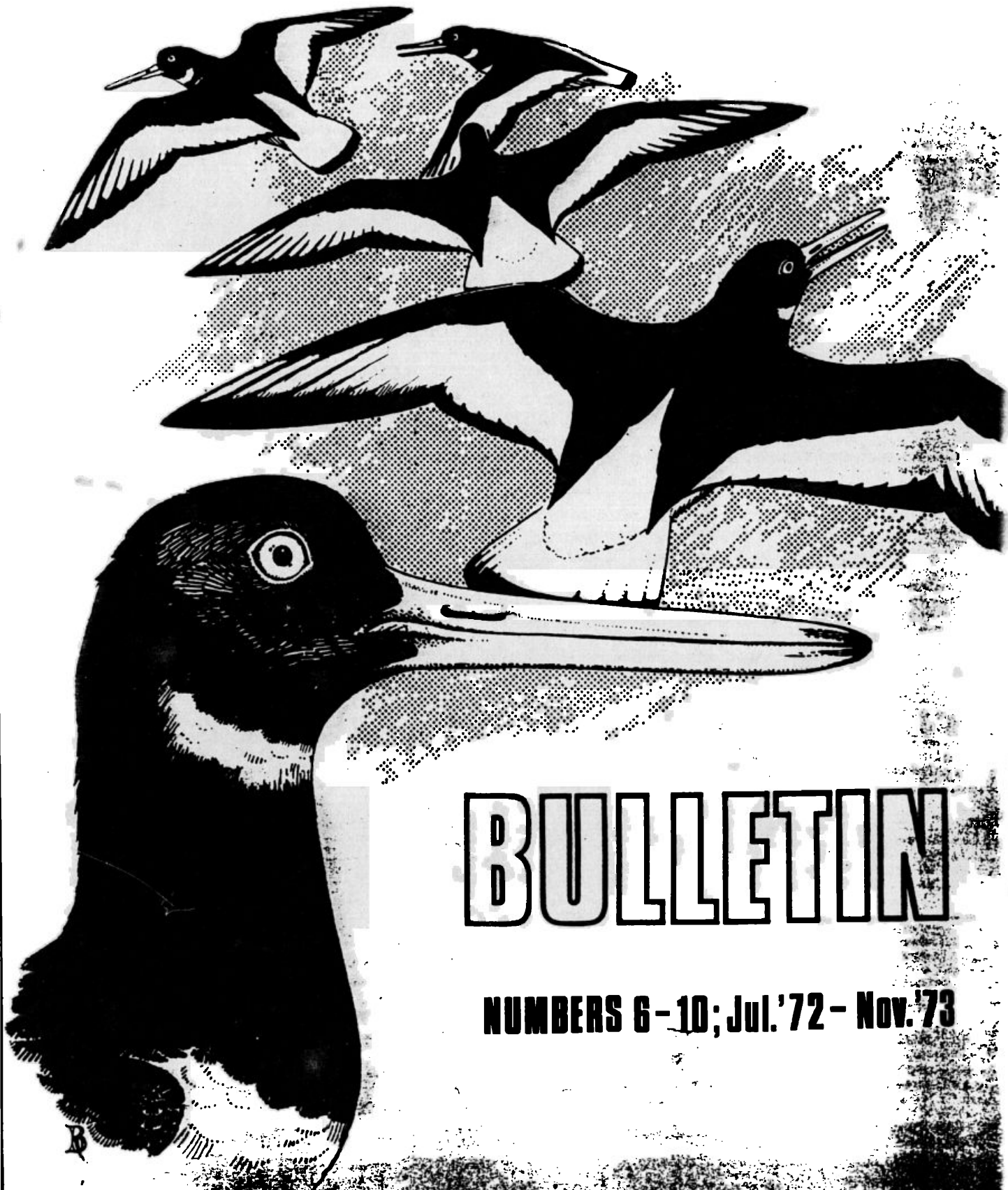


# WADER STUDY GROUP



# BULLETIN

NUMBERS 6-10; Jul.'72 - Nov.'73

## WADER STUDY GROUP

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### CORRESPONDENCE

All general enquiries, applications for membership, initial subscriptions and renewals, changes of address, completed WSG data forms, matters relating to the circulation of the Bulletin, etc. should be sent to the Administrative Secretary (G.F. Appleton).

Matters and proposals concerning co-operative research projects and objectives should be sent to the Co-ordinator ( W.J.A. Dick).

All material for the Bulletin and enquiries about this should be sent to one of the Editors (M.W. Pienkowski & G.H. Green).

In America, membership applications, etc. may be sent to Dr E.H. Miller and material for the Bulletin to Dr R.I.G. Morrison.

### PAYMENTS

All cheques should be payable to "Wader Study Group".

Payments sent to the N. American Membership Secretary may be in Canadian or U.S. dollars. All other payments should be sent to the Administrative Secretary. These must be in British currency and sent by cheques, drafts or orders drawn on a UK bank or the British Post Office.

### DEAD LINES

For inclusion in the issue indicated:	APRIL	AUGUST	DECEMBER
articles, notices, etc. must be received by:	1 February	1 June	1 October

(If correspondence between editors and author(s) is likely to be necessary, articles must be received well before these dates if they are to be included in the next issue.)

