

Numbers, main localities and distribution maps of waders wintering in Spain.

T. Velasco & L.J. Alberto

Numbers, main localities and distribution maps of waders wintering in Spain. *Wader Study Group Bull.* 70: 33-41.

T. Velasco & L.J. Alberto, Departamento de Fisiología y Biología Animal, Facultad de Biología, E-41071 Sevilla, Spain.

INTRODUCTION

Data on wintering wader counts in Spain exist from 1973 (Araujo & García-Rúa 1974). Between 1978 (Alberto & Purroy 1981) and 1985 (Alberto & Velasco 1986, 1988), the Spanish Society of Ornithology (SEO) have organised in Spain an annual winter count of waders. At the same time, from the middle of the 1960s to the present, more and more people in this country have taken an interest in these birds, resulting in much regional and local winter data which are additional to those of the SEO. With all these data there is now quite accurate knowledge of the numbers, distribution and main localities of coastal wintering waders in Spain.

Although some partial data on wintering waders in Spain has been published in English from English sources (Martínez-Vilalta 1985; Domínguez 1990), most has been published in Spanish from Spanish ones, and therefore access to it may present some difficulty outside this country. Thus we consider it of interest to publish here the most outstanding features about waders wintering in Spain up to 1991, including distribution maps which are published for the first time.

METHODS

For this work we have taken into account whatever data is available on the presence of wader species between 1 December and 31 January. However, migration of some species has been detected in the first half of December (Avocet *Recurvirostra avosetta*, Grey Plover *Pluvialis squatarola*, Spotted Redshank *Tringa erythropus*) and in the second half of January (Little Stint *Calidris minuta*, Black-tailed Godwit *Limosa limosa*), which could, in sporadic counts (Bijlsma *et al.* 1985), result in a higher number than that estimated for these species. For the figures estimated for average winters

(Table 1 and 2), we have taken into account mainly the data of the eight winter national counts of the SEO (1978-1985), of which we were the co-ordinators, and thus are familiar with the shortcomings and coverage of these surveys. Data for other winter partial counts between 1972 and 1991 were also included. All these were ground counts except those of the Guadalquivir Marshes that came from aerial counts.

Each main national locality (Table 2, Figure 1) has been

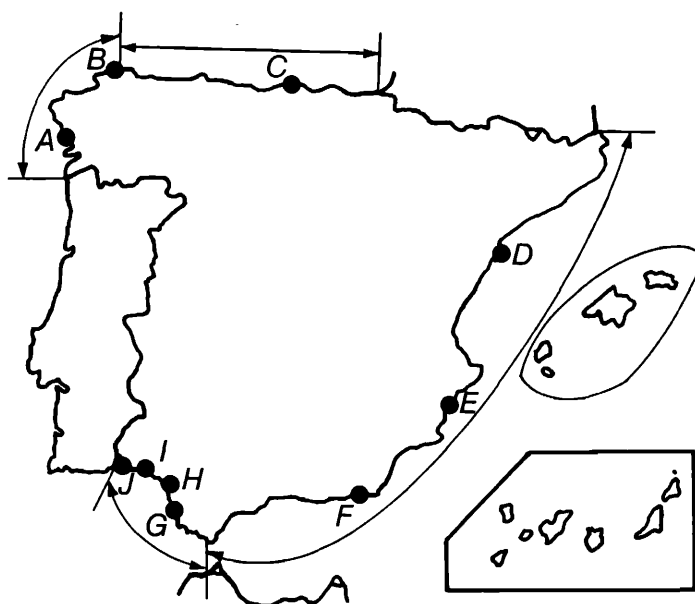


Figure 1. Extent of each area (tabulated in Table 1) and the location of the main localities of national importance (Table 2). A - Arosa Estuary; B - Ortigueira Estuary; C - Santona Marshes; D - Ebro Delta; E - Santa Pola salt-pans; F - Gulf of Almeria; G - Cadiz Bay; H - Guadalquivir Marshes; I - Huelva Marshes; and J - Isla Cristina-Ayamonte.



Table 1. Total numbers of waders for each area (extent of areas shown in Figure 1), and total numbers for Spain.
s = sporadic; + = less than 50; ++ = less than 100.

	ATLANTIC GALICIA	CANTABRIAN	MEDITERRANEAN	BALEARIC ISLANDS	WESTERN ANDALUCIA	CANARY ISLANDS	INLAND	TOTAL SPAIN
Haematopus ostralegus	900	50	+	s	800	s	--	1,800
Himantopus himantopus	--	--	50	s	1,350	--	+	1,400
Recurvirostra avosetta	+	+	1,200	s	6,000	s	+	7,200
Charadrius dubius	50	s	+	s	+	50	+	100
Charadrius hiaticula	300	250	200	+	3,700	200	s	4,700
Charadrius alexandrinus	50	s	500	200	5,200	400	100	6,500
Pluvialis squatarola	1,750	400	700	+	3,250	300	s	6,400
Calidris canutus	150	+	+	s	100	s	s	300
Calidris alba	100	+	500	+	1,000	300	s	2,000
Calidris minuta	s	+	1,000	100	200	+	250	1,600
Calidris ferruginea	--	s	s	--	+	s	--	++
Calidris maritima	50	50	+	--	+	--	--	100
Calidris alpina	6,300	1,300	9,000	50	13,000	200	100	30,000
Philomachus pugnax	s	s	100	s	1,100	+	150	1,400
Limosa limosa	250	s	2,850	s	16,000	50	1,500	20,700
Limosa lapponica	400	150	100	s	1,100	50	s	1,800
Numenius phaeopus	100	+	+	s	+	100	s	300
Numenius arquata	1,350	1,000	200	+	1,100	s	100	3,800
Tringa erythropus	50	s	50	+	150	--	+	300
Tringa totanus	500	50	1,100	150	3,600	100	100	5,600
Tringa nebularia	50	+	+	s	250	+	50	400
Arenaria interpres	150	+	50	s	300	300	--	800
TOTALS	12,500	3,250	17,600	500	58,200	2,050	2,350	97,200
% over Total of Spain	12,9	3,3	18,1	0,5	59,9	2,1	2,4	100

selected on the grounds of the number of wintering waders there, as a proportion of the Spanish total, and its geographical situation. The points on the distribution maps represent localities

where the species have been found in the wintering counts, or registered between 1 December - 31 January in any other published work up to 1991*. Other localities come from unpublished data and personal communi-

Table 2. Total numbers of waders, and percentage for the whole of Spain, of the localities of national importance (locations indicated in Figure 1). s = sporadic; + = less than 50; ++ = less than 100.

