old feathers remaining. 0.3% had not yet strated 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.

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Black-tailed Godwits on the Ribble Estuary in autumn

M.A. Greenhalgh

The Ribble Estuary, with its complex of wader habitats ranging from freshwater marshes, salt marches and mosslands to wet oozy mudflats and sandy beaches, attra a good variety of waders in large numbers as all participants in the B.T.O. Estua Enquiry and W.S.G. will know. One of the most important of these is the Black-tailed Godwit Limosa limosa which frequents one corner of the estuary during autu passage. This short account summarizes personal records for the past ten years and published records since 1948.

Largest numbers occur in autumn on the north estuary off Lytham-Fairhaven. First immigrants arrive in late June to early July, numbers increasing rapidly during late July and early August to peak in late August to early October. Table 1 shows two autumns data collected before the Estuaries Enquiry was fully under Numbers decrease during late September and October leaving the wintering birds.

Table 1. Fortnightly counts of Black-tailed Godwits on the Ribble Estuary, 1967 and 1968.

	2 June	1 July	2 July	1 Aug	2 Aug	1 Sept	2 Sept	1 Oct	2 Oct
1967	19	47	520	620	1100	890	240	89	15
1968	1	2	40	200	430	1500	320	150	5

Autumn peak counts are available for 21 out of the past 24 years and these a given in Table 2. Most counts up to 1963 were made on the feeding areas as well roosts whilst from 1963 all have been made of the birds as they left the roosts. The peak counts show a marked increase in the number of Black-tailed Godwits pass through the Ribble from the late 1940s to late 1960s since when numbers appear to have declined from the counts. This decline, shown in 1970-71,,is probably a fal one due to not enough counts. In 1970 I made only two autumn counts, in 1971 onl three whilst in 1972 I counted the roost six times and this year obtained a peak closer to those found in the 1960s. However, it does seem from these peak counts that about 1500 is the maximum number which the present Ribble feeding areas can hold, and a study now in progress on feeding ecology suggests that this is possibl the case.