

WADER STUDY GROUP

BULLETIN NO. 12

JULY 1974

Contents

Recent recoveries
Preliminary report on N.E. Greenland Expedition
Timing of Wing Moult of Waders in East Africa
Waders and wader ringing in Botswana
Mauritanian Dunlin
Sidi Moussa Expedition 1973
New members and addresses

This bulletin has a distinctly international, particularly African, flavour this time. The work done both by the local ringers and expeditions are really beginning to tie in together to produce valuable results. The major contribution is by David Pearson on moult in East Africa, this demonstrates clearly that the patterns which European wader ringers accept as normal may differ radically when and as we widen our horizons. I hope that more analyses will be made available for this bulletin by all members who can throw light on even a small part of the general picture.

Colour Ringing and Dyeing Despite the request made in a previous bulletin, it is only too obvious that many 'unknown' studies are being made of waders which involve colour ringing especially. As colour rings remain on the bird for several years, it is important that we build up a file on who is doing what. I hope that the W.S.G. can do this and would anyone who has been or is marking waders or if they know of schemes in their country, please let Tony Prater at the B.T.O. have details of colours used and species studied. He will be pleased to act as a centre to receive records of colour ringed birds and inform the appropriate ringers of subsequent sightings.

In Bulletin No. 11 there was a figure illustrating Bob Taylor's article on Ringed Plovers. I have heard that it appears to be missing in some copies, though all I have left include it. If you do not have it, please let me know and I will get some copies run off.

RECENT RECOVERIESOystercatcher

Ad	18.7.70	Snettisham, Wash	x	Malmohus, Sweden	22.2.74
Ad	30.1.71	Heacham, "	x	Goteborg, Sweden	7.4.74
PJ	29.6.68	Snettisham, "	x	Nord Trondelag, Norway	22.3.74
PJ	8.3.69	Heacham, "	+	More & Romsdal, "	27.5.74
PJ	14.11.70	" "	x	Rogaland, "	27.4.74
Ad	30.1.71	" "	x	Sor Trondelag, "	28.5.74
Ad	30.7.72	N.Wootton, "	x	Rogaland, "	10.6.74
Ad	25.10.69	Walney, Morecambe	x	" "	3.4.74
Ad	7.10.72	Fleetwood, "	x	Troms, "	15.4.74
FG	4.9.67	Snettisham	x	Workum, Netherlands	29.4.74
LY	7.11.71	Thurstaston, Dee	+	Ille & Vilaine, France	13.1.74
Ad	23.11.69	Piel, Morecambe	x	Shetland	31.3.74
Pull	19.6.67	Fair Isle	+	Burry Inlet	Winter 73/74
Pull	2.6.68	Ross-shire	+	" "	"
Pull	29.6.68	Shetland	+	" "	"
Pull	27.6.70	Orkney	+	" "	"
Pull	19.6.71	Outer Solway, north	v	Inner Solway, north	10.3.74
Pull	21.5.72	Brough, Westmorland	x	Foulney, Morecambe	17.4.74

2 further 15 Oystercatchers were recovered on or near breeding grounds in Scotland (14) and England (1) : of these 9 (including the English recovery) were ringed in Morecambe Bay, 3 in the Burry Inlet, 2 on the Dee and 1 on the Solway.

Lapwing

Pull	2.5.61	Dungeness, Kent	x	Pas de Calais, France	1.6.74
Pull	10.6.68	Elyth, Northumb.	x	Flamborough, Yorks.	10.3.74
Pull	12.5.69	Snettisham, Wash	x	Gt. Yarmouth, Norfolk	1.4.74
Pull	6.5.72	Orkney	x	Roscommon	12.2.74
Pull	13.6.73	Gt. Linford, Bucks	+	El Jadida, Morocco	10.2.74

Ringed Plover

Pull	17.6.73	Point of Air, Dee	v	Angle Bay, Pembs.	26.1.74
PJ	14.3.71	Conway, Caerns	x	Fyn, Denmark	13.5.74
FG	14.8.72	Padstow, Cornwall	x	Fyn, Denmark	9.4.74
Ad	29.9.73	Conway	x	Jutland, Denmark	24.2.74
		Walney, Morecambe	v	(breeding) Kincardineshire	25.5.74
LY	14.10.73	Carsethorn, Solway	v	Carnoustie, Angus	22.3.74

Grey Plover

Ad	17.12.63	Bennington, Wash	x	Sjaelland, Denmark	10.6.74
----	----------	------------------	---	--------------------	---------

Turnstone

Ad	18.3.73	Foulney, Morecambe	v	Hilbre, Dee	9.2.74
----	---------	--------------------	---	-------------	--------

Snipe

FG	31.12.72	Upminster, Essex	+	Pontevedra, Spain	10.2.74
----	----------	------------------	---	-------------------	---------