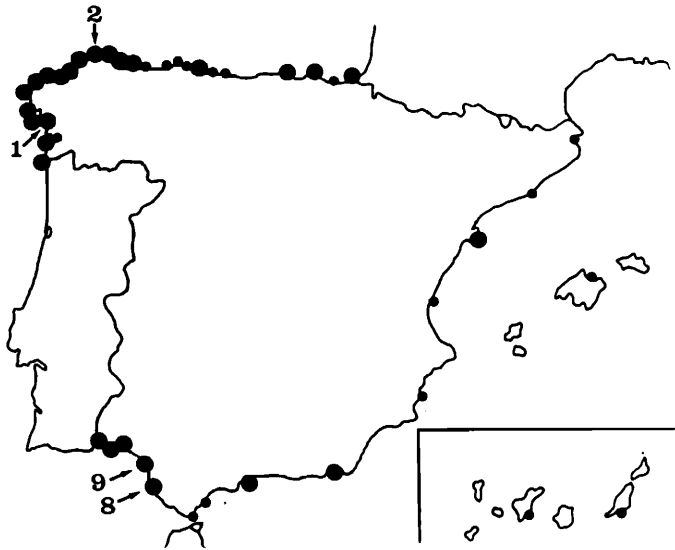
	AROSA ESTUARY	ORTIGUEIRA ESTUARY	SANTOÑA MARSHES	EBRO DELTA	SANTA POLA SALT-PANS	GULF OF ALMERIA	CADIZ BAY	GUADALQUIVIR MARSHES	HUELVA MARSHES	ISLA CRISTINA-AYAMONTE	TOTAL MAIN LOCALITIES	TOTAL SPAIN	% OVER SPAIN
Haematopus ostralegus	300	250	+	+	--	+	200	300	150	50	1,250	1,800	69
Himantopus himantopus	--	--	--	s	+	+	400	750	75	75	1,300	1,400	93
Recurvirostra avosetta	s	s	+	250	300	500	1,300	3,500	1,000	200	7,050	7,200	98
Charadrius dubius	s	s	s	s	s	s	s	+	s	--	+	100	--
Charadrius hiaticula	150	+	50	100	+	+	2,700	400	300	200	3,900	4,700	83
Charadrius alexandrinus	+	+	--	100	75	25	4,000	600	200	150	5,150	6,500	79
Pluvialis squatarola	1,200	200	100	575	+	25	1,700	800	500	200	5,300	6,400	83
Calidris canutus	25	+	s	s	--	s	25	+	+	+	50	300	17
Calidris alba	+	+	s	50	+	+	200	200	250	50	750	2,000	38
Calidris minuta	s	--	s	800	50	100	100	+	50	+	1,100	1,600	69
Calidris ferruginea	--	--	--	--	s	--	25	+	--	--	25	++	--
Calidris maritima	--	--	--	--	--	--	25	--	s	--	25	100	25
Calidris alpina	4,500	800	375	8,000	150	175	9,000	2,000	1,300	400	26,700	30,000	89
Philomachus pugnax	--	s	--	75	--	s	1,000	+	+	+	1,075	1,400	77
Limosa limosa	150	s	s	2,100	375	250	2,500	11,000	1,300	200	17,875	20,700	86
Limosa lapponica	300	25	75	25	+	+	300	100	600	s	1,425	1,800	79
Numenius phaeopus	+	+	s	+	s	s	25	+	+	+	25	300	8
Numenius arquata	300	400	300	75	s	+	500	100	300	50	2,025	3,800	53
Tringa erythropus	s	s	--	25	s	+	+	100	+	--	125	300	42
Tringa totanus	475	+	+	650	25	150	1,500	500	1,300	200	4,800	5,600	86
Tringa nebularia	25	+	s	+	--	+	50	150	+	--	225	400	56
Arenaria interpres	100	--	s	+	+	s	200	s	25	+	325	800	41
TOTAL	7,525	1,675	900	12,825	975	1,225	24,750	21,500	7,350	1,775	80,500	97,200	
% over total Spain.	7,7	1,7	0,9	13,2	1,0	1,3	25,5	22,1	7,6	1,8	83,0		

*As the number of these works amounts to nearly 300, to list them in a note like this would mean that the references would occupy much more space than the text! This reference list is available on request from the senior author.

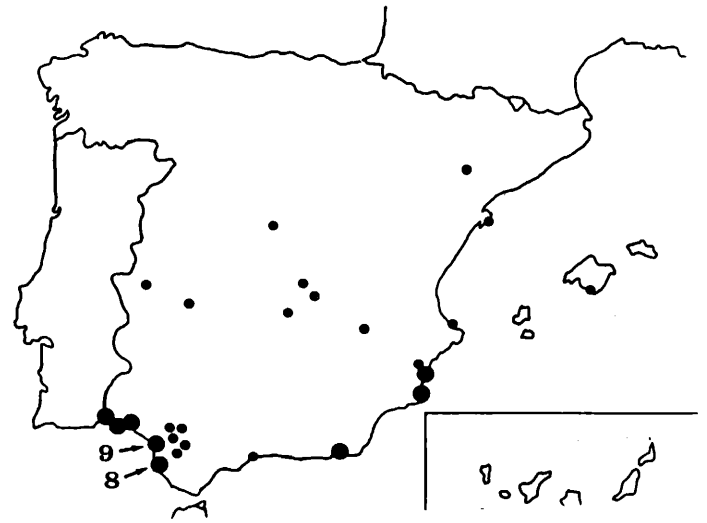
List of the numbered localities in the species distribution maps overleaf:

- 1 Arosa Estuary, 2 Ortigueira Estuary, 3 Aviles Estuary,
- 4 Penas Cape, 5 Gijon Bay, 6 San Sebastian, 7 Ebro Delta,
- 8 Cadiz Bay, 9 Guadalquivir Marshes, 10 Huelva Marshes,
- 11 Gran Canaria Island, 12 Fuerteventura Island.

