

# Distribution of Dotterels *Charadrius morinellus* breeding in central and southern European massifs: a review of the current knowledge

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A detailed list and an estimate of each local population is given for Dotterels breeding in central and southern Europe. The total population is estimated at 16–43 pairs, mostly concentrated in the Pyrenees (3–25 pairs), while smaller populations are located in the Alps (about 6 pairs), the Apennines (<5 pairs) and the Carpathians (<5). Dotterels inhabiting the Alps and the Apennines have been decreasing during the past twenty–five years, but the overall known population appears stable due to the finding of a new population inhabiting the French–Spanish Pyrenees.

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## INTRODUCTION

The Dotterel *Charadrius morinellus* is an arctic–alpine wader of restricted European distribution; in central and southern Europe small and isolated populations occur at only a few mountains massifs (Cramp & Simmons 1983, Hagemeyer & Blair 1997). Recent detailed data about the distribution of Dotterels breeding in these areas are scattered over many papers such as Crozier 1993, Ibañez 1990 and 1994, Gutiérrez 1997, Gutiérrez et al. 1996, Dalmau & Colas 1996 for the Pyrenees; Sackl 1993, AVK 1996, Bernasconi *et al.* 1996 for the Alps; Pellegrini 1994, Santone 1995 for the Apennines, and Klemm & Kohl 1988, Weber *et al.* 1994 for the Carpathians. Older notes are also available for these areas (Pyrenees: Lescouret & Genard 1982, Muntaner *et al.* 1983, Carlino *et al.* 1984, Martínez–Vilalta 1985; Alps: Hable 1975, Niederfriniger 1980 and 1982, Biber 1980, Kohler 1988; Apennines: Di Carlo & Heinze 1975a, 1975b, 1978a, 1978b, 1979a, 1979b, 1979c, Heinze 1982a, 1982b, 1983) and the Carpathians (Klemm 1970, Heyder 1960, 1962).

Nevertheless, a comprehensive review on the distribution of this species in central and southern Europe is still lacking. This paper describes the distribution of the Dotterel breeding in this area, reviewing the current knowledge (1975–1999) and providing an estimate of the numbers of breeding pairs.

## METHODS

Data were collected in 1996–1999 through an extensive review of the literature published in local, national and international journals and bulletins. Moreover, several experts who were supposed to have direct information were contacted

in order to receive the most up–to–date information on the species. Each of them was asked to provide detailed information about breeding sites, number of pairs and, where possible, more general observations on the breeding biology of Dotterels in their area.

The study area encompassed by this paper includes the mountains of central and southern Europe. A site is defined as an area (of varying size, from a few hectares to several thousands) where at least one pair of Dotterels exists. Each site mentioned by experts or found in the literature search was reported on a map of Europe. For some countries the totals reported sometimes do not correspond to the arithmetical sum of the sites, since information may be lacking for some breeding sites or whole areas. If not provided by local experts or by literature, we calculated the total number of breeding pairs in each country.

