

# SPRING PASSAGE OF SANDERLINGS *CALIDRIS ALBA* ON THE SOLWAY FIRTH

by N. A. Clark, B. S. Turner and J. F. Young

## Introduction

As part of the Wader Study Group spring passage project in 1979, wader ringers from all over Britain gathered on the north shore of the Solway Firth (Dumfries & Galloway) to join the North Solway Ringing Group on two weekends of cannon netting. The stimulation provided by the project, and the successful catching on the Solway Firth, has led to further trips there in the following years. Several hundred waders were caught in each year. In the first two years (1979 and 1980) only 16 Sanderlings were caught amongst large catches of Dunlins *Calidris alpina* and Ringed Plovers *Charadrius hiaticula*. In 1981, the timing of spring tides meant that the Solway was visited a few days later than previously, on 16-17 May. Between 2000 and 3000 birds roosted on the cannon netting site, including many more Sanderlings than had been seen there in previous years. Unfortunately, only small catches were made, but these included 50 Sanderlings. We did not know if the large numbers of Sanderlings seen in 1981 were unusual, or a regular occurrence that had not been noted previously. To find out if Sanderlings occur regularly in late May, we visited the Solway on two weekends in May 1982.

## Results and Discussion

On 8-9 May 1982 1300 birds, including 63 Sanderlings, were caught. The second weekend, 22-23 May, was 5 days later than the visit in May 1981. Reconnaissance on 21 May suggested that at least 7000 Sanderlings were present on the beach. On 22 May, 434 Sanderlings were caught in a small cannon net, and several experienced wader counters estimated the size of the Sanderling flock at between 9000 and 15000 birds. On the following day, as the weather was perfect, we decided to attempt to catch as many Sanderlings as possible to try to determine the origins of the birds. Two catches were made and a total of 1407 Sanderlings, 70 Dunlins and 56 Ringed Plovers were caught. Further estimates of flock size, from the proportion of the flock caught on each occasion, suggested that there were about 9000 Sanderlings present on the beach. All people present agreed that the flock of Sanderlings was smaller than on the previous day. A further attempt to catch Sanderlings was made on 26 May, when at least 4000 Sanderlings were present during the flood tide. However only 2000 birds came onto the beach to roost, and none were caught.

If these numbers of Sanderlings occur regularly, the Solway would be the second most important known site, after Morecambe Bay, for spring passage of Sanderlings in Britain. In 1981, as well as 1982, numbers were certainly much in excess of the 100 birds suggested by Prater (1981).

Amongst the 1872 Sanderlings caught in May 1982, there were 9 of the 69 Sanderlings caught on the Solway during spring passage since 1979, suggesting that many individual Sanderlings occur regularly on the Solway in spring. 15 Sanderling ringed elsewhere than the Solway were caught there in May 1982 (Table 1): of these, 12 were caught during autumn passage, and one was wintering at Teesmouth. The only bird caught elsewhere in spring, at Walney Island in Cumbria, was thought to have wintered there (C.Clapham pers. comm.). If the Sanderlings caught in May 1982 had not used the Solway regularly during spring passage, then some birds ringed at other spring passage sites might have been expected.

Figure 1 shows the percentages of Sanderlings and Dunlins in catches made on the Solway. There was little segregation of Dunlins and Sanderlings in roosting flocks on the Solway, although the Sanderlings tended to stay nearer the tide edge. Sanderlings formed less than 10% of each of the seven catches made before 15 May. After 15 May the percentage of Sanderlings increased rapidly. If exceptionally large numbers of Sanderlings occurred in 1982, one might have expected there to be a much higher percentage of Sanderlings in the catches made on 8-9 May 1982. However, the percentages of Sanderlings in 1982 followed the same pattern as in other recent years (Figure 1).

Table 1. Origins of ringed Sanderlings caught on the Solway in May 1982.

All birds were first caught when adults.

Site	Date ringed
The Wash, Norfolk	28 July 72
The Wash, Norfolk	02 Sept 73
The Wash, Norfolk	30 July 77
The Wash, Norfolk	21 July 78
The Wash, Norfolk	21 July 78
The Wash, Norfolk	14 Aug 79
West Kirby, Merseyside	04 Aug 81
Southport, Merseyside	04 Aug 81
Formby, Merseyside	08 Sept 78
Point of Air, Clwyd	01 Aug 81
Point of Air, Clwyd	01 Aug 81
Pilling, Lancs.	06 Aug 75
Walney Island, Cumbria	19 Apr 81
Teesmouth, Cleveland	17 Dec 80

Spanish ring - no details yet.

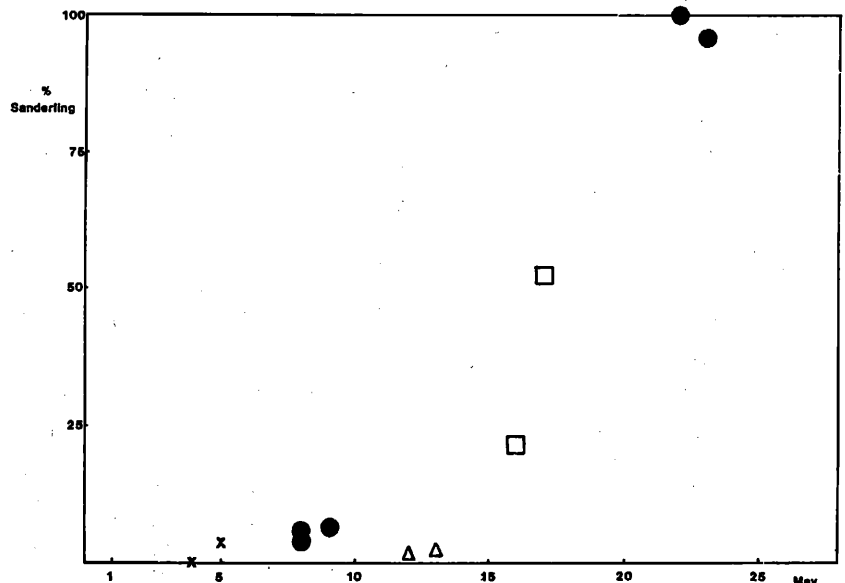


Figure 1. Percentages of Sanderlings in catches of Dunlins and Sanderlings on the North Solway in May 1979 (△), 1980 (x), 1981 (□) and 1982 (●).