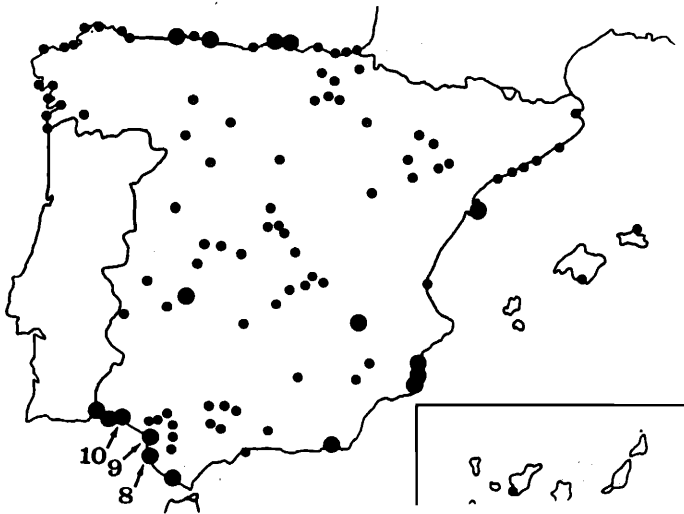




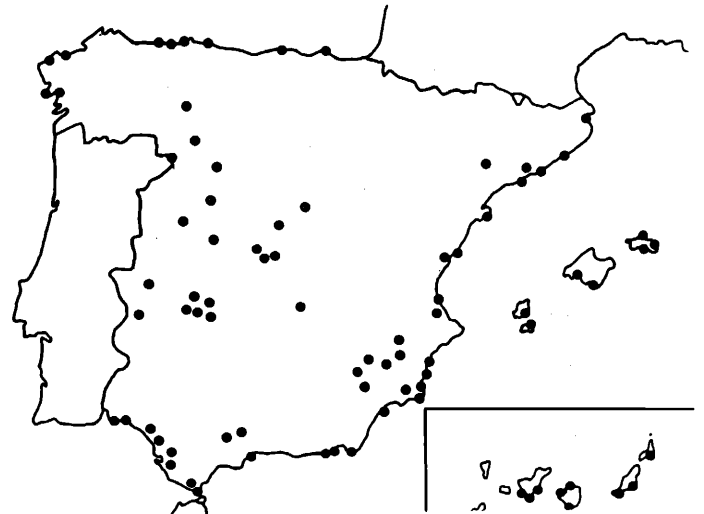
Oystercatcher *Haematopus ostralegus*



Black-winged Stilt *Himantopus himantopus*



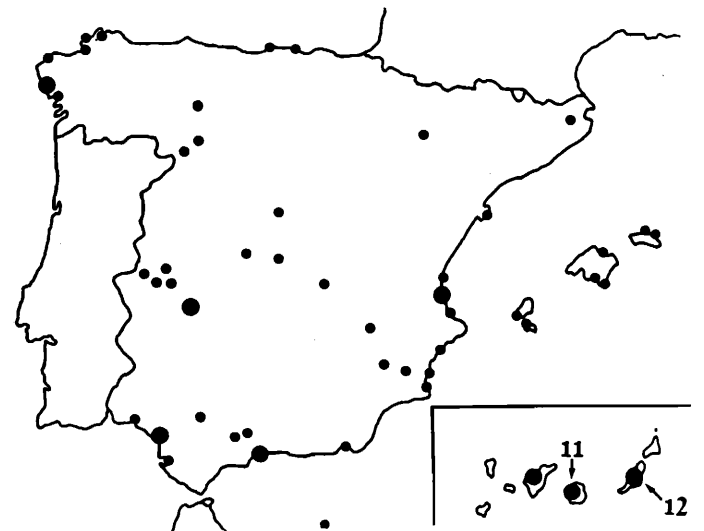
Avocet *Recurvirostra avosetta*



*Stone Curlew *Burhinus oedichnemus*

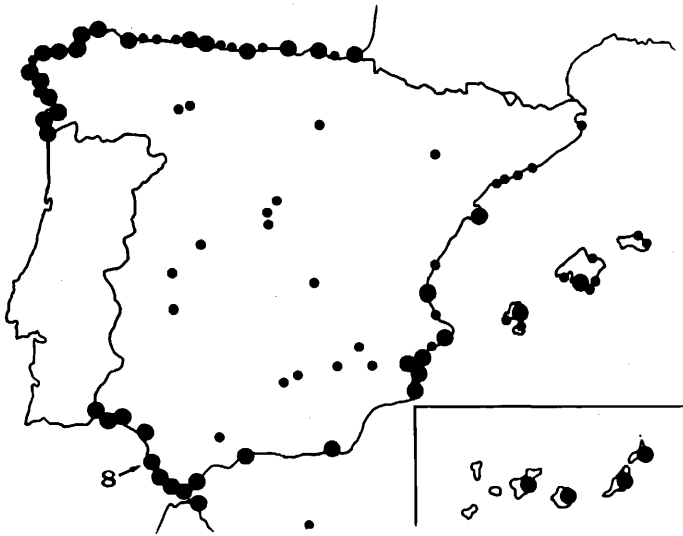


*Cream-coloured Courser *Cursorius cursor* (A); *Pratincole *Glareola pratincola* (B); *Dotterel *Charadrius morinellus* (C); *Sociable Plover *Chettusa gregaria* (D)

