A SHORT NOTE ON REDSHANK IN THE UPPER CLYDE ESTUARY

by Peter Mackie

Since wader ringing commenced on the Clyde in January 1973, about 1150 Redshank have been ringed and of these about 670 have been processed. The data collected from these birds are summarised in this note. As far as the writer is aware, not too much published information is available on measurements of live Redshank, and this article is written with the intention of providing comparative data for other wader ringers interested in Redshank. Apart from one cannon-net catch in November 1973, all the birds were caught in mist nets, and processing was carried out in artificial light. All measurements were made using standard techniques: i.e. maximum chord for wing lengths, and bills from tip to feathering.

Wing length

The Clyde data are summarised below. No wing lengths are given for adults for the period July to October, when they are in active wing moult. For the other months, when difficulty was experienced in confidently ageing birds, the data has been combined to include all birds. This may affect the apparent pattern of changes in wing length throughout the year (but see below).

	MEAN (mm)	S.E. (mm)	RANGE	SAMPLE SIZE
November	167.9	0.3	151-179	247
December	166.1	0.7	153-177	55
January	168.0	1.0	155-178	24
February	169.5	0.6	157-179	55
March	167.9	0.7	158-176	45
April	168.5	0.5	157-178	78

The main arrival of juveniles appears to take place in late September/October, with 14.5% juveniles in August (sample size 76), 18.2% in September (sample size 22), and 49.3% in October (sample size 71). The mean wing length of October juveniles was 167.1 ± S.E. 1.1 mm (sample size 21), which relates well with the combined November figure of 167.9 ± S.E. 0.3 mm, and also with the Icelandic data below, indicating that the combination of adult and juvenile wing lengths may involve few problems in the present case.

The wing lengths indicate a population containing a large proportion of the Icelandic race T.t. robusta. Published data on this race include that of Pienkowski, Stanley & Morrison (1971) and Morrison (1972) who give wing lengths of 170 ± S.E. 0.7 mm for 4 adults and 167.6 ± S.E. 0.8 mm for 11 juveniles from Iceland. Hale (1971) gives skin measurements of 167.2 ± S.E. 1.0 mm for 13 males and 170.4 ± S.E. 0.8 mm for 16 females from Iceland. It is generally agreed that the Icelandic race T.t. robusta has a longer wing length than the nominate T.t. totanus and the British T.t. britannica. Hale (1971) considered that britannica is not a valid race but the name is retained here for ease of reference to the British breeding birds. The wintering population on the Clyde is considered to consist mainly of robusta with some britannica

.../

also present. Wing length histograms for those months where there is a reasonable sample size indicate consistent peaks at 164/165 mm and 172/173 mm with a broad peak at 168-170 mm. These may indicate the males and females of the two races present, with a britannica males mean at 164/165 mm, britannica females/robusta males in the band at 168-170 mm, and robusta females at 172/173 mm. Much larger samples are required to give a clearer picture. An estimate of the proportion of robusta has been calculated using the criteria suggested by Steventon (1972): proportion of robusta to britannica is given roughly by number of birds having wing length greater than 169 mm to number having wing length less than 161 mm. Boere (1973) also considers that any bird with a wing length of 168 mm or more is Icelandic. Using the method above gives:

MONTH	% robusta	SAMPLE SIZE
Nov	84.6	247
Dec	70.0	55
Jan	90.0	24
Feb	93.5	55
Mar	87.5	45
Apr	88.0	78

The slight drop in March/April, if real, is considered to be due to a small influx of britannica but we have no recoveries/controls to substantiate this. No explanation can be put forward at the moment for the drop in December.

Bill length

The mean bill length is given for each month. Little difference has been found between adults and juveniles, therefore the data covers all birds processed.

	MEAN (mm)	S.E. (mm)	RANGE	SAMPLE SIZE
August	41.5	0.2	37-46	77
September	42.0	0.3	39-47	23
October	41.3	0.2	38-45	73
November	41.4	0.1	37-47	247
December	41.3	0.2	37-46	55
January	40.4	0.4	36-43	24
February	40.7	0.3	37-45	55
March	40.3	0.3	37-44	45
April	41.3	0.2	35-45	78

No reason has so far been found for the lower values found in the period Jan-March, although it could be related to the state of the feathers at the base of the bill (see elsewhere in this bulletin). There is no significant concurrent increase or decrease in wing length during this period. The increase in bill length between March and April is significant ($t = 2.91$, P 0.01). Vaurie (1965) states that robusta is in general larger than totanus, britannica and eastern sub-species but that the eastern birds have a proportionately longer bill. Results from Morocco (totanus)(Pienkowski, 1972, 1975), and Arabia (eastern races?) (Etheridge 1971), indicate that in fact totanus and eastern races have significantly longer bills.