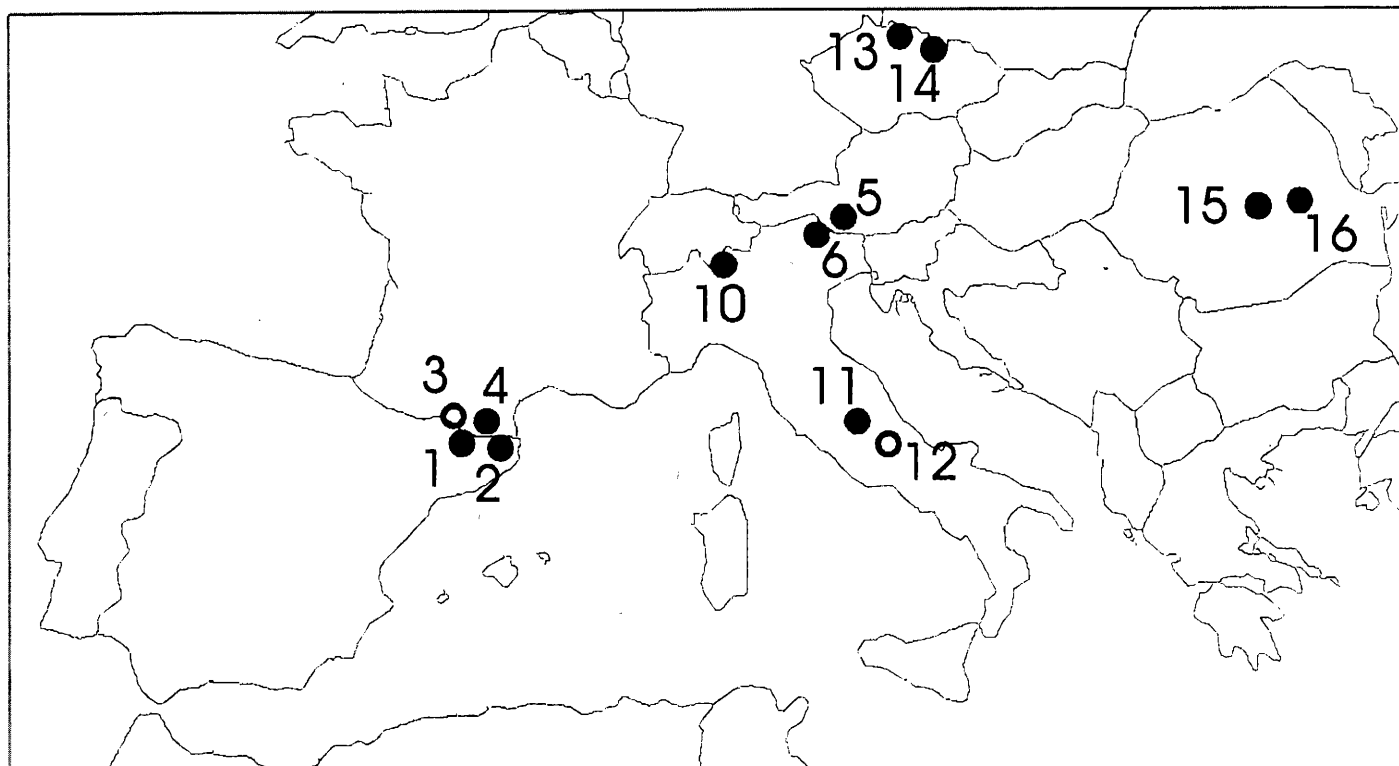
## RESULTS

The results of our survey are summarised in Table 1, while Figure 1 illustrates the location of most of the site mentioned in the table. A short comment on status in each country is given below.

### *Spain*

In this country, data about the breeding distribution were recently revised by Gutierrez *et al.* 1996 and Gutierrez 1997, from which the following account has been drawn. In the Spanish eastern Pyrenees two nests were found in 1994, while 2–15 pairs were estimated for the whole area. Breeding birds





**Figure 1.** Map of breeding sites of Dotterels *Charadrius morinellus* in central and southern Europe. Only confirmed or probable sites are reported. Numbers relate to names in Table 1.

are restricted to two stony high plateaux of about 5,000 ha each, between 2,580 and 2,720 m in altitude. The distribution in the area is similar to that described in the 18th century (Maluquer 1992), which suggests that the population has not recently established itself. No birds have been seen during the breeding period either recently or in the past (Maluquer 1992), in the central and western Pyrenees, where some birds are found during the migration period (Pedrocchi & Dominguez 1990). However, it remains possible that a small number of pairs breed. The size of the Spanish population is slightly larger than estimated by a previous paper, reporting 1–10 pairs for the same area (Martinez-Vilalta 1985, Muntaner *et al.* 1983). With its 2–15 pairs, Spain hosts the largest breeding population of southern Europe.

#### **Andorra**

Breeding was suspected recently in close proximity to the Spanish–French population (Crozier 1993), but without any confirmed record.

#### **France**

The first definite breeding of Dotterels in France was recorded in 1982 (Lescouret & Genard 1982) in the eastern Pyrenees, in close proximity to the Spanish breeding grounds, and this was confirmed in the following years (Carlino *et al.* 1984, Ibañez 1990). In a recent note reporting the breeding of one pair in 1996, Dalmau & Colas (1996) suggest that the site might have been regularly occupied since the first breeding in 1982. The breeding site is located on a plateau at 2,300–2,600 m a.s.l., with climatic and vegetation characteristics very similar to those of the adjacent Spanish breeding sites (Dalmau & Colas

1996, Ibañez 1994). During the 1980s–1990s, the French breeding population was estimated to vary between 1 and 10 pairs (Ibañez 1994).