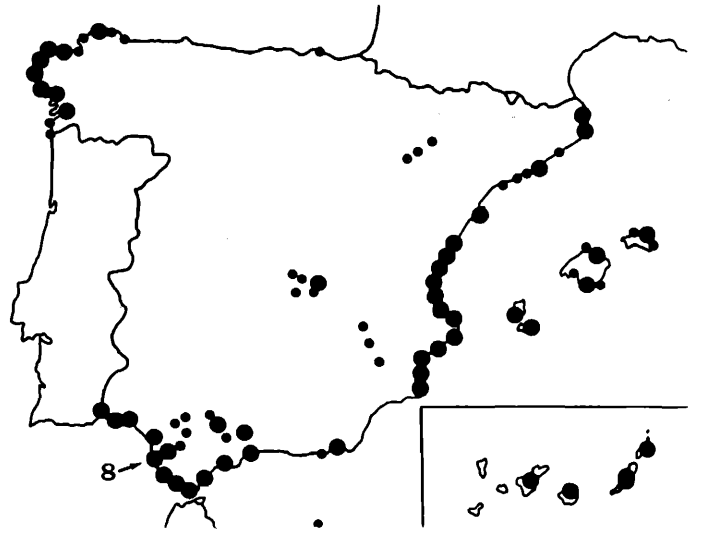


Little Ringed Plover *Charadrius dubius*

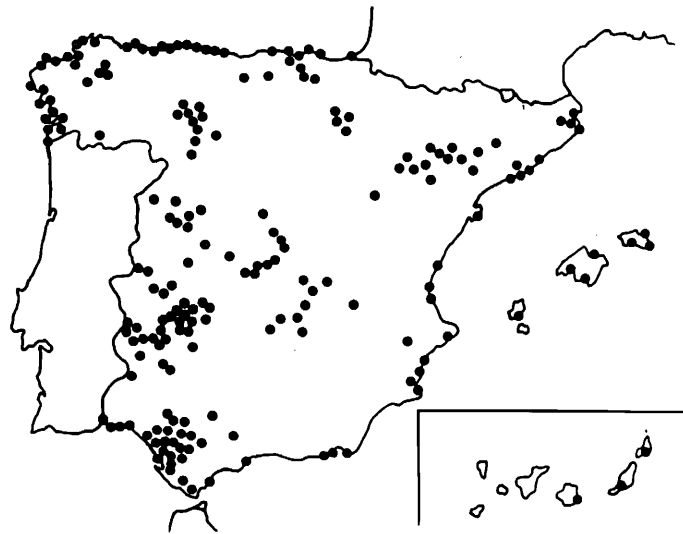




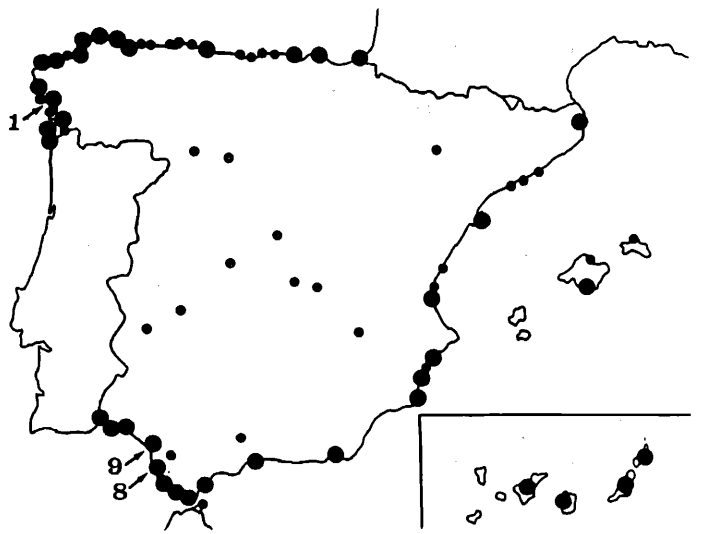
Ringed Plover *Charadrius hiaticula*



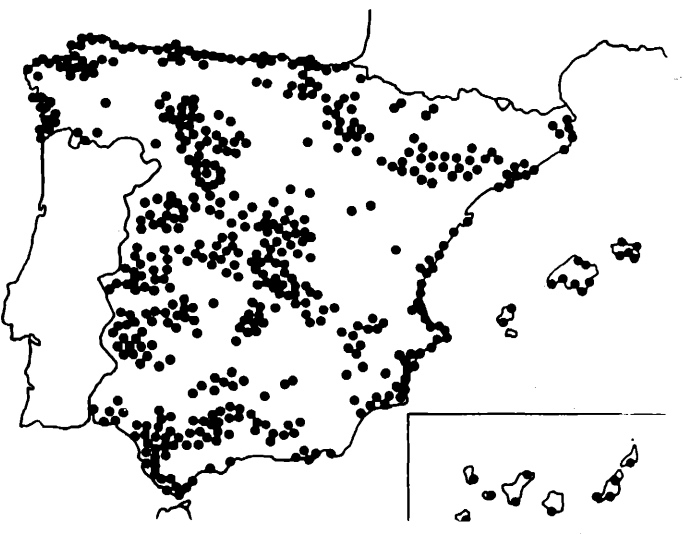
Kentish Plover *Charadrius alexandrinus*