Ringling totals must be received by	20 February	20 June	20 October
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(It may also be possible to include short notices received by MWP by these dates.)

## RE-ISSUE OF BACK NUMBERS OF WADER STUDY GROUP BULLETIN

We have reprinted WSG Bulletin numbers 1-20 in four volumes. They are facsimile reproductions and any errors in the first issue are still present.

Numbers 1-4 were originally produced on foolscap size paper and have been retyped on A4 to conform with later issues. The original pagination is indicated and should be used when citing references. Similarly bulletins should be referred to by number, not by re-issue volume.

Small numbers are still available and enquiries should be sent to G.F. Appleton, Administrative Secretary whose address appears on the inside cover.

The two other species which we catch in larger numbers are Lapwing and Snipe. Already we have managed to describe the moult of Lapwing but from 1973 much more information on other aspects will be obtained by detailed colour ringing. Snipe have proved very difficult to study because they are difficult to observe well and very large numbers (up to 4,000) occur. We will continue to obtain information on moult, faithfulness and length of stay but we probably have enough biometrical data already.

All these studies will be continuing and we hope to perfect our catching methods and therefore ring many more waders.

### Colour Marking

We have just received details of a colour marking scheme which is to be undertaken on the Waddensea in the Netherlands. On the Island of Schiermonnikoog dyeing of waders will be carried out (using sudan-red, a yellowish-blue and black) to determine their moulting rates, especially of the primaries but also in some cases of the body feathers.

On Vlieland colour ringing of waders with red, yellow, green, black and blue rings will also take place. These rings will be placed above the tarsus.

Will all observations please be sent to Drs. G. Boere, Dorpsstraat 196, Vlieland, Netherlands. Please be extremely careful to record all details about the colour rings (number, combination, leg etc.) and colour dyes (position of dyes and their colour) so that no confusion with other schemes will occur.

### New Members

Beullens, Willy Pareipoelstaat 38, Mechelen, Belgium  
Berry, Rob 8 Cockle Road, Snettisham, Kings Lynn, Norfolk  
Cook, Tony 5 Chestnut Close, Peakirk, Peterborough, Northants.  
Dongen, Max van Beethovenlaan 238, Tilbury, Netherlands.  
Goss-Custard, Dr. John, Coastal Ecology Research Station, Colney Lane, Norwich.  
Pratt, Dr. Norman, 7 Salcombe Crescent, Totton, Southampton, Hants.  
Pearson, Dr. David, Brouses, Sibton, Saxmundham, Suffolk.  
Spaans, Arie Lands Bos Beheer, Postbox 436, Paramaribo, Suriname, South America.  
Slings, Rienk Maerelaan 298, Hoenskerk, Netherlands.  
Vries, Kees de 11 Antonio Morstraat, Hoenskerk, Netherlands.

### Changes of Address

Etheridge, Brian 126 Grange Road, R.A.F. Loconfield, Beverley, E. Yorks.  
Findlay, Peter c/o Sandwich Bay Bird Obs., No. 2 Old Downs Farm, Sandwich Bay, Sandwich, Kent.  
Hardy, Tony 60 Antrobus Road, Sutton Coldfield, Warwickshire.  
Mackie, Peter, 5 Cawdor Crescent, Craighton Estate, Bishopston, Renfrew  
Nicoll, M. 43 Bloonfield Gardens, Arbroath, Angus, Scotland.  
Old, Alan c/o British Bata Show Co. Ltd., Cunnock, Ayrshire KA18 3AL  
Tree, Tony, 22 Perth Road, Avondale, Salisbury, Rhodesia.

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New Scandinavian Rings

We have received from John Hartley (Humber) a note on the ring of a Swedish Dunlin that was caught this spring. Instead of the normal soft rings that are usually found on these birds, this one was made of a very hard metal and was about three times the thickness of the British rings. In view of this it was considered that it would be dangerous for the bird if prolonged attempts were made to remove it (as is usually requested by the Swedes). It is therefore recommended that such rings be left on the bird rather than be removed, should any others be found in future years.

Colour Marked Waders

There are four main schemes at present running which involve colour marked waders.

- (i) In Germany ; a short article on the activities of some wader ringers in Germany is included in this bulletin, they are colour ringing Black-tailed Godwit, Ruff, Wood Sandpiper, Green Sandpiper, Greenshank and Spotted Redshank. Address: M. Speckmann, D-44 Munster, Mykstrasse 10, West Germany.
- (ii) In Greenland The Greenland expedition, involving Harry Green and Tony William is off very soon to NE Greenland and is aiming to dye waders to try and obtain the maximum information from them. They will probably be using a yellow dye and will mainly be colour marking Ringed Plover, Dunlin, Sanderling and juvenile Knot. So keep an eye open for yellow waders. Address: G.H. Green, Windy Ridge, Little Comberton, Pershore, Worcs.
- (iii) Purple Sandpipers. Colour ringing of these using colour codes for sites and years is continuing. Sightings to Tony Prater please.
- (iv) Green Sandpipers. A small study will be made this autumn in east Anglia and will involve dyeing the rumps of Green Sandpipers. Again sightings and colours to Tony Prater.
- (v) Waddensee see last page

Moult

At the W.S.G. summer meeting moult was discussed and it was very strongly recommended that during this autumn a big effort should be made on this aspect of wader biology. Would all members please try to obtain as much information as possible from moulting birds, namely record the stage of growth of each of the primary feathers so that we can obtain moult scores rather than just the number

of old primaries. By using a simple notation (e.g. N<sup>5</sup>410<sup>3</sup>) it takes very little longer to deal with the birds and gives a moult score (in this case = 30). If everyone does this for sample of 15-20 per catch per species then we will obtain enough information to make a very good analysis of moult. The data can be recorded either on the W.S.G. data forms or on moult cards.