.../

	MEAN BILL LENGTH (mm)	SAMPLE SIZE
Morocco	43.7 ± S.E. 0.2	75
Arabia	45.5	11

It appears that britannica and robusta have fairly similar bill lengths and that a west to east clime of increasing bill length exists, as found for the western Palearctic by Hale (1971). With this situation then, bill lengths are not a major aid in separating the two wintering races in the Clyde.

Weight

Fig. 1. shows the mean weight for all birds except autumn juveniles plotted month by month.

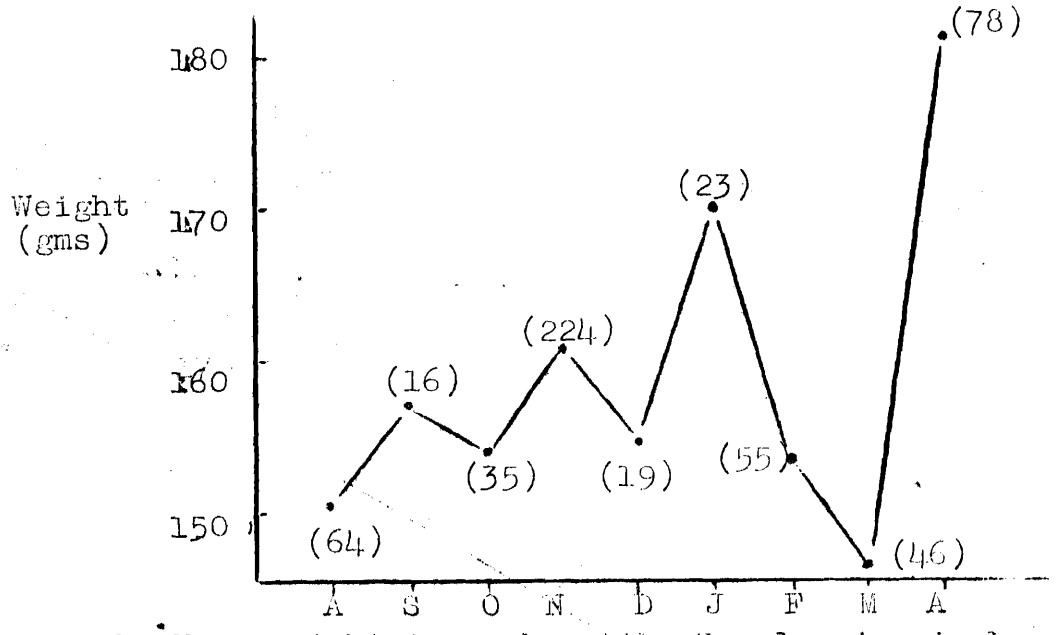

Fig 1. Mean weight in each month. Sample size in brackets.

The mean weight tends to rise in autumn and early winter followed by a late winter fall, as found for Redshank and other species at the Wash (Minton 1975). A dramatic increase in weight occurs in April with birds putting on 40-60 gms in about three weeks. The average weight at the beginning of April is about 150 gms and when the birds leave towards the end of the month, the average weight is almost 200 gms. Studies in Essex have shown a similar pattern with an average weight of 170 gms in January, and 210 gms in mid-April (A. Old in litt.). The April weight increase on the Wash is much lower (although based on a small sample) and this may indicate that Redshanks tend not to move directly from there to Iceland. Redshank numbers in the Clyde estuary drop from about 5,000 in the middle of April to about 100/200 at the end of the month. During this period of fat deposition birds spend noticeably longer periods feeding between high tides than during mid-winter. It is interesting to note that Prater and Wilson (1972) found a very similar departure weight in the Knot in Morecambe Bay. This species is similar in size and body weight to the Redshank and makes the same flight to Iceland.

.../

Moult

Since autumn 1974 all birds caught have been examined for moult and moult scores noted for all birds in active primary moult. Fig 2. gives details of moult scores for all birds caught plotted against the date. The mean rate of moult line was plotted by calculating the mean moult score on each date and fitting the best straight line through these. It appears from this that, for the birds caught at least, moult commences about the middle of July and finishes about the end of October, with some birds obviously earlier and later than these dates. Overall, this indicates a moult period of about 96 days. This agrees well with the 80-100 days found by Pienkowski et al. (in press, quoted by Pienkowski 1975), in Morocco for T.t. totanus.