Figure 2 shows the weights of samples of Sanderlings caught on the Solway, corrected for time after capture, assuming a weight loss of 1g per hour, similar to that of Dunlins (Davidson 1981). A rapid increase in mean weight occurred only after 15 May. This pattern would be expected either if Sanderlings were arriving throughout the first half of May with low weights and then put on weight rapidly, or if the same individuals remained on the Solway at a steady weight in early May and then put on weight rapidly prior to departure for the breeding grounds. The increase in weight between the means of the two samples in 1982 averaged 0.86g per day. The two same-year retraps averaged weight increases of 0.81g and 0.97g per day. These compare with mean rates of increase of 0.88g per day in South Africa (Summers & Waltner 1979) and 0.75g per day at Teesmouth, North-east England (Davidson 1981). These rates of weight gain suggest that Sanderlings were able to accumulate fat rapidly on the Solway in preparation for a long-distance migration. The weights of each of the nine retraps between years showed an increase during May, consistent with individuals arriving on the Solway at about the same time each year, and then putting on weight before further migration in late May.

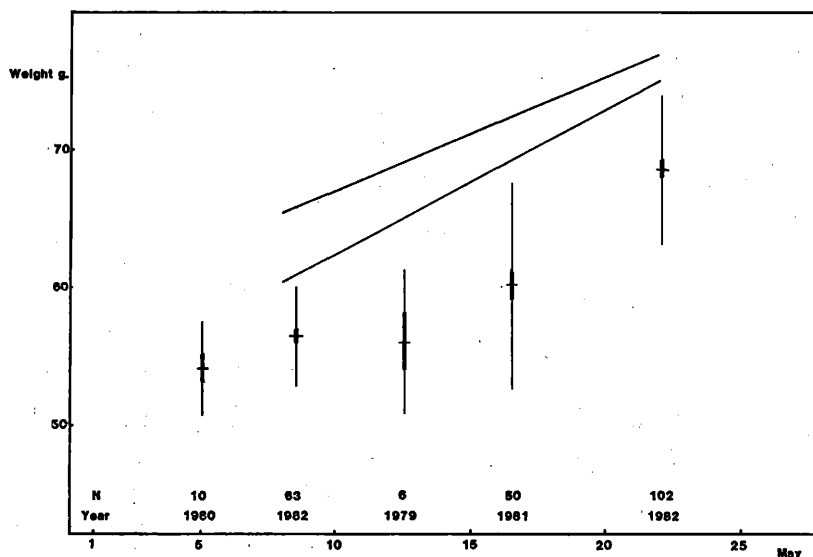


Figure 2. Sanderling weights on the Solway in May. Solid lines join weights of individuals weighed twice during the same spring. For each sample the mean  $\pm$  standard deviation (thick vertical line) and 1 standard error (thin vertical line) are given.

Table 2. Bill lengths of Sanderlings.

Date	Site	Sex	N	Mean	s.d.	Source
22 May 82	Solway	Male	63	24.3	1.49	This paper
22 May 82	Solway	Female	34	25.2	1.33	This paper
June-July 74	NE Greenland	Male	6	23.9	2.46	Green & Greenwood 1978
June-July 74	NE Greenland	Female	5	25.8	1.64	Green & Greenwood 1978

From the data obtained so far it is difficult to determine the breeding areas of Sanderlings on the Solway. Bill-lengths of birds sexed by plumage characteristics on 22 May 1982 are similar to those of birds breeding in NE Greenland (Table 2). Prater et al (1977) suggests that bill-lengths are on average 1mm longer in the Siberian than the Greenland breeding populations, so the birds caught on the Solway may be from the Greenland breeding population.

The weights of Sanderlings on the Solway on 22 May (mean 68.5g) were significantly lower ( $d=9.93$   $P<0.001$ ) than those of birds caught at Teesmouth three days later (mean = 90.2g, s.d.=11.4g, N=29), the latter being typical for Teesmouth in late May (Davidson 1981). This suggests that Sanderlings on the Solway either leave later, or have a closer breeding area, than those at Teesmouth.

Conclusions

The data suggest that there has been a substantial regular spring passage of Sanderlings through the Solway each year since 1979. Although it is not possible to say if this was a regular occurrence before 1979, it would be surprising if it was only a recent phenomenon. The difference in the weights of birds on the Solway and at Teesmouth in late May suggests that they may be going to different breeding areas. There is evidence that some birds from Teesmouth breed in Siberia (R.W.H. Cooper pers. comm.), and the bill-lengths of Sanderlings on the Solway suggest that they may breed in the Nearctic. We hope that further work in the next few years will result in a clearer picture of the spring passage of Sanderlings through the Solway.

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N.A. Clark, B.S. Turner and J.F. Young, Dept. of Zoology, Univ. of Edinburgh, West Mains Road, Edinburgh EH9 3JT, U.K.