### Expeditions

This year several expeditions are planned. The progress report of the Iceland expedition is included here. A brief mention of the Greenland expedition is also made in the section on colour marking. Two groups are going to Morocco, under Derek Stanyard and Mike Liebhörsing, to continue with the work started there (see the article in this bulletin) and last but not least two groups hope to visit the Baltic and Atlantic coasts of Europe to observe, catch etc.

### Data Forms

All group members are reminded that it is essential that their ringing data be placed on these forms, which Tony Prater can supply. The winter 1972 meeting agreed (1) that all past records for species of which there are less than 100 individuals processed should be put on them; (2) that all records, if at all possible, should also be included and (3) that all birds ringed and processed from January 1st 1972 should be entered on them.

So far we have received 266 forms back from several groups and we would like to thank those who have already sent them in, especially Keith Anderson, Harry Green, B. Murray and David Steventon for transcribing large numbers. However there are still many outstanding forms with the major groups and we would hope that this information will be transcribed as soon as possible so that current ringing data can be included for 1972 and onwards.

### Ringings in Spring 1972

Not all the groups returned the details of their catches but the ringing totals of those who did are set out below.

	FRG	GHG	NBWG	MRG	WVRG
Oystercatcher	181	15	8	-	35
Lapwing	5	-	-	-	-
Ringed Plover	8	18	334	136	1
Grey Plover	-	2	-	-	33
Turnstone	-	21	7	-	19
Curlew	-	-	4	-	2
Whimbrel	-	-	-	-	1
Bar-tailed Godwit	-	-	-	-	3
Redshank	16	1	15	-	4
Greenshank	1	-	-	-	-
Knot	-	-	83	-	1178
Dunlin	182	90	948	360	80
Sanderling	-	-	3	256	58
Purple Sandpiper	-	-	44	-	-
Total	<u>393</u>	<u>147</u>	<u>1446</u>	<u>752</u>	<u>1414</u>

Unfortunately due to very poor mist netting weather in April and May, the catches are well below normal. In fact almost all birds were caught with cannon nets.

### Recent Recoveries

We would like to remind readers that all ringing recoveries are included here by courtesy of the B.T.O. ringing scheme and must not be used in any analysis for publication without prior consent of R. Spencer.

#### Oystercatcher

##### Ringed as Pullus

Pull	3.7.70	Lymington, Hants.	c	Horsea Isl., Portsmouth	5.3.72.
Pull	4.7.71	S. Ronaldsay, Orkney	x	Islay	1.3.72.

##### Recovered during breeding season

The table below presents the recoveries of Oystercatchers by region and estuary of ringing.

	Netherlands	Denmark	Norway	Faeroes	Shetland	Orkney	Scotland
Burry Inlet	-	-	1	-	-	1	3
Conway Bay	-	-	-	-	-	-	1
Dee	-	-	-	-	-	-	1
Morecambe Bay	-	1	2	2	2	2	3
Wash	1	-	8	-	-	-	-

Again it is interesting to see that the recoveries from the western estuaries are primarily from the north and west whilst those from the Wash are all from the continent.

Two British controls are most interesting.

1Y	20.12.68	Poole Harbour	c	Horsea Isl., Portsmouth	5.3.72.
1Y	31.12.70	Heysham, Morecambe	c	Wolferton, Wash	14.5.72.

The latter of these is only the second bird to have been found to move between Morecambe Bay and the Wash.

There were two recoveries abroad in winter.

FG	15.11.63	Point of Air, Dee	x	Baie de Somme, France	30.1.72.
Ad	13.2.71	Harty, Kent	x	Manche, France	27.7.72.

#### Lapwing

FG	30.12.68	East Tilbury, Thames	+	Orne, France	8.4.72.
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All other recoveries were of birds ringed as pulli.

1961 in Yorkshire		+	Douro Litoral, Portugal	9.1.72.
1967 in Suffolk		+	Ribatejo, Portugal	0.2.68.
1969 in Yorkshire		+	Manche, France	22.2.72.
1971 in Westmorland		+	Pyrenees Atlantiques, France	23.1.72.

The other is probably an example of changing breeding grounds.

1966 in Dumfries		x	R. Tay, Perthshire	11.4.72.
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#### Turnstone

1Y	28.8.70	Carnforth, Morecambe	x	Hartlepool, Durham	17.5.72.
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#### Snipe

Juv	25.2.67	Abberton, Essex	x	Rostock, E. Germany	17.4.72
PJ	15.10.67	Lincoln	+	Beira Litoral, Portugal	0.2.72
Juv	22.9.69	Abberton	+	" "	6.11.69
FG	21.11.70	Leigh, Lancs.	+	Douro Litoral, Portugal	25.12.70
PJ	16.2.71	Cambridge	+	Loire Atlantique, France	5.3.70
FG	3.10.71	Derby	+	Limerick, Ireland	27.12.71

Curlew

Ad 28.8.61 Dawsmere, Wash x Vasterbotten, Sweden autumn 71.