Boere (1973), in a study on the Waddensee, found that T.t. totanus generally leaves the Waddensee at a moult score no higher than 30 and while still in active moult, presumably to finish moulting during passage and on arrival at the wintering area. T.t. robusta were found to start and finish their moult in the area. No such separation has been attempted so far with the Clyde data.

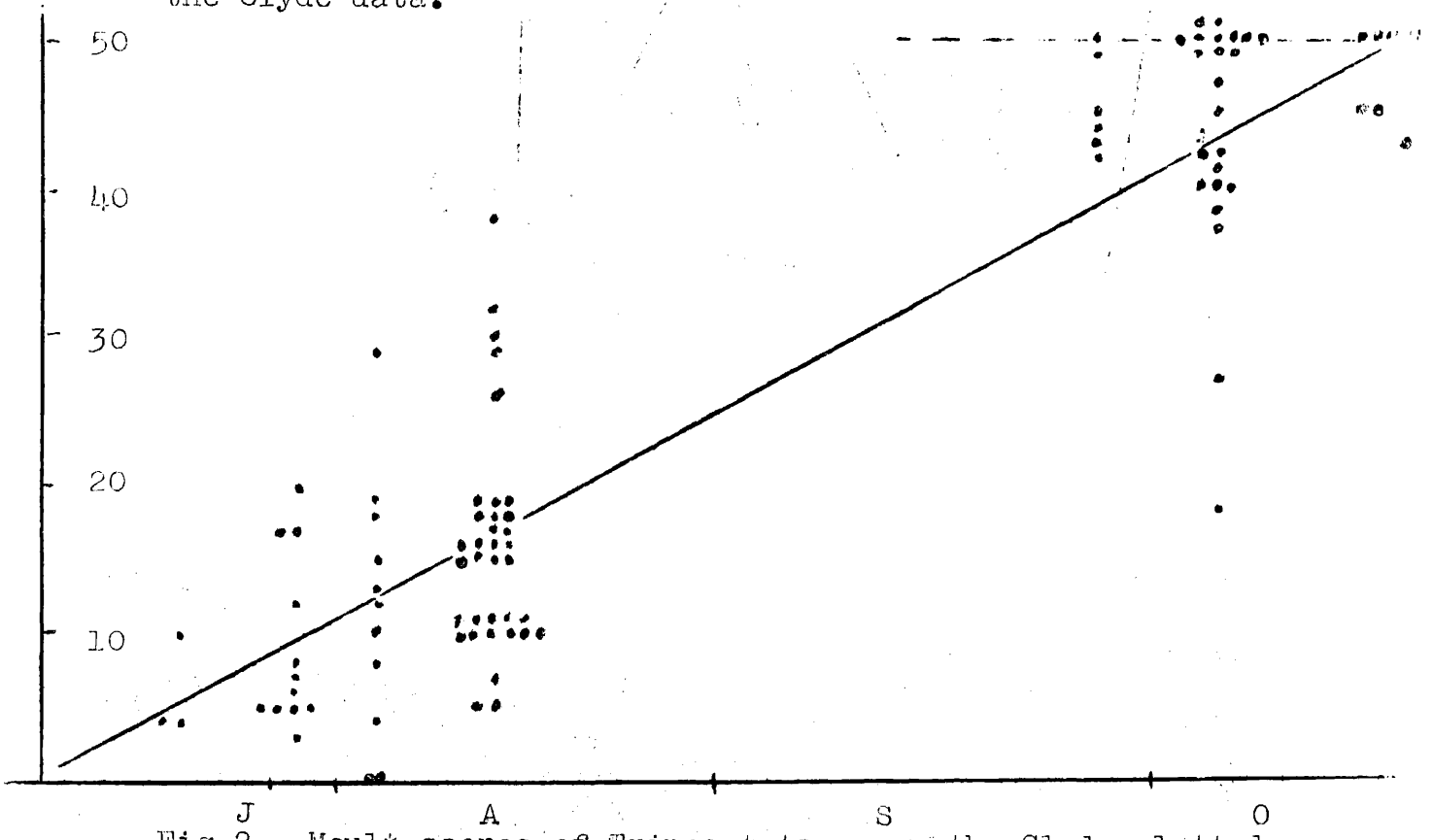

Fig 2. Moult scores of Tringa totanus on the Clyde plotted against date. Line indicates estimated mean rate of moult.

Recoveries/Controls/Retraps

So far there have been no recoveries outside the estuary, and only one control.

.../

Ringed	4.10.75	Conway, Caernarvon F.G.
Controlled	1.12.75	Dunbarton, Clyde.