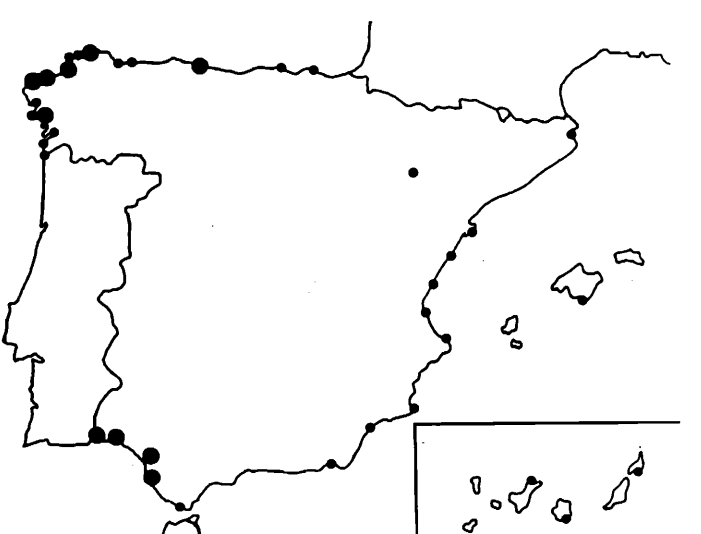
*Golden Plover *Pluvialis apricaria*



Grey Plover *Pluvialis squatarola*

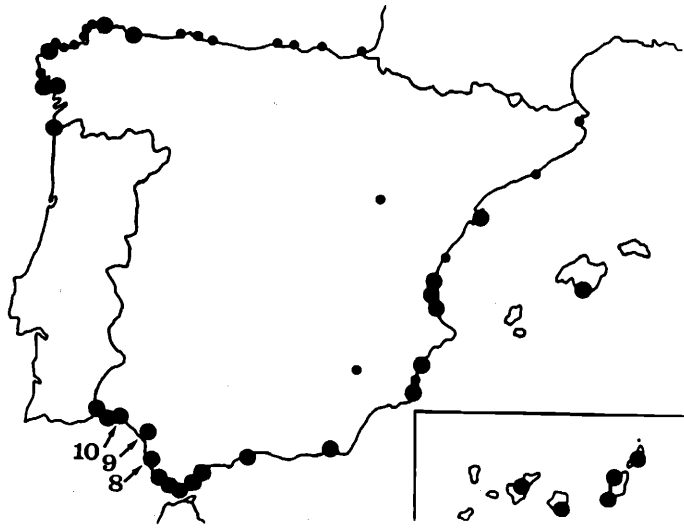


*Lapwing *Vanellus vanellus*

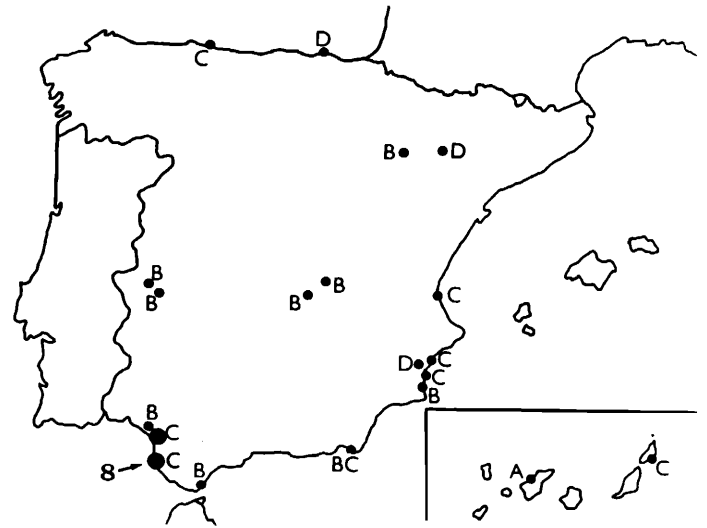


Knot *Calidris canutus*

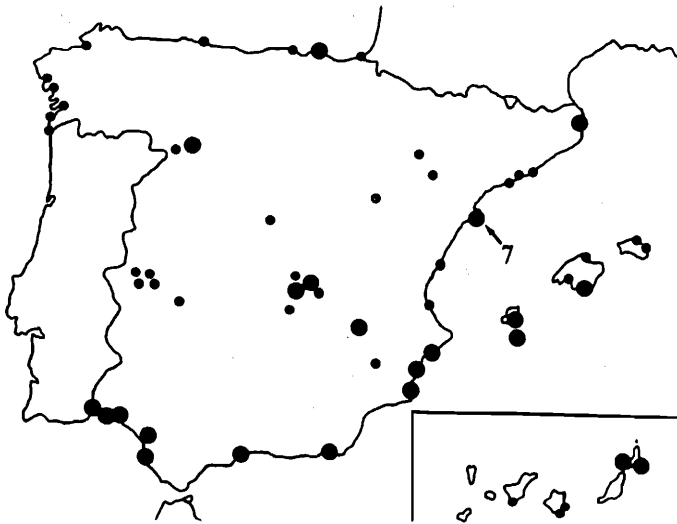




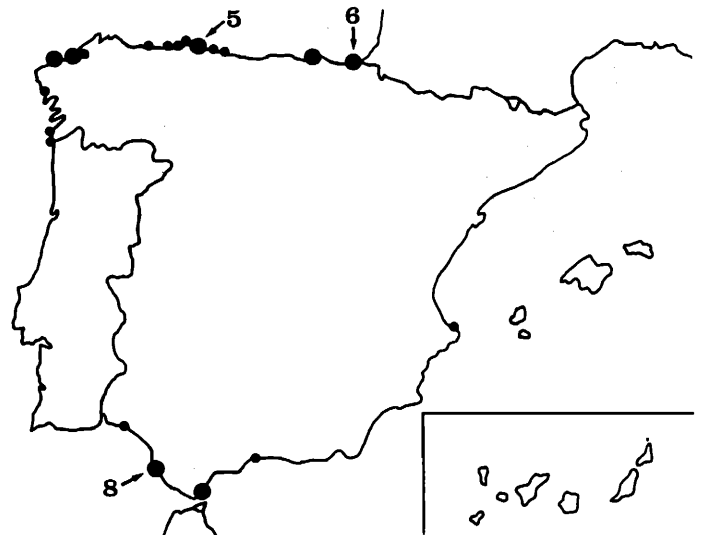
Sanderling *Calidris alba*



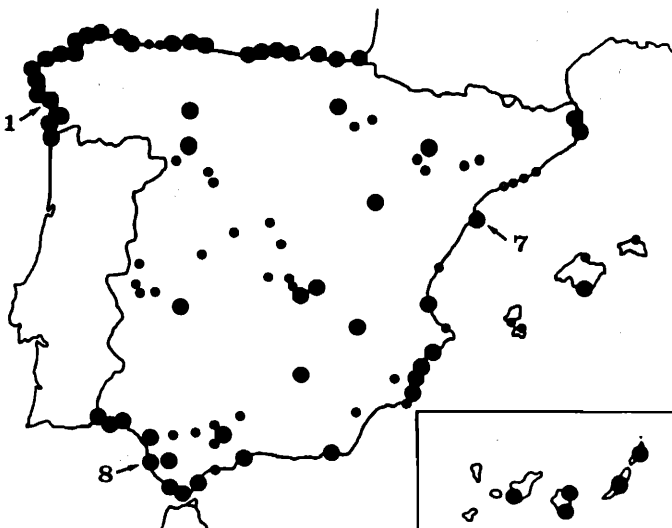
*Western Sandpiper *Calidris mauri* (A); *Temminck's Stint *Calidris temminckii* (B); Curlew Sandpiper *Calidris ferruginea* (C)
*Great Snipe *Gallinago media* (D)