Greenshank

Ad 9.8.62 Abberton, Essex + Ravenna, Italy 24.3.72

Knot

Ad 26.10.68 Heacham, Wash + Sukkertoppen, Greenland 3.6.72  
 Ad 18.8.69 Middleton, Morecambe x More a Romsdale, Norway (1.5.72)

Those British controls which involved a change of estuary were

Ad 27.8.68 N. Wootton, Wash c Hest Bank, Morecambe 14.2.72  
 PJ 23.11.68 Hilbre, Dee c Southport, Ribble 13.4.72  
 Ad 22.12.69 Piel, Morecambe x Bootle, Lancs 14.3.72  
 Ad 8.2.70 Middleton, Morecambe c Snettisham, Wash 19.2.72  
 Ad 20.9.70 W. Kirby, Dee c Hest Bank, Morecambe 14.2.72  
 1Y 4.10.70 Aldingham, Morecambe c Snettisham 19.3.72  
 Ad 15.11.70 Thornham, Wash x Cleethorpes, Humber 21.1.72  
 Ad 27.2.71 Snettisham, Wash x Foulness, Essex 26.3.72

Dunlin

1Y 13.9.70 Bardsea, Morecambe x N. Uist, Outer Hebrides 28.5.72

This was recovered inland and was almost certainly on its breeding ground.

FG 26.2.65 E. Tilbury, Thames x Cuxhaven, Germany 29.3.72  
 Juv 30.10.66 Wisbech, Cambs. + Somme, France 31.3.71  
 Ad 8.9.67 Dawsmere, Wash + Beira Litoral, Portugal 22.1.70  
 Juv 15.9.69 Snettisham, x Essaouria, Morocco 14.5.72  
 Ad 3.8.70 Foulney, Morecambe + Ille et Vilaine, France 30.7.71  
 1Y 27.2.71 Snettisham x Schleswig/Holstein, Germany 16.4.72  
 Ad 5.8.71 Teesmouth, Durham x Safi, Morocco 22.5.72  
 2Y 9.8.71 Terrington, Wash + Sevilla, Spain 25.12.71

Those involving a change of estuary within Britain were

Ad 7.9.63 Dawsmere, Wash x Spurn, Humber 16.4.72  
 Ad 16.8.67 Fair Isle c Point of Air, Dee 29.1.72  
 Ad 11.8.68 Terrington, Wash c " " " 29.1.72  
 Ad 9.8.71 " " c " " " 29.1.72  
 Ad 9.8.71 " " c Farlington, Langstone Hbr. 12.5.72  
 Ad 2.1.72 Conway, Caerns c Point of Air 29.1.72  
 Ad 14.3.72 " " c " " 29.1.72  
 Ad 14.3.72 " " c " " 29.1.72

In addition to these recoveries three notable Knot ones have recently been reported

One ringed in Belgium (when?) was controlled in South Africa this winter and two Knot ringed on the Solway (14.2.71) and Snettisham (19.3.72) have been killed by Eskimos in the Canadian Northwest territories on 11.6.72 and 9.6.72 respectively. Unfortunately the precise recovery site has not yet been ascertained but they are probably from the south east corner of Baffin Island, though there is a slight chance that they were taken in Victoria Island - well into the range of C.c. rufa the American subspecies.

Preliminary results from the Cambridge Iceland 1972 Expedition

The aims of this expedition were to extend the trapping of waders which the three previous Iceland expeditions (spring 1970, autumn 1970 and spring 1971) had undertaken. With a much greater period of trapping (April-September) it was hoped that a better insight would be gained of the breeding populations of Iceland and passage populations moving to Greenland and northeast Canada. The main method of trapping was by cannon net but single shelf nets were used on occasions. During summer cage traps have been used to catch birds on nest on so try and obtain accurate biometrical data on breeding birds.



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 but 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 almost entirely of this race, possibly indicating a later migration of alpina, as might be expected. Juvenile Dunlins ringed in Iceland 3 weeks earlier and in Denmark 8 weeks earlier were controlled. Redshanks were mainly of the nominate totanus

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 Consado 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  $\pm .15$ mm 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.

The bill lengths of museum specimens, analysed in groups according to the areas in which they were collected, showed a rather smaller, though still significant, difference between the sexes. Mean bill lengths were generally shorter than on the live samples. It is not clear whether these differences are caused by shrinkage, by the heterogeneous age categories or by incorrect sexing of some of the specimens. There does not however appear to be any geographical variation, in accord with the relatively restricted breeding range. There were more males than females in each of the museum samples, but in the large sample of juveniles from the 1969 influx into Britain the sexes appeared to be present in similar numbers. The bill lengths of 26 adults - 19 caught during an unusually large influx into Britain in early August 1971 - averaged  $37.7 \pm 0.5\text{mm}$ , below but not significantly different ( $P < 0.1$ ) from the mean of the juveniles ( $38.5 \pm 0.14\text{mm}$ ).

Wing length. Wing length measurements are subject to operator bias, even between measurers nominally using the same technique. To eliminate this variable only the measurements made by one person have been used in the calculations - 117 juveniles caught on the Wash, Lincs, between 23rd and 30th August 1969. The 'maximum length' method was employed (Spencer 1965).