Curlew

PJ	21.8.71	Point of Air, Dee	x	Jutland, Denmark	28.4.74
----	---------	-------------------	---	------------------	---------

Common Sandpiper

Juv	4.8.70	Low Hauxley, Northumb.	v	Killin, Perth	28.5.74
-----	--------	------------------------	---	---------------	---------

Redshank

Pull	28.5.72	Steeton, Yorks.	+	Gironde, France	30.3.74
1Y	26.7.71	Cumlock, Ayr	+	Vendee, France	3.3.74
Ad	7.9.67	Dawsmere, Wash	x	(breeding) Atherton, Lancs.	20.3.74
FG	18.1.70	Tilbury, Essex	x	Minsmere, Suffolk	18.2.74
1Y	28.8.73	Orford, Suffolk	x	Gorleston, Norfolk	2.4.74

Knot

PJ	13.12.66	West Kirby, Dee	+	Egedesminde, Greenland	12.8.73
Ad	7.3.70	Heocham, Wash	x	Amnum, Schleswig-Holstein	12.4.74
Ad	28.1.68	Wolferton, "	x	Groningen, Netherlands	24.2.72
Ad	19.2.72	Snottisham, "	+	Gironde, France	27.7.72

There were a further 12 movements between British estuaries. News has recently come in that 2 Wash ringed Knot (one also bearing a Norwegian ring) have been controlled in NE. Ellesmere Island in early June and that 11 British ringed Knot have been shot in NW Greenland already this summer. Details in the next bulletin.

Dunlin

PJ	29.4.73	Hest Bank, Morecambe	x	N. Atlantic, 150m. S.W. Iceland	13.5.74
FG	19.3.66	Tilbury, Essex	v	Mikoszewo, Poland	22.8.73
Ad	4.12.71	Shingay, Kent	v	" "	23.7.73
Ad	5.3.72	Portsmouth, Hants.	v	" "	31.7.73
1Y	5.11.72	Bradwell, Essex	v	" "	25.7.73
Ad	8.12.72	Snottisham, Wash	v	" "	22.7.73
1Y	16.12.72	Orford, Suffolk	v	" "	15.8.73
PJ	3.3.73	Swanscombe, Kent	v	" "	19.7.73
PJ	22.8.71	Bradwell, Essex	x	Jutland, Denmark	15.5.74
1Y	29.9.73	Wolferton, Wash	x	" "	13.4.74
PJ	16.9.66	Harty, Kent	x	Schleswig Holstein, W. Germany	20.5.74
PJ	16.8.66	Hayle, Cornwall	+	Gironde, France	30.3.74
1Y	25.9.71	Humber	+	Nord, France	9.3.73
1Y	9.9.72	Snottisham, Wash	+	Seine Maritime, France	10.3.74
Juv	7.9.68	Terrington "	+	Algarve, Portugal	20.2.74
1Y	16.9.70	Farlington, Hants	+	" "	15.3.74
Juv	29.8.73	Seahouses, Northumb	v	Greenish Isl. Limerick	27.2.74
Ad	5.5.74	Peterstone, Monmouth	v	Ulvoston, Morecambe	11.5.74

In addition to the last recovery controlled soon after ringing, there were 32 Dunlin controlled away from the area of ringing within Britain, 8 of these were same winter recoveries.

Sanderling

PJ	22.5.70	Hoylake, Dee	+	Casablanca, Morocco	17.5.74
AD	15.5.71	Heacham, Wash	v	Camargue, France	7.5.74
Ad	18.5.69	Snettisham, "	v	Point of Air, Dee	24.5.74
Ad	31.7.69 & 18.7.70	" "	v	" " " "	15.5.73

Ruff

1Y	22.8.70	Harty, Kent	+	Kenitra, Morocco	1.4.74
LYM	14.8.73	Belfast Lough, Antrim	v	Rieselfelder Munster W.Germany	18.5.74

The Dunlin recoveries were omitted from Bulletin No. 10 and to complete the record they are summarised below:-
Dunlin