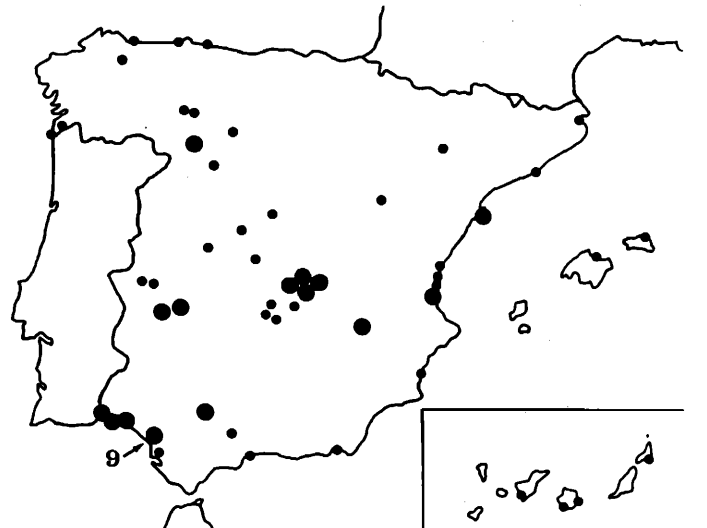
Little Stint *Calidris minuta*



Purple Sandpiper *Calidris maritima*

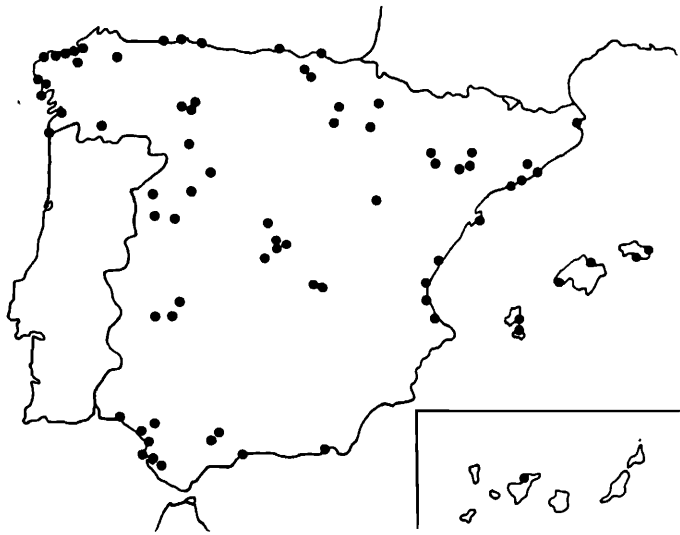


Dunlin *Calidris alpina*

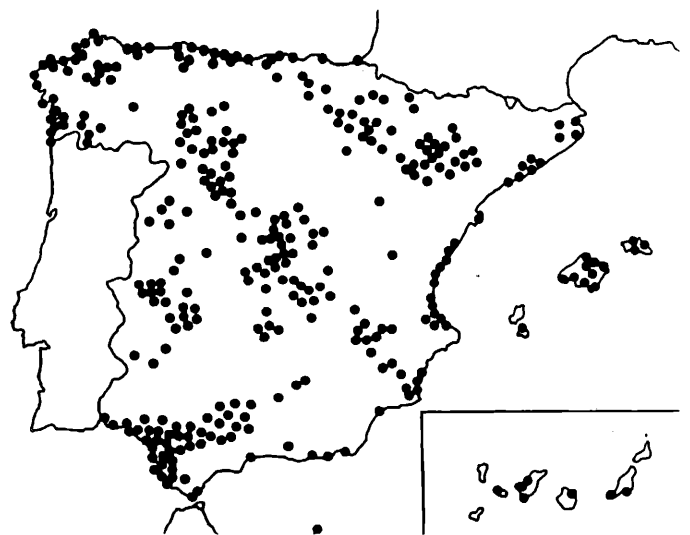


Ruff *Philomachus pugnax*

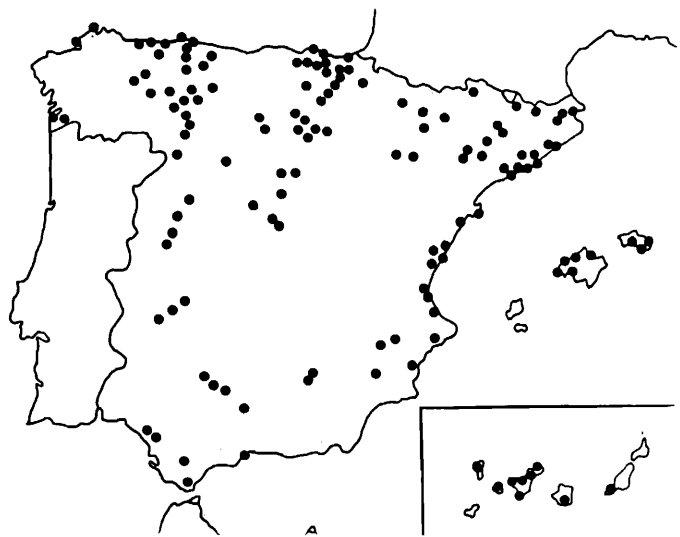




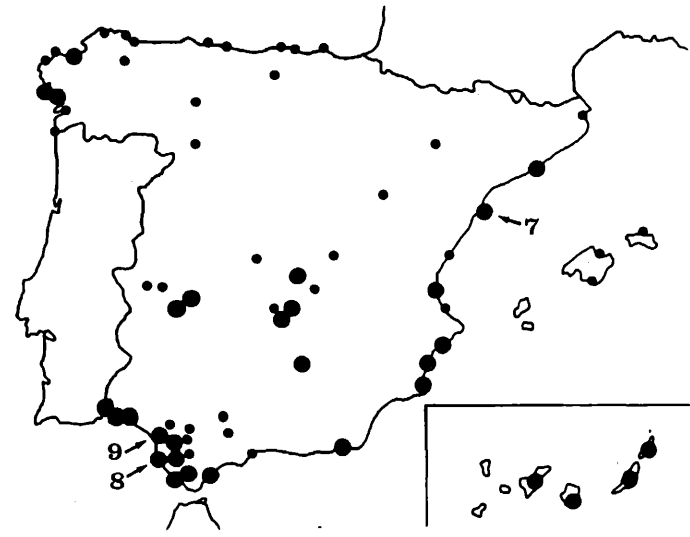
*Jack Snipe *Lymnocyptes minimus*



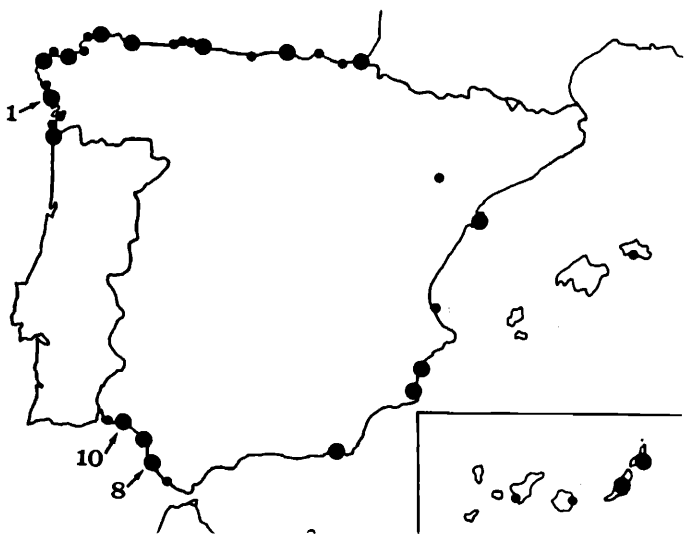
*Snipe *Gallinago gallinago*