Using the PCF method the mean wing lengths of the two components of the population were 129.4 and 132.5mm. with a standard error of  $\pm 0.2\text{mm}$  on each (Fig. 2). Smaller samples measured by other operators also exhibited a bimodal distribution with a similar difference between means, but with these offset by 1-2mm. The difference of 3.1mm is similar to that found between the sexes by Thomas and Dartnall in Tasmania (3.3mm) but the means of their wing lengths were  $126.5 \pm 0.7\text{mm}$  for males and  $129.8 \pm 0.8\text{mm}$  for females. The significant ( $P < .001$ ) differences in mean values between Tasmania and Britain probably result mainly from the measuring techniques employed since there is a correlation between wing and bill length in both samples and there was little difference between the bill lengths. The 98% confidence limits for juvenile birds occurring in Britain are

♂ 125.7 - 133.1 mm  
♀ 128.8 - 136.2 mm

The mean wing length of 19 adult Curlew Sandpipers caught on the Wash in early August 1971 was  $131.5 \pm 0.7\text{mm}$ . This is only 0.5mm longer than the mean juvenile wing length at the same time of year but if allowance is made for probable wing shortening of 0.3mm/month (Pienkowski and Minton, in press) the newly grown adult wing feathers in say January must be 2-3mm longer than those of a juvenile in August assuming an equal proportion of both sexes in the adult sample. Thus the Curlew Sandpiper appears to have a shorter wing length in its first year, as do most other species of wader.

Moult. Curlew Sandpipers normally undertake the annual moult of their flight feathers on their wintering grounds (Stresemann and Stresemann 1966). This is supported by all but one of the 26 adults handled in autumn on the Wash - including two as late as the first week in September - showing a large amount of summer plumage and still having a full complement of old primaries. The exception was a bird in winter plumage on 9th August 1971 with active wing moult (3 old primaries, moult score 29). Its weight was 54gm, relatively lean compared with the high weight migrants caught at the same time (Stanley & Minton, loc.cit.) and it may have summered on the Wash.

Conclusions. Although there is a considerable overlap in bill length and wing length between the sexes of the Curlew Sandpiper the difference between the means found by Thomas and Dartnall is confirmed and is sufficient to enable the sex composition of samples measured in the field to be determined. There appears to be little geographical variation. The wing length of a juvenile is about 2% shorter than that of a newly moulted adult. Autumn migrants pass through Britain before commencing their annual wing moult.