1Y	15.8.65	Swale, Kent	x	Nordur-Mulasysla, Iceland	31.5.73
Ad	1.8.69	Wash	x	Turku & Pori, Finland	6.8.73
Ad	27.3.71	"	v	Yyteri "	8.8.73
FG	26.12.72	Swanscombe, Thames	v	" "	8.8.73
Ad	16.3.68	Wash	v	Skanor, Sweden	23.7.73
1Y	5.11.72	"	v	" "	24.7.73
Ad	9.8.71	"	v	" "	26.7.73
2Y	9.8.71	"	v	" "	1.8.73
Ad	3.3.73	Portsmouth Harbour	x	Rostock, DDR.	23.8.73
Ad	25.11.72	Spurn, Humber	x	Fyn, Denmark	1.7.73
Ad	29.1.72	Dee	x	Jylland "	13.8.73
FG	26.2.65	Tilbury, Thames	x	Schleswig-Holstein, W. Germany	17.6.73
Ad	2.1.72	Conway R.	v	Vlieland, Netherlands	3.7.73
1Y	29.9.72	Humber	v	" "	23.7.73
PJ	14.12.65	"	v	" "	2.9.73
1Y	13.10.72	Poole Harbour	v	" "	20.9.73
Ad	14.2.72	Dee	v	Schiermonnikoog "	23.9.73
1Y	4.11.72	Roe Estuary, N.Ireland	v	" "	6.10.73
PJ	2.1.70	Morecambe Bay	v	" "	30.8.73
Ad	3.12.69	" "	x	Zuid Holland, "	20.7.73
1Y	10.9.73	Butley R. Suffolk	+	Calvados, France	21.9.73
1Y	3.9.71	Morecambe Bay	+	" "	29.7.73
PJ	25.7.71	Langstone Harbour	+	Ille et Vilaine, France	29.7.73
PJ	19.9.71	Swale	+	Manche, "	28.9.73
Ad	9.8.71	Wash	v	Ribatejo, Portugal	14.10.73
1Y	18.8.73	"	v	" "	13.10.73
Ad	16.7.72	"	v	Sidi Moussa, Morocco	8.9.72
			v	Wash	29.7.73

The 17 long distance autumn controls within Britain were :-

On the Wash - from Dee (3), Humber (5), Morecambe Bay (2), Northumberland (1) and Swale (1)

At Bradwell, Essex - from the Dee, Humber, Swale and Wash on Morecambe Bay from the Dee.

Joint Biological Expedition to N.E. Greenland 1974

Mike Pienkowski (8 July)

The Expedition which includes the Wader Study Group party and a group from Dundee University led by Jeremy Greenwood and studying other biological topics, flew into Mestersvig Air Station, NE Greenland on 25th June. We had been delayed 2 days in Iceland while the advance party were still trying to find all the food and equipment which had been lost by the British shipping agents. Through the co-operation of the Icelandic Shipping Company, who specially docked a ship for us, we were able to search two vessels and find parts of our cargo in each.

Despite the delay, we found that snow still covered 70-80% of the ground in the Mestersvig area, the season being 2-3 weeks late in this particular locality. Relatively few waders seemed to have started nesting but some Barnacle and Pink-footed Geese, Gyr Falcons and Snow Buntings already have young. The late season is beneficial in that we are able to investigate the birds as they start breeding but there may also be disadvantages, such as if some species breed in smaller numbers than in most years. In the Mestersvig area many Ringed Plover territories are well established but no Sanderling or Dunlin nests have yet been found.

Following the shipping troubles, the Expedition's second misfortune occurred on the second day here when Guy Morrison was unfortunate enough to develop appendicitis. He and Angela Morrison had to be flown out to Iceland but we were pleased to hear that he is recovering well. For the first 11 days all the other 8 members of the wader study team were based here at Mestersvig catching birds, finding territories and conducting census work and other studies on the waders in this area. During this period 38 birds were ringed, including 14 Ringed Plovers, 6 Sanderlings, 3 Glaucous Gulls, 5 Long-tailed Skuas and 10 Snow Buntings. All waders were caught individually at the nest or at feeding sites and, as expected, no flocks have been seen. The first cannon-netted catch in Greenland resulted in the ringing of the 3 Glaucous Gulls, at least some members of the team feeling quite at home on the station's rubbish tip.

Because the only practical ways to catch waders on these breeding grounds are at the nest and catching pulli, it is planned to cover as large an area as possible by distributing the group in teams of two over a fairly large section of the coast (about 75 km). This was achieved by helicopter on July 6th.

Tony Williams and Stuart Brown are on Traill Island (about 80 km long by 25 km wide), 25 km across King Oscar Fjord from here. By radio they told me last night that the season is more advanced on the south facing slope there with less than 10% snow cover. They had caught their first bird, a Ringed Plover, within 12 hours of arriving. Harry Green, the leader of the expedition, and Clare Lloyd are 25 km south along the mainland coast from here in Antartics Havn (a valley 20 km by 2 km) while Peter Ferns and Greg Mudge are in Orsteds Dal, the next very large valley (6 km. by more than 30 km long) south of there. These teams will be in those areas ringing and censusing for the next 5 weeks by which time we hope that the fjord ice will have melted so that they can be collected by boat. Dave North and I remain here at Mestersvig to continue the detailed census work, ringing and other studies started by the whole party. The census work has started very well and ringing prospects look promising. We hope that all wader ringers and watchers in U.K. and elsewhere will look out for colour-ringed and -dyed waders. Please report any seen with details of colour, place, date, etc. to Tony Prater at the B.T.O. or directly to Harry Green, Windy Ridge, Little

Comberton, Pershore, Worcs. People reporting such birds will, of course, be informed of ringing details. One of the Ringed Plovers colour ringed here by Harry Green and Tony Williams in 1972 has again been sighted breeding in this area and we are hopeful of further results by this method.

