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.

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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.