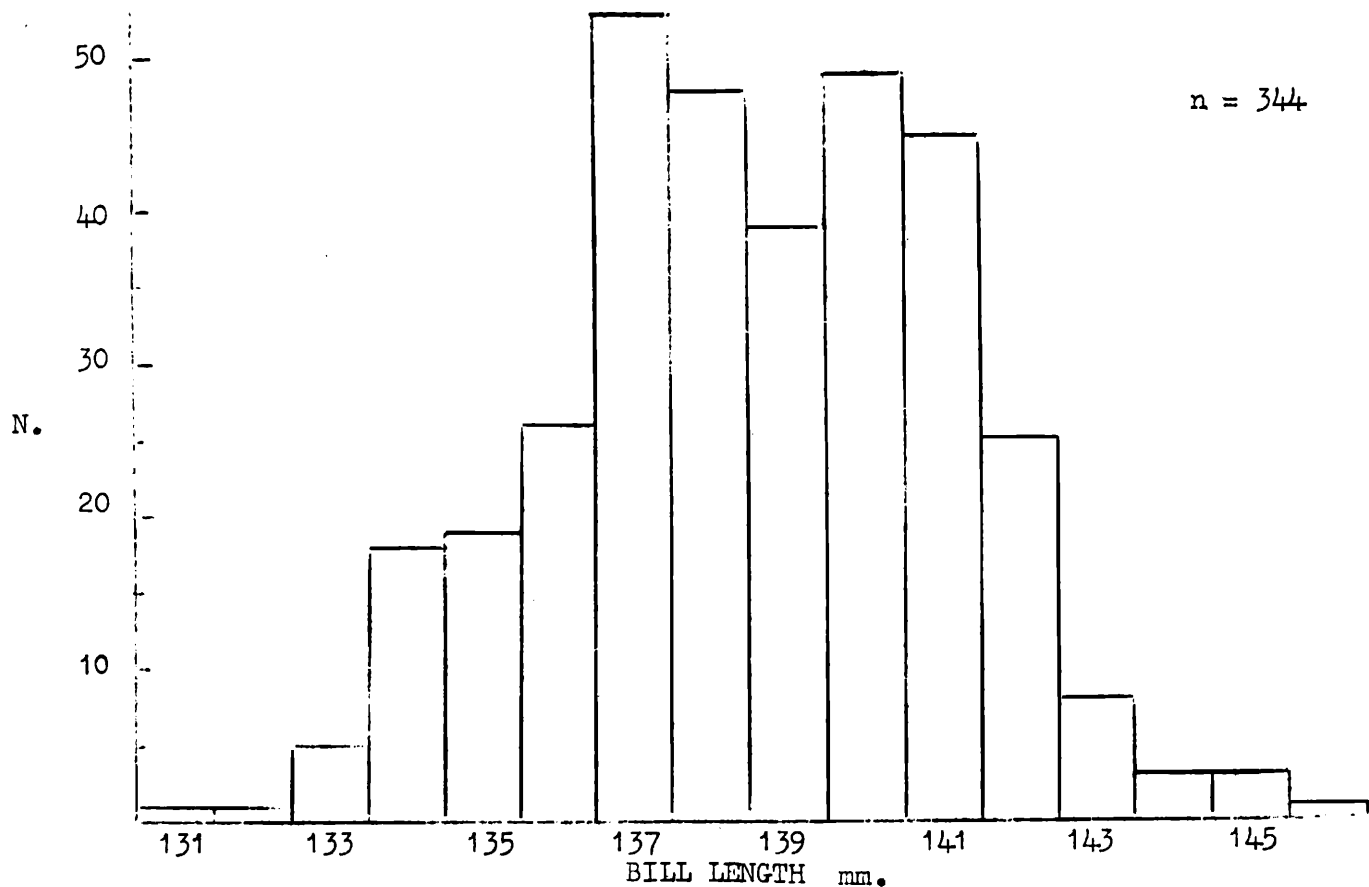


FIG 1. Bill length of juvenile Curlew Sandpipers caught in Britain

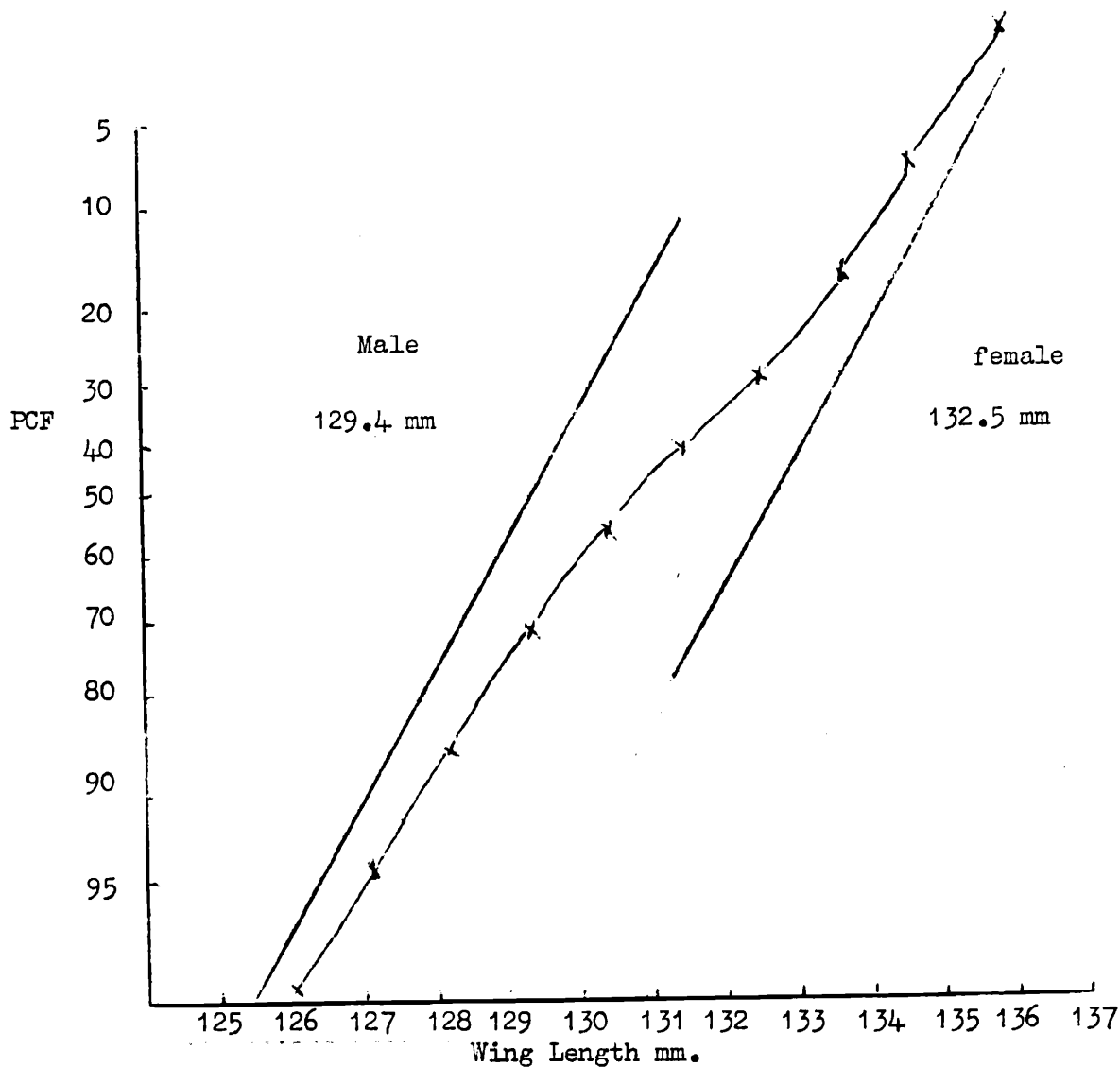


FIG 2. The PCF distribution of wing-lengths of juvenile Curlew Sandpipers Calidris ferruginea caught on the Wash 23-30 August 1969.

