

AUTUMN AND WINTER NUMBERS OF WADERS IN THE TEJO ESTUARY, PORTUGAL

by Rui Rufino

INTRODUCTION

The Tejo (38°48'N 08°57'W) is the largest estuary on the Portuguese coast, and is the most important site for wintering waders in the country. From 1976 to 1982, regular counts were made in January at most of our estuarine areas. The counts were at first organised by the International Waterfowl Research Bureau (IWRB) in co-operation with Centro de estudos de migrações e protecção de Aves (CEMPA), but from 1979 onwards CEMPA took sole charge of the project. The full results of these winter counts have been published elsewhere (Rufino 1980; CEMPA 1980, 1981, 1982).

In 1981/82 we made counts at about 2-week intervals from the end of July to January over part of the Tejo estuary (see Figure 1). This was in addition to the usual count in January 1982. In this note we give the counts made in autumn 1981. For comparison we give also the average winter (January) numbers from the 1976-82 counts. Bannerman (1931) stated that large numbers of waders, particularly Knots *Calidris canutus*, occurred on the Tejo estuary during the autumn. The aim of the counts that we summarise here was to gather some more precise information about this period of the year.

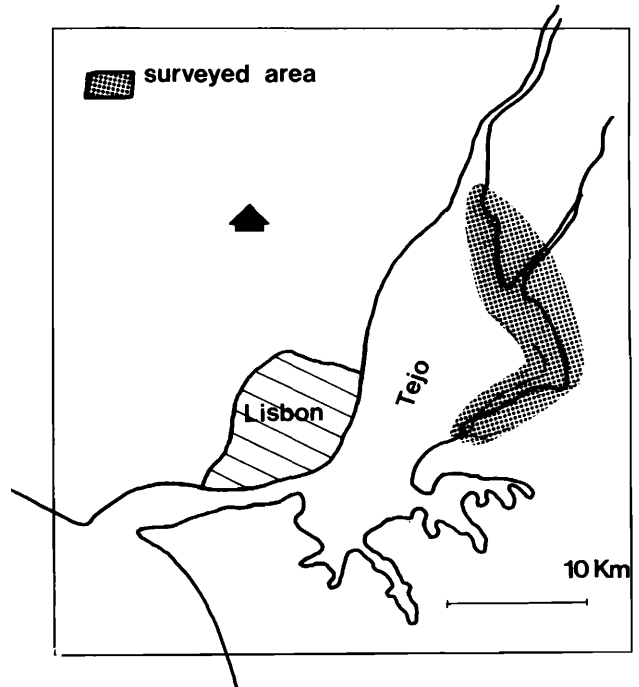


Figure 1. The Tejo estuary, Portugal, showing the area counted regularly during autumn 1981.

Table 1. Counts of waders in part of the Tejo estuary, Portugal during autumn 1981, and average and maximum winter (January) counts.

| | JULY 29/31 | AUG 18/19 | 31AUG/ 1SEPT | SEPT 15/17 | 28/30 | OCT 13/14 | 26/27 | NOV 24/27 | DEC 10/11 | winter average (1976-1982) | winter (maximum) |
|--------------------------------|---------------|--------------|-----------------|---------------|-------|--------------|--------|--------------|--------------|----------------------------------|---------------------|
| <i>Haematopus ostralegus</i> | - | 13 | 1 | 10 | 15 | 18 | - | - | - | 20 | 50 |
| <i>Charadrius hiaticula</i> | 21 | 602 | 1715 | 320 | 615 | 650 | 170 | 110 | 100 | 530 | 1536 |
| <i>Charadrius dubius</i> | - | - | 2 | - | - | - | - | - | - | - | - |
| <i>Charadrius alexandrinus</i> | 62 | 428 | 120 | 200 | 30 | 60 | 100 | 100 | 100 | 200 | 650 |
| <i>Pluvialis squatarola</i> | 20 | 780 | 5660 | 8375 | 6560 | 5330 | 2680 | 5680 | 2100 | 4200 | 8900 |
| <i>Eudromias morinellus</i> | - | - | 5 | - | - | - | - | - | - | - | - |
| <i>Arenaria interpres</i> | 3 | 13 | 20 | 100 | 9 | 15 | - | - | 3 | 11 | 15 |
| <i>Numenius arquata</i> | 93 | 25 | 60 | 300 | 400 | 260 | 300 | 200 | 100 | 500 | 1100 |
| <i>Numenius phaeopus</i> | 345 | 264 | 71 | 100 | - | 2 | - | - | - | - | - |
| <i>Limosa limosa</i> | 2350 | 1700 | 2200 | 2225 | 3020 | 2500 | 500 | 2550 | 500 | 5430 | 12 195 |
| <i>Limosa lapponica</i> | 103 | 580 | 700 | 2500 | 2000 | 1680 | 1405 | 1400 | 550 | 1580 | 3100 |
| <i>Tringa ochropus</i> | 1 | - | - | - | 3 | 3 | - | 1 | - | 6 | 11 |
| <i>Tringa glareola</i> | 1 | - | 1 | - | - | - | - | - | - | - | - |
| <i>Tringa totanus</i> | 5185 | 2150 | 1020 | 750 | 1780 | 501 | 761 | 1050 | 800 | 1950 | 2620 |
| <i>Tringa erythropus</i> | 14 | 5 | 3 | 1 | 3 | 2 | 5 | - | - | 17 | 66 |
| <i>Tringa nebularia</i> | 2 | 1 | 11 | 1 | 5 | - | - | - | - | 12 | 28 |
| <i>Actitis hypoleucos</i> | 31 | 23 | 50 | - | 5 | 2 | - | 4 | - | 20+ | - |
| <i>Calidris canutus</i> | 20 | - | 200 | 350 | 1405 | 550 | 100 | 60 | - | 230 | 625 |
| <i>Calidris minuta</i> | - | - | 50 | 100 | 45 | 10 | - | - | 20 | 23 | 70 |
| <i>Calidris alpina</i> | 2020 | 1375 | 800 | 2080 | 4260 | 6480 | 13 070 | 20 680 | 18 500 | 25 200 | 34 400 |
| <i>Calidris ferruginea</i> | 930 | 711 | 100 | 15 | 43* | 10 | - | - | - | - | - |
| <i>Philomachus pugnax</i> | - | 10 | 4 | 26 | 3 | 8 | 1 | 2 | - | 23 | 80 |
| <i>Recurvirostra avosetta</i> | 300 | 1250 | 720 | 2000 | 2000 | 1300 | 3850 | 5395 | 5000 | 9600 | 17 600 |
| <i>Himantopus himantopus</i> | 320 | 4 | 1 | - | - | - | - | - | - | - | - |