P.S. Jim and Margaret Wilson are to join the team from their home base in Iceland, to make the Expedition up to full strength. Guy and Angela Morrison are now back at the base camp helping out with lighter duties! (A.J.P.)

The timing of wing moult in some Palaearctic waders
wintering in East Africa

David Pearson

Palaearctic waders which winter at temperate latitudes usually complete their main annual wing moult in late summer or early autumn, either near the breeding grounds or shortly after the completion of autumn migration. In either case, moult is a rapid process involving extensive feather replacement and high energy requirements over a period of a few weeks, and birds are usually fully moulted well before the winter months. The young of such species retain their juvenile flight feathers throughout their first year and undergo their first moult when about a year old, only shortly before the moult period of older birds. With species which migrate to tropical wintering areas the situation is very different. Adult wing moult is partly or wholly delayed until after autumn migration and may begin as late as October or even November, persisting commonly into December, January and in some cases March. The young of a number of smaller tropical wintering species undergo a complete moult of their flight feathers during their first winter, thus fitting in an extra moult as compared with similar species wintering at higher latitudes.

Since 1967 some 13,000 Palaearctic waders have been netted at the rift valley lakes of southern Kenya, many of which were in moult. Primary moult data have been recorded for most birds caught, and in many species it has recently been possible to age first winter birds with confidence. Observations relating to the timing of primary moult in the main species handled are summarised below. They serve to underline the basic differences between tropical and temperate wintering populations, and to emphasise some of the difficulties involved in interpreting moult in Africa. They should provide material with which data from other tropical areas, particularly in south and west Africa, could be usefully compared. Information has been collected mainly at Lake Nakuru, where 8,000 birds, principally Little Stints, Ruffs and Marsh Sandpipers, were ringed between 1967 and 1972, and Lake Magadi, where 3,000 birds, mainly Little Stints with smaller numbers of Curlew Sandpipers, were ringed during 1972/73 and 1973/74. Observations from Lake Hannington, Lake Naivasha and Nairobi are also included.

In addition to their complete wing and tail moult, many waders which winter in East Africa renew most of all of their innermost secondaries, tail feathers and inner wing coverts between January and April in the course of their prenuptial moult. Whereas the primaries and the outer ten secondaries are usually replaced only once a year, the inner five secondaries (subsequently referred to as the *tertials*) are usually moulted twice. However, the timing of the partial prenuptial moult is not dealt with further here.

GREENSHANK

This species has been caught regularly only at Magadi. A few birds (probably all first year) oversummer in Kenya, but the main influx appears to occur between late August and October. Molt is usually well advanced by October, and complete by January. Most adults probably arrive in a partly moulted condition then renew their remaining flight feathers over a period of some two or three months.

Young birds do not normally moult their primaries or secondaries during their first year, and many Kenyan birds are very worn by their first spring. Occasionally, one or two outer primaries are renewed in each wing between February and March in particularly abraded birds.

MARSH SANDPIPER

Particularly abundant throughout winter on the marshy pools and muddy lake edges of Lakes Nakuru and Hannington. Small numbers oversummer, but the main autumn influx is during September and October, with first year birds already present in numbers by mid-September.

Many of the moulting birds present during August are presumed to have been first summer birds which had failed to migrate. Most adults evidently return to their wintering area either fully moulted or in an arrested advanced state of moult. 50% of the August and 70% of the September-November birds which had not completed moult had arrested with the inner 6-9 primaries renewed. Practically all late moulting adults have finished by the end of November.

Young birds usually retain all their juvenile primaries and secondaries throughout winter, although many have become very worn by their first spring. Because of the difficulty of ageing birds in late winter it is not possible to be precise, but an estimated 10-15% renew some or all of their outer four primaries during February and March.

WOOD SANDPIPER

Very scarce during summer (May-July) but abundant during the rest of the year on marshy pools and swampy areas. We have caught this species mainly at Naivasha, Nakuru and Hannington. Adults reappear in some numbers from August, and young birds from early September. Birds reaching Kenya during September must arrive in a partially moulted state, most of them with at least the inner four primaries already renewed. Molt then seems to continue rather slowly, being completed usually between December and February. Some 20% of the moulting birds were trapped in arrested moult; the rest usually had only one primary (occasionally two) in growth per wing.

First year birds have not been found to undergo a complete wing moult in Kenya (compare Stresemann & Stresemann 1966). Some 40-50% however do replace the outer 4-5 primaries in each wing (but not the secondaries) between January and early April. Even birds which retain all their juvenile primaries are not usually unduly worn by their first spring.

GREEN SANDPIPER

A bird of ditches and small marshy pools, caught only rarely at Nakuru. An adult on 25 September had a primary score of 37, and one on 31 October a score of 39; others on 31 December and 2 January had finished moult. This species apparently completes moult earlier than the Wood Sandpiper.

