April (Guy Morrison, James Wilson, Duncan Rothwell) and soon started to catch Purple Sandpipers. Then during May they were supplemented by Angela Morrison, Rob Wilson, David Pearson and Grenville Clarke. May was an extremely successful month and large catches of Knot and Turnstone were made from the 2nd to the end of the month. After this there was a mass exodus of waders from the coast. The total numbers of waders caught are presented below.

Waders trapped in Iceland during April/May 1972.

	new birds	controls: non Icelandic	controls from previous Iceland expeditions	retraps	total
Oystercatcher	28	-	-	-	28
Ringed Plover	30	-	-	2	32
Turnstone	628	2	23	55	708
Redshank	8	-	-	-	8
Knot	970	68	58	12	1108
Purple Sandpiper	235	1	2	3	241
Dunlin	89	1	3	-	93
Sanderling	44	-	-	-	44
	2032	72	86	72	2262

This catching effort more than paid off. No fewer than 6.1% of all Knot handled were British ringed and a further 5.2% were ringed on the previous Iceland expeditions. Included among these 126 ringed Knot were about 12 which have now been handled three times, so considerably increasing their value. All the major British estuaries which have large Knot flocks were represented by controls with 26 from Morecambe Bay, 24 from the Wash, 13 from the Dee, 3 from the Solway and one each from the Humber and Ribble.

Of the other species valuable catches of Turnstone and Purple Sandpiper were made. The first two controls of British Turnstone in Iceland were also made, these birds being ringed on Hilbre, Dee 30.8.64 and Heysham, Morecambe Bay 19.9.71. We also caught a British ringed Dunlin, from Harty, Kent (5.8.67). The only non-British control was a Dutch ringed Purple Sandpiper which was caught by Gerard Boere and Tony Prater on the North Sea coast of Vlieland in December 1971 and retrapped at the same place in March 1972, a valuable recovery which gives proof of its wintering area.

During mid June a talk on the activities of this expedition was given to the B.O.U. conference, this was well received. Apart from that all the effort has gone into studies on the breeding birds, with ringing of adults and pulli. Already in the first part of June over 60 have been ringed and some 150 Nest Record Cards have been completed.

A more detailed account of the expedition will be appearing in the WSG bulletins later in the autumn or winter.

The results of the University of East Anglia Expedition to Morocco 1971

by Mike Pienkowski

In WSG Bulletin No. 4 the activities and highlights of the UEA Expedition were outlined but since then the results of the work have been fully analysed and published in report form. As this runs to 70 large pages of fairly small print, it is obviously not possible here to discuss the work in detail but I would like to summarise some of the main conclusions and indicate the lines that we hope to follow up on the two expeditions which are shortly to leave again for Morocco. For those who would like to look more deeply at the results, copies of the Expedition's Report are available (60p incl. postage) from M.W. Pienkowski, School of Biological Sciences, University of East Anglia, Norwich.

The count data gathered by the expedition have helped fill a considerable gap and are complementary to the mid-winter counts of Blondel (1964, Alauda 32: 250-279). With the bases of these two series of counts and using additional published and unpublished material, it has been possible to construct distribution maps for most wader species at different seasons in Morocco. Some interesting patterns emerge from this; while one group including Ringed, Kentish and Grey Plovers, Curlew, Dunlin and Redshank occur all along the Atlantic coast, Turnstone, Knot and Sanderling are virtually restricted to the extreme south. Oystercatcher and Bar-tailed Godwit occur mainly south of the Atlas Mountains which bisect the country while Black-tailed Godwit and Black-winged Stilt occur mainly to the north. There are various possible reasons for these differences, some suggested including the change from the Mediterranean climate in the north to the desert type of the south and changes in the nature of the lagoons and estuaries. The extreme south of Morocco forms the northern limit of the extremely important Senegal - Banc d'Arguin - Puerto Cansado area.

Although our direct counts were obviously made in the autumn, one of the most interesting of the expedition's discoveries was the presence of quite considerable summering populations of some species. Earlier observers have reported small summering flocks of several species but the scale of the summering populations has been difficult to gauge. By calculating back from the moult scores of birds caught it was possible to estimate approximate dates for the start of moult. Among most species caught were a few individuals which had started to moult sometime in June but for Dunlin and Redshank all post-juveniles were of this type and had therefore probably summered in Morocco. As normal in autumn wader migration, adults of most species preceded juveniles but this was not the case with Redshank, Knot and Dunlin in which, apart from juveniles, there were no additions to the moulting populations. It is suggested that the early winter Moroccan populations of these species consist almost entirely of juvenile and second year birds. Some older birds of these species may, of course, move south to Morocco in late winter vut a consideration of published ringing recoveries suggests that this is unlikely on any large scale. The preponderance of immature birds which would have had little, if any, opportunity to be ringed in Britain could well explain the lack of British controls in the birds caught by the expedition. Conversely, the large number of birds ringed by the expedition should start to appear in the British populations in the coming autumn and winter (watch for French rings!). The expeditions to Morocco this year may be able to establish that the summering flocks consist mainly of second years by making retraps of birds ringed last year as juveniles.

