

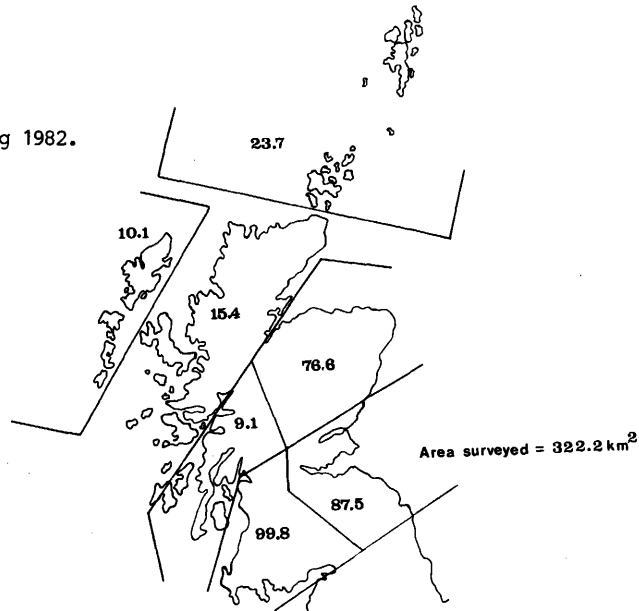
THE SURVEY OF THE BREEDING WADERS OF SCOTTISH AGRICULTURAL LAND

by Hector Galbraith and Bob Furness

Those of you who attended the 1982 Durham conference may have heard us describe in some detail the results of the first full field season of the breeding wader survey. The response to the appeals for participation was overwhelming (we have not yet recovered from the consequential almost lethal dose of writers cramp), and the 90 or so observers who took part surveyed over 320 km² of Scottish farmland on which 3500 pairs of breeding waders were located.

Due to the patchy distribution of observers in Scotland, it was inevitable that "blank" areas would occur. The blankest of these are The Western Isles; Sutherland and Caithness; The Northern Isles and Argyll. Figure 1 shows the spread of the coverage.

Figure 1. Areas covered by the survey during 1982.



1983 is our last field season and our prime objectives must be to cover these blank areas and to get even more important data from the areas of better coverage. If you would like to take part, please complete the enclosed form and return it to us as soon as possible.

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BIOMETRICS OF BREEDING DUNLINS *CALIDRIS ALPINA* FROM SOUTH UIST

by Brian Etheridge and William G. Taylor

Dunlin breeding in the British Isles belong to the southern race *C.a.schinzii* and have an estimated population of 4 - 8,000 pairs (Sharrock 1976). Although this species has been one of the most intensively studied waders in Europe, very little data is available on breeding weights and measurements, particularly for the British population (e.g. Green & Greenwood 1978).

In this paper the biometrics are presented for a small sample of British breeding Dunlin. They were caught for ringing on South Uist, one of the Outer Hebridean chain of islands off northwest Scotland.

Study Area and Methods

The study was conducted between 6-13 June 1981 and 27-31 May 1982 at Loch Bee, South Uist (57°22'N 7°22'W). All birds were trapped at nests found in a small area of damp machair grassland. This locality held an exceptionally dense breeding population of Dunlins (Etheridge 1982). All captured birds were sexed using the plumage criteria given in Ferns and Green (1979). They were then ringed, aged and measured. Measurements taken were wing length (maximum chord; to 1 mm, bill length (exposed culmen) to 1 mm in 1981 and to 0.5 mm in 1982, and weight. Most nests were revisited at later dates during the study periods and attempts were made to catch both individuals of a pair, though these were not always successful. Nest contents varied from freshly laid full clutches to one day old broods of young. No correction for time of day has been made to the weights which are presented as found. All measurements were made by the senior author.

Results

In 1981, a total of 31 Dunlins (17 males and 14 females) were caught at 24 different nests. In 1982, 33 birds (17 males and 16 females) were caught at 21 nests. The weights and measurements are summarised in Table 1.

Sexual differences. Only in bill length was there no area of overlap between the sexes, so that sexual size dimorphism was complete. Although the weight overlap was small (2.4 g), 4 (12%) males and 6 (24%) females fell within this zone. Dunlins were least sexually dimorphic in wing length and over 56% of the adult birds had wing measurements within the 4 mm range of overlap.

