

The welcome sight of Dutch recoveries, presented in these last two reports, clearly indicates the upsurge in ringing waders in the Netherlands.

Only four distant controls within Britain were reported.

PJ	23.11.68	Hilbre, Dee	v	Harsea Isl., Portsmouth	18.12.72
FG	15.11.70	Seafield, Edinburgh	v	Inner Clyde, Dumbarton	2.2.73
1Y	14.3.71	Conway, Caerns	v	Holme, Norfolk	22.12.72
1Y	28.8.72	Ferrington, Wash	v	Inishkea Isl. Co. Mayo	3.1.73

Curlew Sandpiper

1Y	2.9.69	Brownsea, Poole Harbour	v	Lac du Rades, Tunis	24.7.72
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Sanderling

Ad	12.8.68 (& 18.7.70)	Snettisham, Wash	+	Hoal, Senegal	27.9.72
Ad	27.5.72	Thornham, Wash	?	Somme, France	14.7.72
Ad	13.8.69	Hoylake, Dee	x	Holy Island, Northumberland	31.10.72
Ad	23.9.72	Gibraltar Point, Wash	x	Cleethorpes, Humber	28.11.72

Avocet

Fullus	15.6.71	Havergate, Suffolk	+	Cadiz, Spain	1.12.72
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Some Notes on Bar-tailed Godwit Ringing, Biometrics & Moults

G.H. Green

Since ringing started in the British Isles in 1909 approximately 850 Bar-tailed Godwits (*Limosa lapponica*) have been ringed (Spencer, 1972 for totals to 1970 and wader study group bulletins since then). Over half of these were caught during the last 10 years and most by cannon or rocket netting. Relatively few have been weighed, measured and examined for moult. Far larger samples are available for most other commonly occurring passage and wintering sea-shore waders. However some information can be gleaned from the data available and the purpose of this note is to report this briefly and to show where further study is required.

Bill length - adults

Bar-tailed Godwits show a marked sexual dimorphism, the females are considerably larger than the males and this is well shown by bill size. The majority of adult (over one year old) birds can probably be sexed by this parameter. Witherby et al (1940) in the 'Handbook of British Birds' give the following ranges

bill length, male	72-83 mm (12 birds)
bill length, female	95-106 mm (sample size not given)

Fig. 1 shows the bill lengths of 324 birds clad in adult plumage. Birds designated 1st year, juvenile, full-grown and post-juvenile are excluded. The ranges are

bill length, adult males	71-91 mm (213 birds)
bill length, adult females	93-115 mm (111 birds)

It is obvious that the size ranges are considerably greater than reported hitherto. Without a long series of dissection examinations it cannot be certain that separation of the sexes by bill length is complete but it certainly seems highly likely. In the whole series of measurements available (about 412 birds) only 2 full-grown and one juvenile have a bill length of 92 mm. Such birds should remain unsexed!

Bill length - juvenile and first-year birds

Fig. 2 shows the bill length of the 43 birds plotted in the month of measuring. It is apparent that birds with bills less than 70 mm (the adult minimum) occur - 8 out of 48. Most of the short billed birds were juveniles caught in

BILL LENGTH BAR TAILED GODWIT

JUVENILE FIRST YEAR
EACH MONTH

MAY

FEBRUARY

JANUARY

DECEMBER

NOVEMBER

OCTOBER

SEPTEMBER

AUGUST

70

80

90

100

110

MALES (213)

FEMALES (111)