#### **Switzerland**

Breeding was suspected only in 1965, with one pair nesting in the Grisons mountains (Biber 1980). Since then, there have been a few isolated observations during the breeding period, but they have not given any indication that any birds might still breed (Schmid pers. comm.). Observations during the breeding period during the 1990s are completely lacking (Schmid pers. comm.), so that the new Swiss breeding atlas (Schmid *et al.* 1998) does not consider the species as a confirmed breeder.

#### **Austria**

The Austrian Alps host the most studied population in recent years (Hable 1975, Kohler 1988, Sackl 1993), as regards some aspects of the breeding biology (Brunner 1992a, 1992b). The trend of the Austrian Alps population is given by Spitzenberger (1988), reporting 12 pairs for the period 1953–63, 22 pairs in 1971 and 9–11 pairs in 1986. More recently, an extensive survey of the sites in the central Alps known or suspected to support breeding Dotterels was recently carried out, reporting respectively 1–2 pairs in 1991, 3–4 in 1992 and 5 pairs in 1993, scattered over several sites in the central Alps (Sackl 1993). Three to five pairs are also indicated by Brunner (1992b). These data indicate a clear decline of the Austrian breeding population, which however still represents a relevant part of that of the central and southern Europe.



**Table 1.** Population and distribution of Dotterels *Charadrius morinellus* breeding in central and southern Europe.

COUNTRY AND SITE	N. OF PAIRS	YEAR	REFERENCE
<b>Spain</b>			
1- Cerdanya peaks	2-10	1994	Gutiérrez <i>et al.</i> 1996
2- Vallter-Puigmal-Toses	0-5	1994	Gutiérrez <i>et al.</i> 1996
<b>Total</b>	<b>2-15</b>	<b>1994</b>	<b>Gutiérrez <i>et al.</i> 1996</b>
<b>Andorra</b>			
3- Pyrenees	?	1993	Crozier 1993
<b>Total</b>	<b>?</b>	<b>1993</b>	<b>Crozier 1993</b>
<b>France</b>			
4- Eastern Pyrenees	1-10	1980s-'90s	Ibañez 1994
<b>Total</b>	<b>1-10</b>	<b>1980s-'90s</b>	<b>Ibañez 1994</b>
<b>Austria</b>			
5-Central Alps	5	1993	Sackl 1993
<b>Total</b>	<b>5</b>	<b>1993</b>	<b>Sackl 1993</b>
<b>Italy</b>			
<i>Alps</i>			
6- Val Pusteria	1	1978	Niederfriniger 1980
7- Val Martello	?	1978	Niederfriniger 1980
8- Valle di Cedec	+	1982	Bernasconi <i>et al.</i> 1996
9- Val Cantone	+	1990	Bernasconi <i>et al.</i> 1996
10- Val Federia	1	1995	Favaron pers. comm.
<i>Apennines</i>			
11- Majella massif	4-5	1971-88	Di Carlo 1993
12- Sibillini mountains	?	1983-86	Di Carlo 1993
13- Abruzzo National Park	+	1983-86	Di Carlo 1993
<b>Total</b>	<b>1-6</b>	<b>1983-94</b>	<b>Present estimate</b>
<b>Czech republic</b>			
14- Krkonose Mts	0-1		Stastny pers.comm
15- Hrubý Jeseník Mts	0-1		Stastny, pers.comm
<b>Total</b>	<b>0-2</b>	<b>1983-94</b>	<b>Stastny, pers.comm</b>
<b>Romania</b>			
14- Cindrel Mountains	unknown		Weber, pers. comm
15- Negovan and Steflesti Plateau			
unknown Weber, pers. comm			
<b>Total</b>	<b>&lt;5</b>	<b>1997</b>	<b>Weber, pers. comm.</b>
<b>TOTAL</b>	<b>16-43</b>	<b>1999</b>	<b>PRESENT ESTIMATE</b>

? suspected breeding; + presence of birds during the breeding season.

**Italy**

The main breeding population is located at about 2,200 m a.s.l., in the Majella massif, where the first report of one pair was made by Vaughan in 1952 (Di Carlo 1993). Since then, this population has been checked in several years between 1974 and 1994 (Di Carlo & Heinze 1975a, 1975b, 1978a, 1978b, 1979a, 1979b, 1979c, Heinze 1982a, 1982b, 1983, Pellegrini 1994, Santone 1995), varying from 1 to 6 pairs.

