

NEST-SITE SELECTION OF THE COLLARED PRATINCOLE *GLAREOLA PRATINCOLA* IN THE PROVINCE OF SEVILLA, SPAIN

B.Calvo & L.J.Alberto

INTRODUCTION

In most aspects the Collared Pratincole *Glareola pratincola* is a little known species; not even population sizes are accurately known. The biggest population in Europe occurs in Spain, and was estimated at 10 000-15 000 pairs (Cramp and Simmons 1983), although there have been only partial counts (Martinez Vilalta 1985). On the other hand, it is widely recognized that there has been a decrease in numbers in recent years, mainly because of habitat loss (Otero 1980, Cramp and Simmons 1983, Martinez Vilalta 1985, Fernandez Cruz 1985). The Collared Pratincole is thus considered as a "vulnerable" species in the IUCN Red Data Book.

Most Collared Pratincoles in the Iberian Peninsula occur in the south-west specifically in the Guadalquivir marshes and their surroundings (Valverde 1960, Cramp and Simmons 1983). Over 70% of this area has been turned into agricultural land (Sanchez et al. 1977), and the process is continuing in remaining areas. It seems that this habitat change has affected the Collared Pratincole population, as has happened in some other species (e.g. Galbraith 1987). For this reason, we are attempting to estimate the population size and to study habitat selection and reproductive success to establish, among other things, the main causes of the population decrease, and to devise necessary measures to protect this species.

This paper analyses the establishment of colonies in relation to biotopes, and estimates the population in the province of Sevilla, where rather little has been published on the biology of Collared Pratincole (Feeny 1960, Nisbet 1960, GEA 1985).

LOCATION AND METHODS

The province of Sevilla was selected because many colonies occur there. The area of the Donana National Park (about 20% of the province) in Sevilla, was excluded (Figure 1). The remaining open areas of the province (c. 730 000 ha) were explored. Previously we carried out a study of wetlands loss in the province since 1918 that was of great help in locating farmlands which had previously been wetland, and which were often occupied by breeding colonies in 1989.

Colonies were located by driving through the open fields. Lowlands and farmland near water such as channels, streams, lagoons and temporary pools, were searched intensively. Colonies were counted during May and the first half of June 1989, this being the best period to estimate the number of birds present; prior to this period there is some nomadism of individuals and, after this period, there are juveniles that can be counted as adults.

The characteristics of the biotope where each colony was found were recorded and assigned to one of three types:

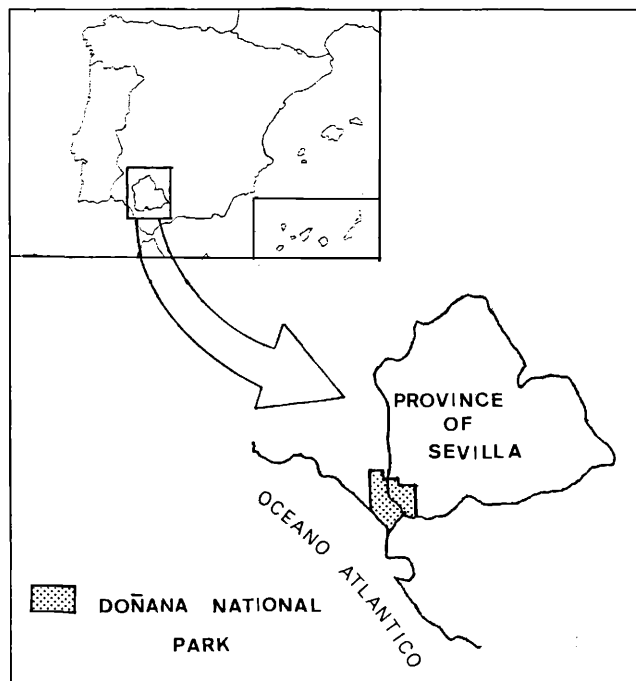


Figure 1. The location of the study area in south-western Spain.

A) Marshes

Areas having the typical marsh characteristics, including some places with minor human influence. In most cases these marshes are remains of previously much more extensive marshes that had been partially drained for agriculture.

B) Fallow lands

Fields devoted to crops but not seeded, or seeded fields in which, at the time of the establishment of the colony, plants could not yet be seen.

C) Crops

Cultivated fields in which, at the time of colony establishment, plants were present, normally with a height of c. 10 cm.

The following difficulties were encountered when counting in the breeding colonies:

- 1) Counting from outside the colony underestimated the true number of individuals because birds could not be seen on the ground. It was necessary to enter the colony in order to flush birds.
- 2) In big colonies, only birds close to the intruder took off. It was necessary to have a second person to compare these counts with counts made from outside the colony.
- 3) At certain times of the day and with certain atmospheric conditions, some individuals foraged away from the colony. Such counts underestimated the real number.

Table 1. Distribution of colonies and birds in the three habitats described.

	Marshes	Fallows	Crops	Total
No of Colonies	22	30	6	58
%	37.9	51.7	10.4	
No of birds	1 550	1 912	229	3 691
%	42.0	51.8	6.2	
Mean Birds/Colony	70.5	63.7	38.2	
S	53.5	72.3	13.9	
C	75.9	113.4	36.4	

For these reasons, the counts were carried out at carefully selected times by two counters, with one of them walking through the colony.

RESULTS AND DISCUSSION

Although the results refer to breeding colonies, the numbers of individuals, not of pairs, are given. It is not known whether polygamy occurs and/or whether immature birds occur there.

The distribution of colonies over the three habitats, indicates a strong preference for fallow lands and marshes. Colonies were scarce in fields (Table 1). The average number of birds per colony in the three biotopes shows differences, but they are not statistically significant.