ADULTS

70

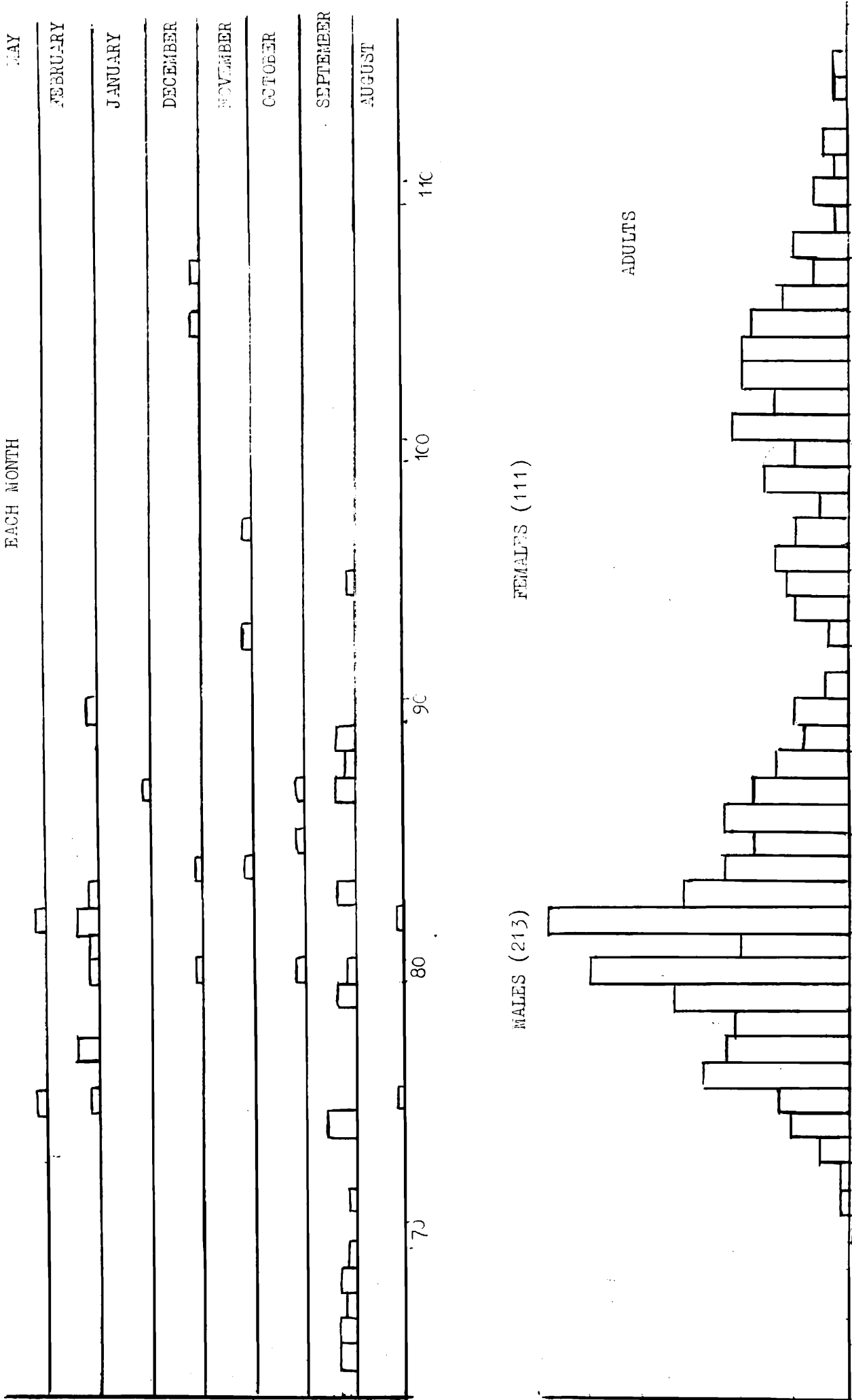
80

90

100

110

mm



September and 5 out of the 8 were measured in Morocco by Derek Stanyard (Cambridge Sidi-Moussa Expedition 1972). It seems likely that juveniles migrate before their bills are fully grown and that during August and September (and possibly October) they cannot be accurately sexed by bill length.

Wing length - adults

Wing lengths taken by maximum chord are available for 164 birds in adult plumage. If sexual separation by the bill length is accepted the ranges are as follows

wing length, adult males	198-232 mm (100 birds)
wing length, adult females	212-239 mm (64 birds)

There is considerable overlap between sexes. It is perhaps significant that males with long wings and females with short wings tend to have bill lengths between 90-95 mm. and it is possible that sexual separation by bill length is not as perfect as it appears.

Wing length - juveniles and first-year birds

Most adult wing lengths exceed 204 mm. (only one amongst 164 birds was less - 198 mm.). Data from 48 juvenile and first year birds are available.

wing length, juvenile & first year	197-235 mm (48 birds)
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Most of this data was collected in September but 5 first-year birds measured in March also measure less than 304 mm. It is likely that Bar-tailed Godwits have somewhat shorter wings in their first year (see Pienkowski & Minton, 1973).

Weights - adults

Mean weights for birds sexed by bill length are available for birds caught at the Wash as follows

February	males	267 gm	(10 birds)
	females	332 gm	(6 birds)
August	males	272 gm	(55 birds)
	females	327 gm	(33 birds)
October	males	273 gm	(114 birds)
	females	331 gm	(51 birds)
December	males	273 gm	(7 birds)

Samples from other months are too small to be of value.

Mean weights from a March catch on the Dee Estuary, North Wales are

March	males	313 gm	(38 birds)
	females	354 gm	(24 birds)

No marked variation in weight during the year can be seen in the data available from the Wash but unfortunately information is lacking for the time of most hard weather during January and February. The birds caught at the Dee Estuary in March show higher mean weights but whether this reflects local conditions or a true gain amongst Bar-tailed Godwits at that time of year is not clear.

Weights - juveniles

Data are scanty. The most striking information is from Morocco.

September	juveniles	mean weight	190 gm (11 birds)
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These birds had perhaps recently arrived in the area during the autumn migration, however 8 of the birds were held some hours after capture before they were weighed and may have lost weight during this time. More information is required.