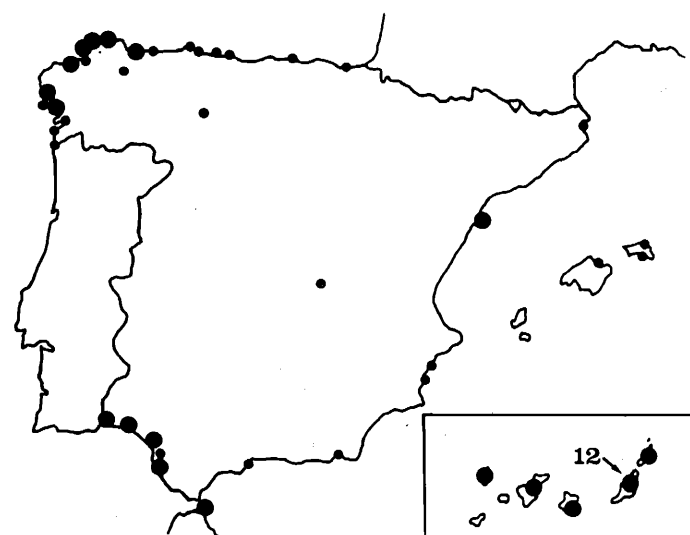
*Woodcock *Scolopax rusticolus*



Black-tailed Godwit *Limosa limosa*

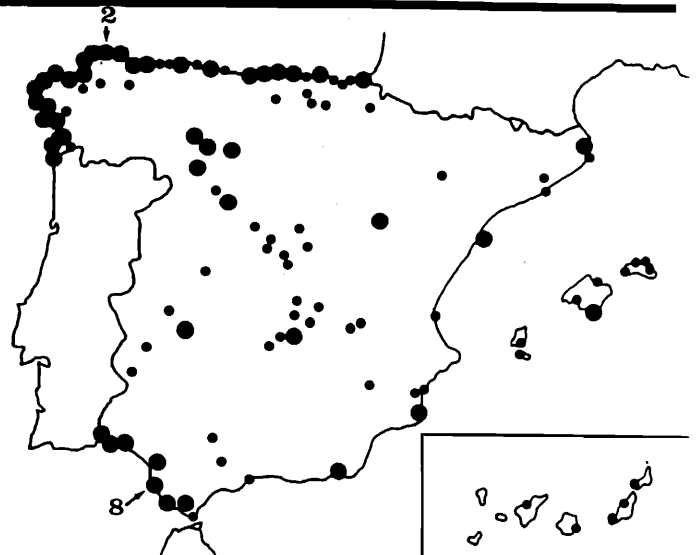
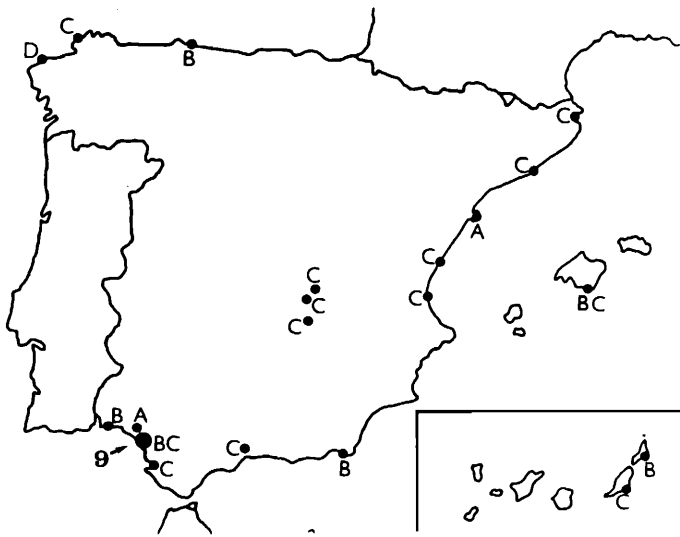


Bar-tailed Godwit *Limosa lapponica*



Whimbrel *Numenius phaeopus*



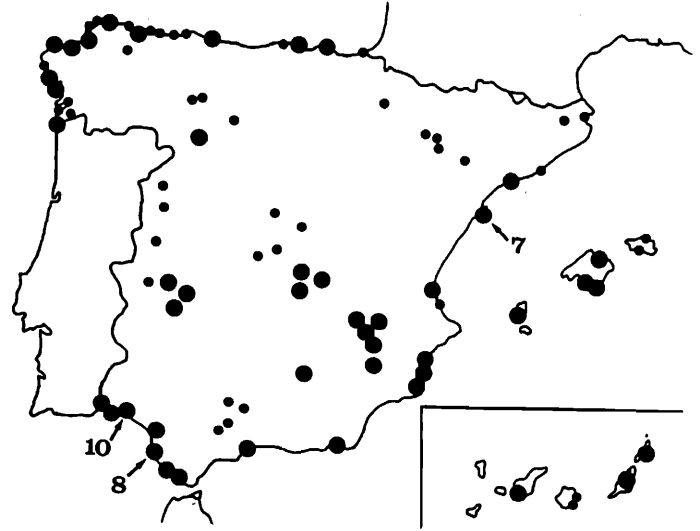


*Slender-billed Curlew *Numenius tenuirostris* (A); Marsh Sandpiper *Tringa stagnatilis* (B); Wood Sandpiper *Tringa glareola* (C); *Spotted Sandpiper *Actitis macularia* (D)