Acknowledgements

Our thanks are due to members of the Wash Wader Ringing Group and many other groups and individuals who caught and measured Curlew Sandpipers in Britain. Also to the British Museum (Nat. Hist.) and the Norwich Castle Museum for permission to examine skins and to P.J. Knight and J. Goldsmith who kindly carried out the measurements. H.J. Boyd, C.F. Mason and M.W. Pienkowski made helpful comments on an initial draft.

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Table I. The bill lengths of Curlew Sandpipers Calidris ferruginea in the British Museum (Natural History) and Norwich Castle Museum compared with a sample recently collected in Tasmania by Thomas and Dartnall (1970) and a large number of live juvenile birds measured in Britain.

Place	Age	Male			Female			Differences between means (♀-♂)mm
		Number	Mean (mm)	Range (mm)	Number	Mean (mm)	Range (mm)	
<u>Museum Specimens</u>								
British Isles	Adult	6	37.7	36-40	5	40.0	37-42	2.3
	Juv	26	35.4	32-41	25	38.1	34-44	2.7
Mediterranean		26	35.5	32-39	12	38.3	35-41	2.8
African and Middle East		55	36.0	31-40	25	38.8	34-43	2.8
Indian Ocean		62	36.4	33-42	49	38.8	34-44	2.4
Australasia and Far East		11	35.2	33-37	5	38.4	35-41	3.2
Siberia		6	36.0 ± 0.6	34-37	4	39.3 ± 1.3	36-42	3.2
<u>Recently collected</u>								
Tasmania		34	35.6 ± 0.7	31-40	23	39.5 ± 0.5	35-43	3.9
<u>Live Birds</u> *98% confidence limits								
British Isles	Juv		36.8±0.15	31-42*		40.2±0.15	35-46*	3.4

Some Results from Ringing Dunlin *Calidris alpina* L. on the

Dee in May

One of the most pleasant times of the year to go wader netting is the month of May, when the weather tends to be a little bit warmer than it is in January. The birds can be interesting too. Take for instance the Dunlin *Calidris alpina* L., that rather unglamorous bread and butter bird of most wader ringing groups. Ringing on the Dee Estuary over the last few years has shown a heavy passage of Sanderling *Calidris alba* towards the end of May and the Merseyside Ringing Group has extended much effort into catching these. Almost seven hundred Dunlin have been ringed at the same time with intriguing results. Surprisingly, none of them carried rings from the usual observatories in Scandinavia, Ottenby, Tevtangen etc. In fact, the nearest recoveries to the Baltic are from the North Sea area,

FG 16.5.64. Point of Air  
X 4.6.64. Esbjerg, Denmark - Found dead.

Juv 21.9.66. Heligoland  
V 12.5.67. Hoylake

and no controls or recoveries have resulted from the Baltic Sea area (compared to approximately one in one hundred) amongst Dunlin ringed in winter time).

At least some of these May Dunlin must breed in Greenland as shown by the following two recoveries, the only Dunlin ever ringed in Britain or anywhere else to be recovered in Greenland.

AD 15 5.69. Point of Air  
K 16.7.69. Danmarkshaven, E. Greenland 76°45'N 18°45'W  
identified as *C.a. arctica*

PJ 22.5.70. Hoylake  
K 7.6.70. Danmarkshaven, E. Greenland 76°45'N 18°45'W  
Shot because ringed

Possibly these Greenland breeders winter to the south of us, as suggested by these two recoveries.

PJ 21.5.66 Point of Air  
K 17.7.66. Gironde, France 44°41'N 1°01'W

PJ 9.5.67. West Kirby  
2.5.68. Essaouira, Morocco 31°30'N 9°48'W

However, at least some of the Dunlin present on the Dee in May have been found on the Dee in the winter-time, see below.

November	1
December	1
January	2
March	2
April	1

But it is not certain whether these wintering birds are non breeding *C.a. alpina* or *C.a. schinzii* or the Greenland *C.a. arctica*. It is interesting that no Dunlin has yet been caught in May one year and controlled in any successive May. Of further interest is the relatively large number of controls between birds ringed in May and recovered in early autumn on the Dee.

July	2
August	5

Perhaps the same Dunlin are present in autumn on return migration? Continued ringing and especially the measuring of wing and bill length should throw light on this. To date only three recoveries have arisen in the British Isles, and two of them suggest an autumn route on the east coast, and a spring route on the west coast.

AD 6.8.64. Clacton, Essex  
V 24.5.71. Point of Air

AD 13.5.67. Point of Air  
 V 1.8.69. Wolferton, Wash  
 AD 15.5.69. Point of Air  
 V 14.3.71. Deganwy, Conway.

Acknowledgement

My thanks to the Merseyside Ringing Group for ringing the birds and for allowing me to use data, to Dr P.H. Smith and Dr C.D.T. Minton for helpful comments.

Wader Ringing on Sewage Farms in Münster, West Germany

M. Harengerd, W. Prünke and M. Speckmann

During the last three years much effort has been put into catching the migrant waders passing through the sewage farms near Münster (52°04'N, 7°41'E) in West Germany. The ringing has been carried out by a field agency of "Vogelwarte Helgoland" by a small number of keen ringers, helped, during early May and mid July to mid August, by ringing courses.