Sex ratio amongst adults

If the dividing line of 92 mm bill length is accepted for separation of the sexes amongst adult birds

of 324 birds 213 are males (66%) and 11 females (34%)

The sex ratios in 5 major catches were as follows

<u>Date</u>	<u>Place</u>	<u>Total</u>	<u>% males</u>	<u>% females</u>
13.3.71	Dee Estuary	62	60	40
28.8.61	The Wash	57	62	38
29.8.68	The Wash	79	64	36
18.10.70	The Wash	24	54	46
26.10.69	The Wash	140	68	32

In all cases there appear to be more males than females. The reasons for this can at present only be speculative. The criterion for sex determination by bill length could be wrong. Differential migration of the sexes as seen in some waders (for example Dunlin, Soikkeli, 1967) is perhaps unlikely as, according to the 'Handbook' both sexes take an equal part in incubation and tending the young. Females may have a higher mortality in the breeding season which is reflected in the mainly adult population occurring in Britain on passage and winter.

Sex ratio amongst juvenile and first-year birds

As previously suggested bill growth of juveniles is not complete until October. Lack of data prevents any attempt to calculate sex ratio during the period of bill growth.

Of 20 juvenile/first year birds measured between November and May, which presumably have full grown bills

14 are males
6 are females

Apparently there are more juvenile males than females. There is no obvious explanation for this.

Proportion of juveniles in the population

Data from the British Isles

	<u>Ad</u>	<u>FG/FJ.</u>	<u>Juv</u>	<u>1Y</u>	<u>total</u>
Number of Birds	380	54	32	8	474

Data from Morocco

11 juveniles in September, no adults.

Only about 10% of the Bar-tailed Godwits caught in the British Isles were juvenile/first year birds.

Insufficient data is available to draw concrete conclusions but at all times the year few juvenile/first year have been caught in Britain. Amongst 171 moulting adults caught in August and October there were only 2 juveniles. During September the only Bar-tailed Godwit caught in Morocco were 11 juveniles. These results may be purely accidental but it can be tentatively suggested that juvenile birds only occur in Britain in small numbers and do not generally associate with flocks of moulting adults. They may rapidly migrate south to winter quarters on the West African coast.

Moult - adults

Wing moult (primary feathers) data has been collected in an abbreviated form : 167 birds caught in late August. Most adults are in active moult at this time and about half of the birds were actively growing 5 inner primaries and had 6

old feathers remaining. 0.3% had not yet started to moult and 1.5% were recorded as having all new primaries. This is somewhat unlikely and they were perhaps incorrectly aged as juveniles.

Similar data has been collected from 164 birds caught in October. On 18.10.70 of 24 birds most had completely re-grown 7-8 inner primaries. On 26.10.69 of 140 birds most had renewed 8-9 inner primaries and only 5% of the birds still retained one old outer primary.

Little data is available for the end of October and November but moult is probably complete in most birds by mid-November. A bird caught on 11.11.70 had only 9 full grown primaries and another from 23.12.72 had only three-quarters grown the long 10th primary, (the small 11th outer primary was full grown).

Therefore most adults moult between the beginning of August and early November and primary growth is probably completed in 90-100 days.

Moult - first year birds

Data is available from 4 birds caught in May, which were all in winter plumage (at a time when most adults were in nearly full summer plumage). They were probably remaining in Britain for their first summer. 3 of the 4 showed no moult but the fourth was actively growing 3 inner primaries.

One bird called 'full grown' caught on 6.7.69 was in winter plumage. It had renewed inner primaries 1-3 and was actively re-growing primaries 4 and 5. This bird could be either a first year bird or a non-breeding adult.

A bird just entering its second year was caught 29.8.72 (and well advanced wing moult with 8 new inner primaries. Adults at this time were regrowing this group of feathers.) This bird was recovered at Santander, Spain on 14th October and had presumably migrated on completion of moult.

Therefore some first year birds remain in Britain for their first summer where they have an early moult. Some migrate south after this moult, at the beginning of their second year. It is possible that some juveniles return part way to the breeding grounds in their first spring and after moulting in their first summer move south again at the beginning of their second year.

Conclusions

- 1) Adult Bar-tailed Godwit can be sexed by bill length. Those shorter than 92 mm are males, those longer females.
- 2) Juveniles migrate before bill growth is complete and cannot be sexed by this method until November.
- 3) Juvenile wing length is on the average shorter than for adults.
- 4) Adult birds moult in Britain during August, September and October. Some birds do not complete feather growth until December, Complete primary moult takes 90-100 days.
- 5) All aspects of Bar-tailed Godwit study in Britain are in their infancy. Far more ringing, measuring and moult data collecting is required.
- 6) All Bar-tailed Godwits found dead and those which may be casualties of catching activities should be weighed and measured immediately and later sexed by dissection. Wings should be kept as a study skin. Dead birds should never be wasted.

The future

Any data from Bar-tailed Godwits are valuable - even from single birds. The author hopes to extend this study and would be very pleased to receive any information, which will be fully acknowledged.