* this count was probably an underestimate

RESULTS AND DISCUSSION

The numbers of waders

The counts were carried out on spring tides and the area surveyed is shown in Figure 1. This area was chosen because it contains, at all times, most of the wader populations.

Table 1 gives the numbers of waders counted during autumn and winter. Overall, numbers in autumn were much lower than the average winter numbers. This implies that the estuary may be relatively unimportant during the autumn, and/or that there is a regular flow of migrants, as occurs in NW Africa (Pienkowski & Knight 1977, Kersten & Smit 1983), and elsewhere at migration times (e.g. Moser & Carrier 1984). If the latter is the case, larger numbers of waders will have actually used the area as a stop-over on migration than are present at any one time. The fluctuations in numbers during autumn (Table 1) suggest that some turnover did occur. Adding up only increases in successive counts suggest that at least 10 000 Bar-tailed Godwits *Limosa lapponica* used the area in autumn and winter, and that the total numbers of waders passing through was over 150 000 birds. We hope to make further studies to determine more accurately the numbers of birds involved, and their migration patterns.

There are some particular points to make about Table 1. The early (late July) peak in the number of Redshanks *Tringa totanus* was unexpected: other species reached their highest numbers later in autumn. The high numbers of Black-tailed Godwits *Limosa limosa* in early autumn were mostly the summering population, composed mainly by immatures. Both Kentish Plovers *Charadrius hiaticula* and Black-winged Stilts *Himantopus himantopus* breed in the area, but the former also overwinters on the Tejo whilst the latter leaves in early August, presumably to overwinter further south.

Roosts

Several roost sites were used, but their use was rather unpredictable. However some factors affecting the use of sites could be determined. These were:

- a) The height of the tide. Up to a certain level, the birds tended to concentrate in small areas in the salt-marsh. On higher

tides the birds dispersed from the salt-marsh and roosted on fields and salines nearby.

- b) Disturbance. People and cattle on the estuary, and in the fields nearby, sometimes disturbed roosting birds.
- c) Salt extraction. Birds were disturbed from salines both by the work of salt extraction itself, and by changes in the water level of the brine pools making them too deep for use by roosting waders.

The use of the roosts by the different species was also fairly irregular. There was one exception: the Avocet *Recurvirostra avosetta* always tended to roost in the water close to the salt-marsh.

ACKNOWLEDGEMENTS

I must thank all my colleagues who co-operated in the counts, particularly R.S. Guedes and A. Araujo. The latter also made very useful comments in earlier drafts of this note.

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REQUEST FOR INFORMATION

Colour-ringed Cormorants

Cormorants *Phalacrocorax carbo* very often form a conspicuous part of the fauna of estuaries. The birds of the tree-breeding subspecies *sinensis* which breed in NW Europe in the low countries bordering the North Sea and Baltic migrate outside the breeding season (Sept-March) to Mediterranean wintering sites. During the last few years much effort has been made to colour-ring a good number of birds. The birds have been ringed as nearly full-grown juveniles on their nests in various Danish, Dutch and Swedish colonies from 1977 onwards.



To help increase the number of sightings, we ask anyone visiting NW European and/or Mediterranean wader sites to look for these birds. Each marked bird has been given two rings, one leg bearing the colour ring, the other bearing the metal ring. Colours used include yellow, white, red, blue, green and black. Rings are inscribed with two letters, one letter and two digits, or up to three digits.

Any sightings of such birds should be sent to:

Jens Gregersen, Naturreservatet Vorso, Sovind, 8700 Horsens, Denmark or Mennobart van Eerden, RIJP, PO Box 600, 8200 AP Lelystad, Netherlands.