COMMON SANDPIPER

Commonly frequents fresh water pools and lake edges from August to April. At the alkaline lakes of the rift valley where it is normally scarce, there is a considerable passage during August and September. However, data from November onwards have been obtained mainly from birds caught near Nairobi.

In contrast to the previous five species, the Common Sandpiper does not begin to moult before its arrival in Kenya. Eleven adults caught during August and September have all had completely old plumage. Moulting in wintering adults usually commences in October and finishes in late January, February or even March.

First winter birds renew most of their flight feathers, commencing early in January and finishing in March. This moult, however, usually proceeds outward from the fourth or fifth primary, and the old inner feathers are often retained. The secondaries are renewed rapidly, and somewhat randomly, and the old outer feathers (in some cases all the old feathers) may be retained. This first winter moult is much more rapid than the main adult moult. It also differs in that it does not necessarily involve the tertials, coverts and tail, although these may be replaced at the same time in the course of the normal spring partial moult which adults also undergo.

LITTLE STINT

The most abundant wintering wader of the muddy open shores of the rift valley lakes. Some 7,000 have been handled in recent years in Kenya, and a detailed account of moult is in preparation. The main conclusions may be summarised as follows: Most adults reach the area during late August and September, and most young birds between mid September and October. Practically all adults complete their migration before beginning their wing moult. Most begin to moult between mid September (exceptionally early September) and mid October, but a few have been found in old plumage as late as December. The most rapidly moulting birds finish in late November/early December, but others not until March. Wintering birds commonly arrest their moult for several weeks with three to five old primaries remaining in each wing, so that whilst some complete the process in three months or slightly less, others appear to take up to five months.

Adults which complete moult by December do so some five months before spring migration, and many such birds renew some of their outer primaries again in the intervening period. Fully moulted birds trapped between late January and March have often been found to be replacing these feathers (typically the seventh to ninth) a second time. It is estimated that at Magadi (a particularly alkaline environment) at least 20% of all adults moult some of their outer primaries twice.

First year Little Stints undergo a wing and tail moult which is in most cases complete and identical in pattern to that of adults. The earliest birds begin to replace their tertials and inner primaries during early December, but the majority not until late December or January. Moulting tends to be more rapid than in adults, and is usually completed in March or April. Some 20-25% of young birds have been found to retain their old inner 2-4 (sometimes more) primaries and outer secondaries. These are mostly birds which have not begun to moult until February or early March. Over 95% of young birds acquire a new or mainly new set of flight feathers and full spring plumage, and migrate north in May in a state similar to that of adults.

CURLEW SANDPIPER

In Kenya, this is mainly a species of the coast. It winters in numbers at Lake Magadi, but elsewhere in the rift occurs mainly as a passage migrant in September and May. The great majority of birds caught at Nakuru, Hannington and Naivasha between October and April have been first winter.

Moult in their species has been particularly difficult to interpret, mainly cause of inadequate knowledge of the pattern followed by first summer and second year birds. The first adults to arrive back in the rift in late August and early September have already lost most of their red breeding plumage, but few have commenced wing moult. Most wintering adults appear to begin in late September, and finish between December and February. Speed of moult is evidently very variable, however, and some birds must arrest for long periods. A number of birds are still completing moult in late February and March, and it is thought that most of these are in their second year. A retrap with a primary score of 25 in late February had been ringed as a first winter bird the previous winter. However, a bird retrapped with score 40 on 24 March had been ringed as an adult with traces of red plumage and the two inner primaries missing on 26 August of the same season, so that some older birds evidently extend their moult over more than six months.

No primary moult has been observed in young birds before January. Indeed, even by April and May, most first year birds still have juvenile primaries which are by then extremely worn. Some 20-30% of Magadi birds, however, replace the outer primaries (but not the secondaries) from the fifth or sixth outwards in late February and March. It is not clear whether other young birds undergo a similar partial primary moult in summer after leaving East Africa, or whether their first wing moult would be a full one. Moulting birds have not been trapped at Magadi in either May or August. Stresemann & Stresemann (1966) record post-juvenile wing moult in oversummering birds in Africa from April onwards, which in some cases appears to be a complete one.

RUFF

Again, a more detailed account of wintering and moult in this species is in preparation, but the main findings may be summarised as follows: The Ruff occurs abundantly on the rift valley lake edges between late August and early May. The main arrival of adult females is during late August and September, and first year birds are commonly present from early September. For most of the season males are outnumbered by females by about 15 to one. A slightly higher proportion of males (about one bird in five) during August suggests that they tend to return a few weeks earlier than females, whilst their virtual absence in late spring, indicates, together with weight data (see Pearson, Phillips & Backhurst 1970), a rather early departure.