Breeding was confirmed up to 1994: one pair (Santone 1995). In addition to population monitoring, data on some aspects of the breeding ecology have been collected by Di Carlo & Heinze (1978a, 1979a, 1979b). Nevertheless in more recent years (1995 and 1996) no proofs of breeding were found at the traditional site (Santone pers. comm.). Irregular breeding was reported at two other Apennines sites during the periods 1953-1956 and 1976-1977 (Brichetti 1997). Likewise, in the



Alps, breeding was suspected in a few instances, but it was only confirmed in 1978 (Niederfriniger 1980 and 1982, one pair plus another possible one) and 1994–95 (1994: one pair, Bernasconi *et al.* 1996; 1995: one pair, Favaron *pers. comm.*) at two different sites, at 2,200–2,700 m a.s.l.. The Italian population (divided between the Alps and the Apennines) may be estimated at between 1 and 6 pairs; it seems to be decreasing, but further surveys are needed to state a reliable trend.

#### **Slovakia**

The species is a rare but regular migrant in the Slovakian mountains (A. Kristin, *pers. comm.*). There are no breeding data for this century. The last data are from Tschussi (1884, in Kristin 1998), who wrote "...this species bred in Low Tatra (Nízke Tatry) around 1870–1880 in Kralova hola (ca. 1,800–1,900 m a.s.l.)".

#### **Czech Republic**

The Dotterel used to breed regularly in Krkonose Mts., in the Sudetians, in the last century; the last breeding was recorded in 1903. Breeding was confirmed again in 1946 (3 chicks) on Luèní Hora hill. During the breeding birds census carried out in 1973–77 in the Czech Republic, the Dotterel was categorised as a probable breeder. There were several observations at another site, Hrubý Jeseník Mts. on Vysoká Hole hills: 2 birds on 2.8.1975, 3 birds (probably juv.) on 5.8.1976 and other birds were heard on 4.–6.8.1977. In the following breeding birds atlas (1985–89) the first breeding in Hrubý Jeseník Mts. was confirmed between Pradid hill and Vysoká Hole hill: the first observation on 14.6.1985, four poorly flying young with one adult. One pair was again observed on 27.6.1986 in Krkonose Mts. on Luèní Hora hill, with a few other observations in the following years. All observations in Krkonose Mts. were done above 1300 m a.s.l. Overall, the species may be considered an irregular breeder, with a maximum of one pair at each site (all the data supplied by K. Stastny, *pers. comm.*).

#### **Greece**

Breeding was suspected in the past in the Olympus massif (Hable 1975), but nesting has never been confirmed; the map reported in the recent EBCC Atlas (Hable & Saari 1997) indicates three "confirmed and probable" breeding sites, whereas Handrinos & Akriotis (1997) did not consider the species as a confirmed breeder in Greece, either recently or in the past.

#### **Romania**

Dotterels were reported breeding in the Romanian Carpathians in the past (Klemm 1970, Heyder 1960, 1962) and then confirmed in the nineties (Klemm & Kohl 1988, Weber *et al.* 1994). More recently Weber (*pers. comm.*) identified two distinct regular breeding sites in the southern Carpathians: the Cindrel Mountains and the Negovan–Steflești Plateau, overall hosting less than 5 pairs. Other occasional breeding sites

might be located in the northern part of the Eastern Carpathians (Rodna Mountains) and in the southern Carpathians (Bucegi Mountains and Fagaras Mountains) although in the latter the last confirmed breeding was before 1970 (Weber *pers. comm.*). Finally, other possible sites in the southern Carpathians (like the Retezat Mountains) still need to be checked (Weber *pers. comm.*).

#### **CONCLUSIONS**

The information gathered allows us to estimate the Dotterels breeding in southern Europe at 16–43 pairs. Five breeding populations have been identified, located on the main central and south European massifs, scattered over seven countries. The largest population inhabits the Pyrenees, which host most of the pairs. The remaining pairs are located in four populations of approximately the same size (about 5 pairs), located in the central Alps, in the Apennines and the Carpathians; a few more pairs breed irregularly at two Slovakian sites. Dotterels inhabiting the Alps and the Apennines have been decreasing during the past twenty–five years, showing a trend similar to that reported by Saari (1995) for Finland. Despite the uncertainty in estimating the numbers of breeding pairs, the overall known population inhabiting the central and southern European massifs appears stable due to the finding of the new population inhabiting the French–Spanish Pyrenees. Nevertheless, for northern European Dotterels it is known that they can breed in one country one year and in another country next year, or even in the same season (Galbraith 1993). No data of this kind exist for birds breeding in central and southern Europe, for which this behaviour could also be possible.

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