Although we do not have detailed data, the area of fallow land (type B) in the study area was more than 20 times greater than that of the marshes. Therefore, in comparison with the area available, it is clear that the Collared Pratincole does not have a preference for fallow. We suggest that fallow land is used as an alternative to marshes, since almost all the remaining marshes over 1 ha hold Collared Pratincole colonies. In contrast, only a small percentage of the fallow lands held colonies. As regards crops, it is evident that they were very little used except in very specific conditions (below).

Collared Pratincole established their breeding colonies unequally over the fallow land and crops, according to the vegetation (Table 2). Colonies in recently seeded or hardly grown fields occurred mostly in cotton and sunflower fields, and very rarely in sorghum or chickpea fields. At this time of year, the remaining crops, such as wheat, barley or beetroot, had already achieved a height and cover which do

not allow the birds to settle there. They also avoided the early planted sunflower fields where the plants had already grown.

In the few cases when Collared Pratincoles selected a crop that had already germinated - mainly sunflowers - there were always the following conditions: plants were never more than 10 cm high and the distance between the lines of plants was at least 75 cm. These features made them similar to other nesting terrains. Perhaps for that reason, the birds sometime selected these crops, even though they would later have to either abandon the colonies altogether or move the colony when the plants grew up. In the latter case, the birds moved to the barren lands, if they existed, where there were no crops or to other open terrain where colonies could continue until the end of the breeding period.

The crops that we include as "fallow lands" are mostly cotton fields (Table 2), and they had not germinated at the time of colony establishment. Therefore, we think that to the Collared Pratincole, they appeared to be the same as uncultivated fields, indeed there is an insignificant difference between the percentages of colonies among seeded and not seeded fallow lands (Table 2).

The 83% of colonies not situated in marshes (Table 2), were established in areas that had previously been either marshes or areas situated near to them. The remaining 17% were established in various locations which were always situated close to existing wetlands or wetlands that had been drained since 1918. We conclude that the species is linked to the location of wetlands even after their disappearance. Nevertheless, it is necessary to obtain more data to know their fidelity to these locations and to understand the implications for the dynamics of the population of Collared Pratincole in Southwest Iberia.

Table 2. Number of colonies in fallow lands and in crops (see text), type of crops, and type of biotope that the current establishments showed in 1989. CT = Cotton; SF = Sunflower; SO = Sorghum; BA = Barren; CP = Chickpea. *Difference not significant, X^2 test.

	FALLOWS 30				CROPS 6		TOTAL 36
	Not Seeded 16 (53.3%)		Seeded 14 (46.7%)		SF	CP	
		CT	SF	SO	BA		
		10	1	1	2	5	1
TYPE OF BIOTOPE IN 1918							
Old marshes	14	6	1	1	1	2	1 (26 (72.2%))
Pastures near marshes	2	2					4 (11.1%)
Crops						1	1 (2.8%)
Inland wetlands		2			1	2	5 (13.9%)

In summary, Collared Pratincoles look for big flat, or slightly hilled, open areas. In these areas, they establish colonies in unvegetated areas, or where the vegetation is mostly shorter than 15 cm or, where it is higher than this, it has very little cover. Many parts of the marshes in the study area met these conditions during the time of the colony settlement. Since the area of marshes was not sufficient for the whole Collared Pratincole population, the surplus searched for other places to establish colonies. The fallow land was the major alternative, probably because they offered an open terrain. Only seldom did they establish colonies in poorly developed crops. There was also a clear tendency to place colonies in areas that are currently marshes or were so before.

As we said before, the losses of natural habitat on the marshes of Guadalquivir river have exceeded 70%. In spite of this, the population of Collared Pratincole is still the largest in Europe. We estimate that from 2 500 to 3 000 pairs bred in the province of Sevilla in 1989 without taking into account those breeding in the area of Donana National Park that belongs to this province.

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B. Calvo & L.J. Alberto, Departamento de Fisiologia y Biologia Animal, Laboratorio de Vertebrados, Facultad de Biologia, Avda. Reina Mercedes 6, E-41012 Sevilla, Spain.

POPULATION TRENDS OF SELECTED WADER SPECIES IN PORTUGAL, 1975-1989

Rui Rufino

INTRODUCTION

Wintering wader counts have been carried out in Portugal since 1975 on a relatively regular basis and always in January. For the first two years they were done by A.J. Prater and A. Grieve on behalf of the IWRB, and from 1977 onwards they were organized by CEMPA, with A. Grieve still participating in 1977.

No accurate counts are, however, available for 1985 and only one site was surveyed in 1983 and 1984.

There are four major estuarine areas on the Portuguese coast, Aveiro, Tejo, Sado and Faro (Figure 1). These were not covered every year and the degree of coverage for each site was not the same for every count. The count figures which have been published yearly in the annual winter reports by CEMPA (CEMPA 1979, 1980, 1981, Rufino 1979, 1982, 1988, 1989, Rufino & Neves 1986, Rufino & Araujo 1987) are, therefore, not always comparable.

In this paper I establish which counts are readily comparable and analyze the wader population changes based on that comparability.

For most of the species counts from 1975 were not used as this was the first time that most of the sites were visited by the observers.

The paper deals only with those species which have regular and not too small wintering populations. In general, those species with populations below 500 birds per site and per year are not further considered in this analysis. Two exceptions are made to this rule:

1. the Black-winged Stilt *Himantopus himantopus*, which winters regularly, although in small numbers; and
2. the Black-tailed Godwit *Limosa limosa* which although abundant will not be considered here because its numbers have shown very great variation throughout January.

METHODS

The comparability of counts was established based the degree of coverage of the site, the number and experience of the observers, and the weather conditions during the counts.