The great majority of September birds, and most August birds, are already in moult, with the first three to eight primaries new or growing. Most wintering birds evidently begin their moult before reaching the tropics. They probably arrive in Kenya in an arrested condition, and more arrested individuals are in fact caught during September than later in autumn. Some unmoulted birds are present during late August and early September, but there is evidence from weights and retraps that these are mostly passage migrants bound for farther south. Moult in Kenya continues rather slowly, for although a few birds finish during November (exceptionally earlier), the majority do so in December and early January. Only the occasional bird is still moulting in February.

Male Ruff have been reported to complete moult near their breeding grounds before autumn migration (Stresemann & Stresemann 1966, Snow 1967) but many birds passing through Britain in autumn are still only in the early stages (Anderson 1973), and Kenyan wintering birds evidently moult in the tropics in the same way as females. Males tend to be slightly more advanced than females throughout the autumn, however, and many finish in Kenya during late November and December.

First winter Ruff retain their juvenile flight feathers throughout their first year, although one or two outer primaries may occasionally be replaced during February or March in very worn birds.

RINGED PLOVER

This species occurs only in small numbers on the rift valley lakeshores between September and April. Twenty-two birds trapped by the author were all considered to have been first winter. Complete wing moult is evidently unusual in young birds between about December and March.

DISCUSSION

For a number of reasons, interpretation of moult in waders caught in Africa can be difficult, especially where only small numbers of birds are handled. Firstly, there tends to be great variation in both the timing and the duration of the main moult, and adults of the same species may differ by as much as four months in dates of onset and completion. Secondly, feathers of the same generation can be at very different stages of wear, for whilst adult wing moult is generally a slow process the rate of deterioration of new feathers is rapid. As a result presumably of strong sunlight, often coupled with a highly saline or alkaline environment, new flight feathers fade in the tropics within a few weeks, and may be considerably abraded after as little as four months. By the time birds are growing their outermost primaries, the inner primaries, tertials and wing coverts renewed early during the same moult no longer look new. Two wing moult may even be in progress at the same time for the main primary and secondary moult is not always complete before prenuptial tertial moult begins.

In Europe, wing moult in adult waders is usually complete before the ageing of young birds becomes a problem. In the tropics it continues into the winter, and it is therefore important to be able to identify first year birds up to February or March. In some species this is not always possible. Young waders usually acquire first winter body plumage in Africa during October. As a result of abrasion, they then tend to lose most or all of the diagnostic pale tips to the juvenile median and lesser coverts between November and January. Additional guides to age, such as the degree of fading and wear of the flight feathers and the state of the inner primaries relative to the outer primaries may be very useful.

A final complication in the tropics is the tendency for waders to moult the outer primaries (or some of them) outwards, beginning from the middle of the tract. This type of partial moult, confined mainly to first winter birds, can easily be taken for a complete moult which was arrested for some time at an earlier stage. A bird moulting only the outer primaries however will have uniform and probably faded secondaries. During complete wing moult primary and secondary replacement are closely co-ordinated, and moult should be in progress in the secondaries by the time the sixth primary is dropped.

The main features of flight feather moult in adults and first year birds of the seven wader species most frequently caught in inland Kenya are summarised below.

	<u>Adult Wing Mould</u>		<u>1st W.Wing Mould</u>
	<u>Normally in progress before arrival?</u>	<u>Frequently recorded over the period:</u>	
Greenshank	Yes	Aug-Dec	No
Marsh Sandpiper	Yes often complete	Aug-Nov	Occasionally the outer 1 ^o
Wood Sandpiper	Yes	Aug-Feb	Frequently the outer primaries
Common Sandpiper	No.	Oct-Feb	Most of the primaries and most/all the secondaries
Little Stint	No	Late Sept-March	Usually complete
Curlew Sandpiper	No	Late Sept-March	Frequently the outer primaries
Ruff	Yes	Aug-Jan	No

Timing of adult wing moult

Adult Marsh Sandpipers usually complete most or all of their moult before arrival in Kenya. This is presumably associated with the fact that of the species under discussion here it has the most southerly breeding range. Spring departure is rather early, during late March and early April, and nesting activities are presumably over in time to give adults a few weeks to moult before the approach of colder weather in the breeding area. Other species fall into two groups: those in which moult has usually started before arrival, but which complete most of it in Africa, and those which delay the whole of moult until after migration.

Adult wader moult in Kenya is invariably a leisurely process. After growth of the four inner primaries, actively moulting birds are rarely found to be replacing more than two primaries per wing concurrently. Birds in arrested moult are frequently caught outside recognised times of arrival and passage. There are perhaps two reasons why the speed of wing moult is so different than that normal in temperate wintering areas. Firstly a full complement of flight feathers is probably required at high latitudes from late autumn onwards to give sufficient mobility to avoid severe weather if necessary, and to support the considerable reserves of winter fat carried by most birds. Tropical wintering birds encounter little climatic stress and remain very lean throughout the winter months. Secondly, because of rapid primary wear, it may be particularly advantageous for tropical winterers to finish moult in late winter. By adopting a leisurely rate, many birds replace their large outer primaries only two to three months before an extremely long northward migration; Little Stints which finish moult early in winter often seem to need to renew their outer primaries again before spring migration.