Curlew *Numenius arquata*



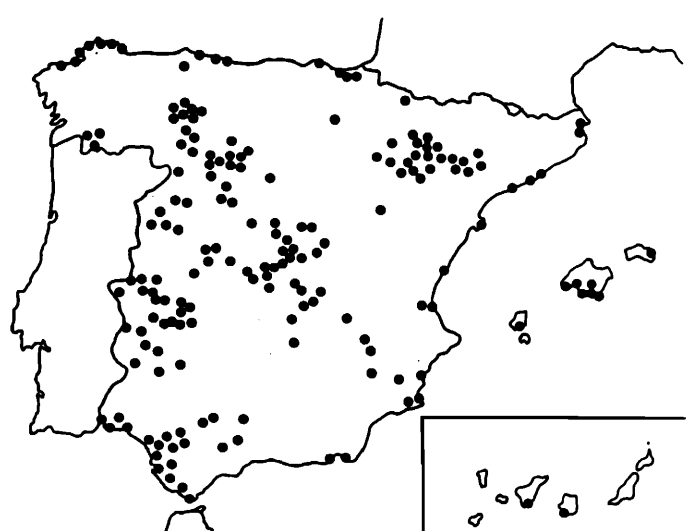
Spotted Redshank *Tringa erythropus*



Redshank *Tringa totanus*

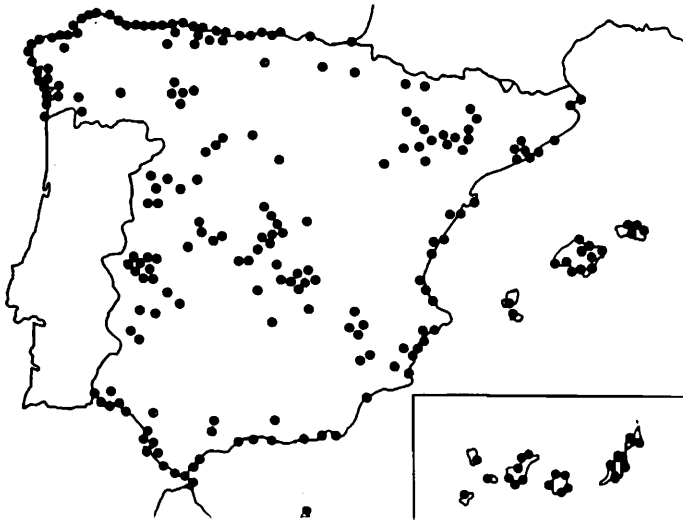


Greenshank *Tringa nebularia*

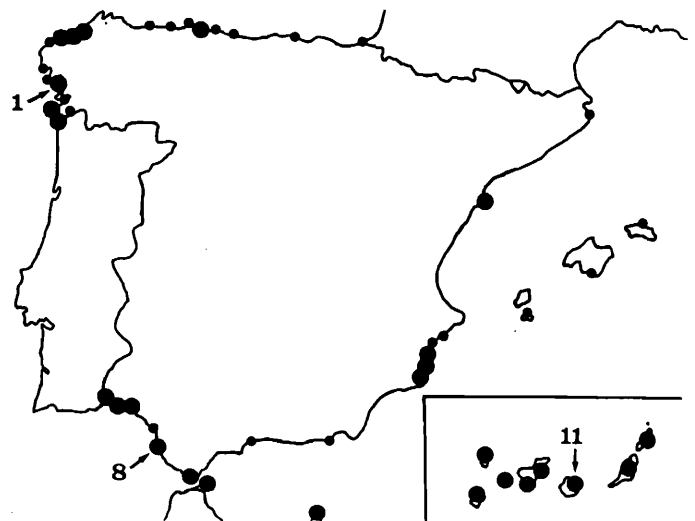


*Green Sandpiper *Tringa ochropus*



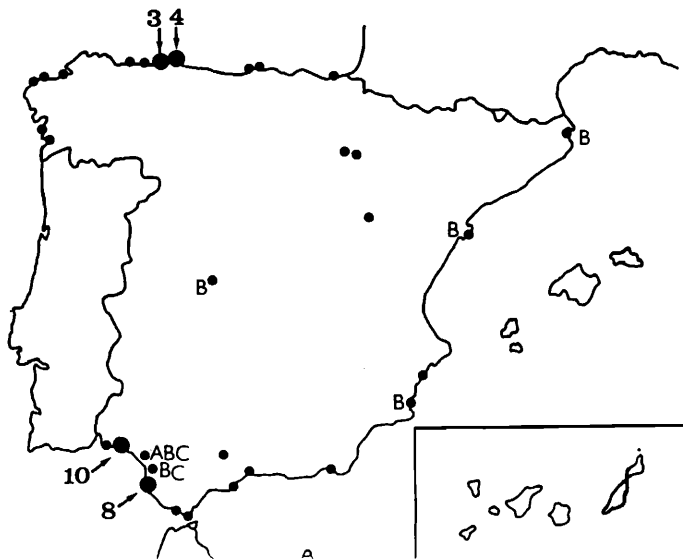


*Common Sandpiper *Actitis hypoleucos*



Turnstone *Arenaria interpres*

localities of the species with no estimated number (those with a star on the map).



*Wilson's Phalarope *Phalaropus tricolor* (A); *Red-necked Phalarope *Phalaropus lobatus* (B); Grey Phalarope *Phalaropus fulicarius* (C or unlettered)

cations. We also show maps of rare and accidental wader species found between those dates. Three types of locality with different degrees of importance are indicated on the maps :

big dots with a numbered arrow are those localities with at least 10% of the Spanish wintering population; big dots without an arrow are those where the species regularly winters but with less than 10% of the total population of Spain; and little dots are those localities with less than 10%, but either the species was found less than half the number of times the locality was counted, or the locality was not counted regularly. This latter size dot has also been employed for all the

RESULTS

Comments on each species have been made elsewhere (Alberto & Purroy 1981, 1983), but in short, although the total number of waders wintering in Spain is only nearly the 3% over those wintering in Western Europe (Prater 1976; Smit in press, 1986; Smit & Piersma 1989) for some species this proportion is far more greater, namely more than 75% of Black-winged Stilt *Himantopus himantopus*, Little Ringed Plover *Charadrius dubius*, Kentish Plover *Charadrius alexandrinus* and Whimbrel *Numerius phaeopus*; between 50% and 75% of Little Stint and Ruff *Philomachus pugnax*; and between 25% and 50% of Black-tailed Godwit, Spotted Redshank and Greenshank *Tringa nebularia*.

Other aspects on the wintering of waders in Spain are that more than 80% of the birds are found in only eight coastal points (Table 2, Figure 1), and that four areas in western Andalusia accounted for some 60% of waders wintering in Spain, with Cadiz Bay and the Guadalquivir Marshes as the main wader wintering points in Spain, totalling 47%.

Finally, for most of the species the distribution maps shown here extend notably the winter distribution given for them by Cramp & Simmons (1982).

ACKNOWLEDGEMENTS

We thank the more than 300 skilled volunteers who made wintering counts between 1978 and 1985, and all



made wintering counts between 1978 and 1985, and all who have unselfishly made their data available to the authors; the SEO for permitting consultation of census data; the Doñana Biological Station for the aerial counts of the Guadalquivir Marshes; and A.J. Domínguez, M. Máñez and A. Martínez-Vilalta for their comments on the estimated numbers of Ortigueira and Arosa estuaries, Guadalquivir Marshes and Ebro Delta respectively.

REFERENCES

- Alberto, L.J., & Purroy, F.J. 1981. Censos de Limícolas invernantes en España, 1978, 79 y 80, realizados por la Sociedad Española de Ornitología. *Ardeola* 28: 3-33.
- Alberto, L.J., & Purroy, F.J. 1983. Datos del censo invernal de Limícolas de 1981 y 1982 en España. *Ardeola* 30: 93-100.
- Alberto, L.J., & Velasco, T. 1986. Censo nacional de Limícolas. Resultados de enero de 1985. *La Garcilla* 66: 29-32.
- Alberto, L.J., & Velasco, T. 1988. Limícolas invernantes en España. In: *Invernada de aves en la Península Ibérica*, (J.L. Tellería, ed.): 71-78. Monografías de la SEO, no. 1 Madrid. 208p.
- Araujo, J., & García-Rúa, A.E. 1974. El censo español de Limícolas de Enero de 1973. *Ardeola* 20: 151-159.
- Bijlsma, R.G., Meininger, P.L., Rekers, M., de Roder, F.E., Schulting, R., & Vogel, R. 1985. Wader counts in the Tejo estuary near Lisbon and in the salinas of South Portugal. *Wader Study Group Bull.* 43: 23-24.
- Cramp, S., & Simmon, K.E.L. (eds.) 1982. *The Birds of the Western Palearctic*, vol. 3. Oxford. 913 p.
- Domínguez, J. 1990. Distribution of estuarine waders wintering in the Iberian Peninsula in 1978-1982. *Wader Study Group Bull.* 59: 25-28.
- Martínez-Vilalta, A. 1985. Wintering waders in the Ebro Delta. *Wader Study Group Bull.* 43: 25-28.
- Prater, A.J. 1976. The distribution of coastal waders in Europe and North Africa. *Proc. Int. Conf. Cons. Wetl. Waterfowl*, Heiligenhafen, DDR, Diciembre 1974: 225-271.
- Smit, C.J. (in press). The importance of Iberian Wetlands for wintering waders. *IWRB Symp.*, La Rabida, España, 1983.
- Smit, C.J. 1986. Waders along the Mediterranean. A summary of present knowledge. *First Conference on Birds Wintering in the Mediterranean Region*: 297-317.
- Smit, C.J., & Piersma, T. 1989. Numbers, mid-winter distribution and migration of wader populations using the East Atlantic flyway. In: *Flyways and Reserve Networks for Waterbirds* (H. Boyd and J-Y. Pirot, eds.), 24-63. *IWRB Special Pub.* no. 9.