Between paired birds, however, there was almost complete separation in all measurements (Table 2). The one exception was at nest 17 in 1982 where both male and female had the same wing length (115 mm). In each of the other 18 pairs handled, females were always larger in all three parameters than their mates. The size of males, expressed as a percentage of the size of their mates was: bill length 79-93% (mean 85.7%), weight 80-93% (mean 86.3%) and wing length 92-100% (mean 96%). Although the sample is small, the absence of any large male/small female pair combinations suggests that each individual may have selected a mate of a similar relative body size.

Table 1. Biometrics of breeding Dunlin in South Uist and Finland.

South Uist (this study)					Finland (Soikelli 1974)			
<u>Adult males</u>					<u>Males</u>			
	n.	Mean	S.D.	Range	n.	Mean	S.D.	Range
Bill	34	27.2	1.0	25.0-29.0	111	27.8	1.1	24.0-30.0
Wing	34	113.3	1.9	108-117	41	113.7	2.1	109-117
Weight	33	43.9	2.2	38.9-47.9	c.43-43.5			
<u>Adult females</u>					<u>Females</u>			
Bill	25	31.4	1.1	29.5-34.0	113	31.8	1.2	29.0-34.5
Wing	25	116.9	1.6	114-121	46	117.5	2.0	114-121
Weight	25	50.9	2.7	46.3-58.0	c.48			
<u>Yearling females</u>								
Bill	5	31.3	1.0	30.0-32.5				
Wing	5	114.6	2.7	111-118				
Weight	5	49.6	3.6	45.5-54.1				

Table 2. Biometrics of Dunlin pairs trapped at individual nests on South Uist, 1981-82.

Nest number 1981	Bill length		Wing length		Weight	
	Male	Female	Male	Female	Male	Female
A	26	32	115	116	46.4	50
2	26	32	114	119	42.7	46.3
5	29	33	111	119	44.7	54
6	27	32	112	116 ²	41.8	45.5
9	29	32	116	118 ²	46.5	51
12	25	31	109	113 ²	42.5	48
15 ¹	27	32	111	120	43.9	53
1982						
1	26	32	114	115 ²	43.9	51.1
3	27	32.5	113	118 ²	47.9	52.5
6	28.5	31.5	113	118	46.4	58
7 ¹	27	32	112	121	43.9	51.2
11	28	31.5	113	118	41.7	51.1
15	26	29.5	112	117	42.1	50.2
17	27.5	30	115	115	47.5	54.1
18	27.5	31.5	113	116 ²	44.6	47.9
20	28	31	113	115 ²	43.5	54.1
21	28	30	114	117	45.2	54
22	25.5	32	113	115	45.0	52.9
23	27	34	108	117	40.6	50.9

1. The same pair was present at nests 15/1981 and 7/1982
2. Measurement of yearling bird subject to wing tip abrasion (see text)

Age of breeding birds. Of the 64 Dunlin caught, 59 were in full adult plumage and were probably at least in their third calendar year of life (EURING code 6). The five exceptions, all females, were identified as yearling birds, (EURING code 5), according to the plumage criteria in Prater et al. (1977). In contrast with the adults handled, they had retained juvenile inner medium coverts and had markedly faded and abraded wing and tail feathers. Moreover, their wing lengths averaged over two millimetres shorter (due to wing tip abrasion), and their weights averaged over one gram lighter than the older females (Table 1). One of these one-year old females was paired to a three-year old male (nest 6/1981), a bird originally ringed as a juvenile on the north Cornwall coast in August 1978.

Measurements of Finnish breeding *schinzii* (Table 1), show that the Dunlin from the two areas are almost identical in size. In view of this very close similarity between two widely separated populations of Dunlins, it would be interesting to compare this data with the biometrics of live, sexed, birds from other localities, particularly mainland Britain and Iceland.

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Summary

Biometrics of 64 breeding Dunlin from South Uist are presented. Adult males had bill length < 29.0 mm, wing < 117 mm and weight < 48 g. Adult females had bill > 29.5 mm, wing > 114 mm and weight > 46 g. Between the sexes, overlap in measurements occurred in weight and wing length but not in bill length. Between individuals in known pairs sexual size dimorphism was complete in all three measurements, with the female always larger than the male, despite male and female size variations. All males handled were at least two years old but about 17% of females were yearlings and they were smaller in average size than the older age group.

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