First winter wing moult

The young of migrant waders which winter in the tropics seem less well able to delay their post-juvenile wing moult until the beginning of their second year than migrants from arctic or sub-arctic breeding grounds which winter, for instance, in western Europe. Not only does plumage deteriorate more rapidly in the tropics, but a young bird which migrated north in its first spring, then completed moult along with adults during its second winter, would have to retain its juvenile outer primaries for three long migrations and up to 18 months. Some Ruffs and Wood Sandpipers for example seem to do this, but many young birds of these and similar species are caught in Kenya in spring at low weights and in poor plumage. They presumably do not migrate far, and may well begin to moult in late summer a few weeks earlier than adults. There is, however, a tendency for first year birds to renew primary feathers in tropical Africa during late winter. In some small species in which wear is extremely rapid and in which breeding is probably common during the first summer, an extra full wing moult is introduced during the first winter.

In the Greenshank and the Ruff, first winter primary replacement is uncommon, and confined to one outer feathers in each wing. The same pattern is observed rather more often in the Marsh Sandpiper, and very commonly in the Curlew Sandpiper and the Wood Sandpiper in which the four to six outer feathers in each wing are typically renewed. The Common Sandpiper has developed a more complete first winter moult, which usually involves the secondaries as well as the primaries. It is more rapid than that of adult birds however, and does not involve the tertials. Moreover, some old inner primaries, and some of the secondaries are usually retained. A complete first winter moult identical in pattern to that of adult birds occurs in the Little Stint and the Ringed Plover. The situations to be seen in Kenya in the Marsh Sandpiper, the Wood Sandpiper and the Common Sandpiper may well represent a series of stages in the evolution of this development. It would be valuable to learn more of the moult habits of these species in other wintering areas.

REFERENCES

- Anderson, K. (1974) W.S.G. Bulletin No. 11
 Pearson, D., Phillips & Backhurst, G. (1970)
 Pearson, Phillips & Backhurst (1970) Ibis 112.
 Stresemann & Stresemann (1968) Die Mauser der Vogel

WADERS AND WADER RINGING IN BOTSWANA, SOUTHERN AFRICA

Besides having its own resident population of waders Botswana is probably an important wintering area for large numbers of Western Palaearctic breeding waders, especially the Ruff and Little Stint.

The most important area for water birds is the huge Makarikari salt pan which in a good rainy season becomes flooded up to a few feet deep for thousands of square miles with numerous sandy islands. On a recent flight over I was able to pick out hundreds of pelicans and flamingoes swimming and wading in its shallow perimeters. With the abnormal amount

of rain we have just received (40" compared with 7" last year) large quantities of small fish and fresh water creatures get washed into the pan from the northern rivers helping to swell the diet of the larger waders.

The Okavango Delta in the north is a massive complex of rivers, islands and sandbanks and although probably poor in wader numbers has produced interesting inland records of Sanderling, Turnstone and Bar-tailed Godwit in a land-blocked area 700 miles from the nearest coast.

Of the palaeartic migrant species the most numerous are probably Ruff, Little Stint and Curlew Sandpiper. Species which are not so numerous but very common, occurring on most stretches of river, flood pan and swamp, include Marsh Sandpiper, Greenshank, Common Sandpiper and Wood Sandpiper. There have been odd records of Grey Plover and Bar-tailed Godwit, usually in the west near to Lake Ngami or the Okavango Swamps.

To date I have accomplished a rather limited amount of ringing, only about 40 waders, but fortunately most of these have been palaeartic migrants, including Little Stint, Curlew, Sandpiper and Ruff. Unlike U.K. where the wader ringer seems to be hampered on all sides by economic progress ruining the ever diminishing suitable wader haunts, out here I am hampered by the very vastness of the country. There is so much attractive wader country at the moment, it is difficult to find suitable concentrations of birds for a concerted ringing programme. This state of affairs has been brought about by this seasons heavy rains. The rains have also resulted in inevitable flooding making travel to many areas impossible.

Prior to the arrival of the rainy season, I found a very suitable and workable pan with newly arrived migrant wader flocks; unfortunately it also happened to be the domain of a number of game. I found it rather disconcerting one evening whilst doing a round of the nets to find a rather large looking lioness padding along in front of me. Needless to say I didn't check the nets again for a few hours.

It is now early March and the local wader breeding season is drawing to a close and along with the Swallows most of the migrant waders are already moving north. By next season I will have a much more detailed knowledge of the country and hope to accomplish much more in the wader ringing field.