Mist nets are used but two additional techniques have been used to increase the catch. Firstly a halogen lamp has been used to locate birds roosting at night and thus making them fly towards the nets. Secondly a tape recorder and amplifier were used on suitable nights in 1971. Both of these pieces of equipment were successful and they seem to have been the main reason for the great increase in the numbers of Black-tailed Godwit, Wood Sandpipers and Greenshank ringed last year.

The totals ringed so far are set out in Table 1.

Table 1. Ringing Totals 1969-1971

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Total</u>
Oystercatcher	-	1	1	2
Lapwing	243	278	417	938
Ringed Plover	30	36	3	69
Little Ringed Plover	9	11	24	44
Grey Plover	1	2	1	4
Turnstone	1	-	-	1
Snipe	260	313	212	785
Great Snipe	-	-	1	1
Jack Snipe	9	10	14	33
Curlew	3	1	-	4
Black-tailed Godwit	8	5	50	63
Bar-tailed Godwit	1	2	-	3
Spotted Redshank	4	27	16	47
Redshank	31	39	17	87
Greenshank	34	43	75	152
Green Sandpiper	34	28	63	125
Wood Sandpiper	49	137	94	280
Common Sandpiper	102	91	141	334
Knot	-	1	-	1
Little Stint	11	10	-	21
Temminck's Stint	5	3	2	10
Dunlin	37	72	8	117
Curlew Sandpiper	29	16	4	49
Sanderling	-	3	-	3
Ruff	309	304	597	1210
Red-necked Phalarope	-	1	-	1
Total				<u>4340</u>



## Table 2. Recoveries Abroad and Controls

Lapwing: France 10, Spain 3, Portugal 1.  
Ringed Plover: Italy 1.  
Snipe: U.S.S.R. 1, Netherlands 1, Belgium 1, Great Britain 2, France 24,  
Spain 3, Italy 2, Morocco 3.  
Black-tailed Godwit: Morocco 1.  
Spotted Redshank: France 1.  
Wood Sandpiper: Finland 1, Sweden 2, Morocco 1.  
Common Sandpiper: Sweden 1, Belgium 1.  
Dunlin: Poland 1, France 3, Spain 1, Portugal 1.  
Ruff: U.S.S.R. 1, (more easterly than the most easterly of the Wash Wader Study  
Group and the Danish one on 143°), Finland 1, Norway 1, Netherlands 1,  
Belgium 1, Switzerland 1, France 4, Spain 1, Italy 9, Morocco 1, Tunisia  
1, Senegal 2.

(The controls are underlined).

One of the aspects which receives much of our research effort is how long each species rests on the sewage farms during migration. To help with this six species are being studied intensively by colour ringing. The points that these studies have reached are summarised below.

### Greenshank and Spotted Redshank

For both of these species many details on length of stay, the migration patterns of adult and juvenile birds and the moult of the body plumage have been discovered from the 138 (1971) subsequent observations of colour ringed Greenshank and 35 (1971) observations of Spotted Redshank. Greenshank in some cases use the same stopping place in different migrations but in only one case has this been shown for Spotted Redshank, one bird was seen in both spring and autumn 1971. More effort will be put in with these two species to obtain larger samples.

### Green Sandpiper

Although a relatively small number of this species has been caught and the colour combinations are difficult to read, the 110 observations in 1971 have provided valuable information on all aspects of moult and length of stay. One bird ringed in early spring 1969 turned up in all following periods except autumn 1970 indicating a high degree of faithfulness to its migration route.

### Wood Sandpiper

Colour ringing only started in 1971 but already there have been 90 subsequent observations. The most interesting result is that this area is regularly used as a moulting ground by this species, 15 moulting birds were caught in 1971, and it is the most northerly moulting area yet reported.

### Black-tailed Godwit

The number colour ringed should provide much information in later years but already some interesting facts have been discovered about length of stay and moult. Four colour ringed birds were seen on nearby breeding grounds during 1971.

### Ruff

The large samples obtained already have given a detailed picture of the moult and of the length of stay in adults and in juvenile males. Also a considerable amount of information has been gathered on the faithfulness to the area in different years; this was shown by 70 birds between autumn 1970 and autumn 1971 and 25 birds between autumn 1969 and autumn 1971. This very high number of subsequent observations offers conclusive proof that they use this moulting area each autumn. We are hoping that the colour ringing will help to check the ageing criteria of bill and leg colour. 1972 will be the last year that colour ringing will be made on Ruff.

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All general enquiries, applications for membership, initial subscriptions and renewals, changes of address, completed WSG data forms, matters relating to the circulation of the Bulletin, etc. should be sent to the Administrative Secretary (G.F. Appleton).

Matters and proposals concerning co-operative research projects and objectives should be sent to the Co-ordinator (W.J.A. Dick).

All material for the Bulletin and enquiries about this should be sent to one of the Editors (M.W. Pienkowski & G.H. Green).

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### DEADLINES

For inclusion in the issue indicated:	APRIL	AUGUST	DECEMBER
articles, notices, etc. must be received by:	1 February	1 June	1 October

(If correspondence between editors and author(s) is likely to be necessary, articles must be received well before these dates if they are to be included in the next issue.)

Ringling totals must be received by	20 February	20 June	20 October
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(It may also be possible to include short notices received by MWP by these dates.)