Another interesting aspect of the data gathered in Morocco concerns weight On the Wash many species increase weight in the early winter before a decrease in January-March (see WWRG Ann. Rep. 1971, in prep.). In Morocco weights were frequently much lower even during moulting and there were no signs of weight increases in birds approaching the end of moult. The cause of the difference could well lie in the climatic stress undergone on the Wash in winter and support to this possibility is given by the relative lack of winter weight increases in birds on Morecambe Bay which enjoys a more moderate winter to that of the Wash (J. Wilson, WSG meeting June 72). The possible relationship between weights and the importance of the NW African area to immature birds is discussed in the Report.

The measurements taken by the expedition have allowed attempts at separation of races for some species. The Ringed Plover population consisted of hiaticula and tundrae in roughly equal proportions and one bird from Iceland was controlled by the expedition. The summering populations of Dunlins appeared to be about 70% schinzii while the arriving juveniles consisted almos entirely of this race, possibly indicating a later migration of alpina, as mig be expected. Juvenile Dunlins ringed in Iceland 3 weeks earlier and in Denmar 8 weeks earlier were controlled. Redshanks were mainly of the nominate totanu

race, few, if any, Icelandic robusta being present. Three juvenile Redshanks ringed by the expedition have since been recovered fairly locally in January, February and March. This is of interest both in confirming that the birds stay to over-winter in this area of Morocco as well as being indicative of the intensity of hunting in the area. One of the aims of this year's UEA Expedition is to extend the work to the far south of Morocco to study the Knot and Sanderling which do not occur in reasonable numbers further north.

Although the counts, weight studies and race identification aspects form very obvious lines of enquiry, expeditions are frequently rewarded with some totally unexpected result. For us there were perhaps two of these, both arising from moult studies. The first was the preponderance of probably immature birds in some species already described. Although we expected to find a summering population, particularly of Knot, the early winter (and possibly even more complete) lack of adult birds was a considerable surprise. Secondly the moult of Ringed Plovers also caused considerable problems in analysis until it was realised that a very large proportion of the population had at some stage undergone suspended moult as well as those actually showing this when caught. Although suspended moult has commonly been recorded in Ringed Plover this has usually involved only a very small proportion of the population. The high frequency here raises questions as to the origin of the birds and whether they could be largely failed breeders or birds which started to moult while still raising young.

There is thus plenty of scope for further study in Morocco and elsewhere. Also our investment of ringed birds may hopefully soon be providing returns in more northern parts (including Britain). The two expeditions this year will be both continuing studies started in 1971 and extending the work further southward. Here there is particular cause for concern in that even since our visit, a causeway has been built across the Chebeika estuary (one of our main sites) apparently reducing tidal flow (J. Brock, pers. comm.). The same road is likely to make access to Puerto Cansado for tourists and hunters considerably easier even if it does not have more direct effects. The UEA 1972 expedition aims to study this most important site for waders.

Biometric variations in the Curlew Sandpiper

C.D.T. Minton & P.I. Stanley

In many species of waders there is a difference in size between the sexes (the female usually being the larger) and between populations from different geographical areas. The Handbook (Witherby et al. 1940) gives similar size ranges for both male and female Curlew Sandpipers Calidris ferruginea and recognises no subspecies. Recently however Thomas and Dartnall (1970) showed a significant size difference between the sexes in 57 adult birds collected in Tasmania. Data on 344 juvenile and 26 adult Curlew Sandpipers caught for ringing in Britain and on 317 skins from the British Museum (Natural History) and the Norwich Castle Museum have therefore been examined for size differences associated with sex, age or geographical origin.

Bill length. The bill length of the juveniles caught in Britain - including 298 from the exceptional influx in autumn 1969 (Stanley and Minton, in press) - shows a bimodal distribution (Fig 1). The Percentage Cumulative Frequency (PCF) technique recommended by Griffiths (1968) gives means for the two components of the population, presumably males and females, of 36.8 and 40.2 mm with a standard error of $\pm$ .15mm for each. The 98% confidence limits (mean $\pm$ 2.3 x standard deviation) for the bill lengths of juveniles occurring in Britain are:

male 31.3 - 42.3mm
female 34.7 - 45.7mm

The sexual difference found by Thomas and Dartnall is therefore confirmed although it is rather smaller and the mean values are slightly higher in the British sample (Table 1). The difference is significant ($P<.002$) for males but not for females.