A NOTE ON THE PRIMARY MOULT OF CALIDRIS MINUTA - LITTLE STINT IN BOTSWANA

A small sample of 20 birds was caught on a flooded pan on 1.12.73 in Northern Botswana, Southern Africa. This sample consisted of 6 juveniles and 14 post juveniles.

Of the 14 post juveniles 3 had completed their primary moult (with scores of 50); one had not started and the remainder had scores ranging from 10 to 30 with definite bias around 15.

Taking a linear pattern of primary moult and allowing for a primary moult duration of 60 days as suggested for Moroccan birds by Pienkowski (1974) it would appear that the majority of these birds commenced their primary moult during the second week of November, but note that moulting rates may differ greatly in different areas. This would fit in with the pattern indicated by Middlemiss (1961) who suggested Little Stints wintering in South Africa begin their primary moult during the first week in November. The single bird which had not commenced primary moult (feathers very

abraded and still with signs of summer body plumage) had possibly newly arrived at its moulting area, this is additionally indicated by its relatively low body weight (20 grams).

The three birds which had completed their primary moult were possibly failed breeders which had returned to the Southern Hemisphere ahead of the main migration and completed their moult earlier. They were also heavier than the rest of the sample, possibly due to being past the period of energy demanding primary moult. Two of these three individuals having completed their moult had wing lengths greater than the remainder of the sample (both being 100 mm).

A single bird caught in the same area on 17.2.72 had completed its primary feather moult and had a weight of 29.5 grams.

References:

- Middlemiss, E. 196. Biological aspects of Calidris Minuta while wintering in south-west Cape. Ostrich 32: 107-121
- Pienkowski, M.W. (Ed.) 1974. Wader research in Morocco 1972 (In press)
- D.J. Stanyard, P.O. Box 498, Francistown, Botswana, Southern Africa.

Mauritanian Dunlin

Ringling recoveries and biometric analyses both suggest that Dunlin wintering in Mauritania are almost entirely of the race schinzii, and probably principally from Icelandic rather than Scandinavian breeding areas. A fair proportion of the 2,000 Dunlin ringed there from September until November, 1973 should be migrating through Britain, and particularly down the West coast, this autumn. A special Dunlin ringling effort during the schinzii passage period this autumn would be particularly valuable to establish if juvenile Dunlin move north during their first summer. One Mauritanian Dunlin ringed as an adult was controlled by Harry Green on 5th May this year near Cardiff. All Mauritanian ringed Waders carry "Museum Paris" rings.

1973 SIDI MOUSSA EXPEDITION

Francis Argyle

Ten days were spent netting at Sidi Moussa between the 10th and 19th August 1973, this period coinciding with the spring tides. A further 2 weeks were spent here between August 26th and September 7th, again with the spring tides though towards the end netting was continued on neaps. About 450 feet of net were used and catching took place from 1700 hours, through until dawn, most catching however took place at dusk and again at high tide. Biometric data and moult were recorded, the former on Wader Study Group forms, and the latter on moult cards. The birds were ringed with rings kindly supplied by M. Thevenot. The expedition was highly successful and the average catch for each of the twenty nights was 40 birds - a total of 817 were caught. The breakdown of these is set out below:-

Ringed Plover	29	Greenshank	3
Little Ringed Plover	2	Knot	10
Kentish Plover	65	Little Stint	160
Turnstone	5	Dunlin	260
Curlew	1	Curlew Sandpiper	92
Whinbrel	1	Ruff	6
Common Sandpiper	12	Black-winged Stilt	6
Redshank	164	Collared Pratincole	1

During the second series of tides two Dunlin were trapped which had been ringed earlier in the autumn in Britain. Each was trapped just 13 days after ringing, one was an adult ringed in Cornwall on 17th August and one a juvenile ringed in Dorset on 21st August. These demonstrate that migration of Dunlin through Europe can be quite fast.

New Members

Cass, E. 178 Frankley Beeches Road, Birmingham B31 5LW

Hansen, M. Taarnegade 17, 7600 Struer, Denmark

Lingwood, P. University of Liverpool, Brownlow Street, P.O.Box 147,
Liverpool L69 3EX

Petersen, A. Natturufraedistofnum Islands, Posthof 5320, Reykjavik,
Iceland.

Riedel, B. 3411 Langenholtensen, Wilhelmstr. 114, West Germany.

Changes of Address

Booth, C. Ronas, 34 High Street, Kirkwall, Orkney.

Morley, M. The Cottage, Courtlands, Exmouth, Devon.

Morgan, P. 33 Ravenswood Ave., Rockferry, Birkenhead, Cheshire.

Summers, R. Percy FitzPatrick Institute of African Ornithology,
University of Cape Town, Rondebosch, Cape Province, S.Africa.

St.Joseph, A. Ringwood Farm, Foulness Island, Essex.

Young, J.G. Milvus, 11 Hillview Road, Balmallo, Fife.