This is a most puzzling control, showing a considerable northerly movement in late autumn/winter. There is no obvious explanation for this movement, especially when the following information on fidelity to wintering site is considered. Boere (1973) gave some evidence to show wintering site fidelity, so far retraps on the Clyde have given:

Retrapped one year after ringing	48
two years	11
three years	1

Indirect evidence for this fidelity also comes from our one cannon-net catch. In a catch of 753 Redshank there were no controls. This would indicate that the birds which winter on the Clyde tend not to visit other areas in the British Isles or continental Europe where a significant amount of wader ringing is carried out.

Acknowledgements

I would like to thank L. Gibson, H. Galbraith and T. Daniels for information on Redshank numbers and feeding habits in the Clyde, and for their enthusiastic help in ringing operations. A. Old kindly provided information on Redshank from Essex, and M. W. Pienkowski helped considerably to improve the first draft of this note. I would also like to thank J. G. Young and the North Solway Ringing Group for providing the equipment and personnel for our one cannon-net catch.

References

BOERE, G.C. 1974. Wader research in the Dutch part of the Waddensee. Pp. 83-98 in: Prater, A.J. (Ed.) Proc. Wader Symposium, Warsaw, Sept. 1973; Warszawa; International Waterfowl Research Bureau.

ETHERIDGE, B. 1971. Weights and measurements of waders wintering in the Trucial States, Arabia. Br. Trust for Ornithology Wader Study Group Bull. No 3: 5-7.

HALE, W.G. 1971. A Revision of the taxonomy of the Redshank Tringa totanus. Zool. J. Linn. Soc. 50: 199-268.

MINTON, C.D.T. 1975. Wash Wader Ringing Group Report 1973/74.

MORRISON, R.I.G. & J.R. WILSON. (Eds). 1972. Cambridge Iceland Expedition 1971. Report. Cambridge.

PIENKOWSKI, M.W. (Ed.) 1972. University of East Anglia Expedition to Morocco 1971 Report. Norwich.

PIENKOWSKI, M.W. (Ed.) 1975. Studies on coastal birds and wetlands in Morocco 1972. (The joint report of the University of East Anglia Expedition to Tarfaya Province, Morocco 1972 and the Cambridge Sidi Moussa Expedition 1972.) Norwich.

.../

PIENKOWSKI, M.W. P.I. STANLEY, AND R.I.G. MORRISON. (Eds.) 1971. Cambridge-London Iceland Expedition 1970. Report. Cambridge.

PRATER, A.J. and J. WILSON. 1972. Aspects of spring migration of Knot in Morecambe Bay. Br. Trust for Orn. Wader Study Group Bull. No 5: 9-11.

STEVENTON, D. 1972. Report on cannon netting of waders on Hayling Island, 20/21 November 1971. Br. Trust for Orn. Wader Study Group Bull. No 5: 7-8.

VAURIE, C. 1965. The Birds of the Palearctic Fauna. Non - Passeriformes. London; Witherby.

Dr. P. Mackie, 5 Cawdor Crescent, Bishopton, Renfrewshire.

THE VALUE OF BILL LENGTHS OF MUSEUM SPECIMENS IN BIOMETRIC STUDIES

by Ron Summers

The measurement of bill, wing, or any other structure is a useful technique in the study of migration (Evans 1964). However, the technique is fraught with problems which make standardisation difficult. One of the difficulties is in the use of museum material. Standard bird text books give biometric data based on museum specimens but the application of these measurements to the field situation is problematical; e.g. it has been shown that wings of museum skins shrink (Vepsalainen 1968; Green & Williams 1973). Bill length however, is believed to be the least variable of the biometric measurements though the possibility that the bills of museum skins shrink has not been investigated.

I had the opportunity to measure a series of freshly collected birds and to compare them with skins from various South African museums (Cape Town, Pretoria, Durban, East London). Being at the tip of Africa it is likely that the birds of a given species are drawn from the same origin and that one does not experience such a complex situation as seen in Europe. One would therefore expect the mean bill lengths of the freshly collected birds and museum specimens to be the same. However, the table shows that in the two species investigated, Turnstone Arenaria interpres and Sanderling Caliadris alba, the museum birds tend to have lower bill lengths. In the Turnstone the difference amounts to 5.4% (males) and 4.4% (females) whilst in the Sanderling it is 1.6% (males) and 2.7% (females). These differences were highly significant in the Turnstone, but not in the Sanderling where the sample size is smaller (Table.). The explanation for the difference between the two species may lie partly in the structure of the bill, for in the Turnstone the rhamphotheca (the horny sheath) extends further beyond the bone point of the bill. The Sanderling on the other hand has a rounder tip to the bone around which the rhamphotheca fits more closely (Figure). Shrinkage of the rhamphotheca will therefore be limited by the bone.

.../