



A review of the current situation of Dotterel *Eudromias morinellus* in the central Alps of Austria

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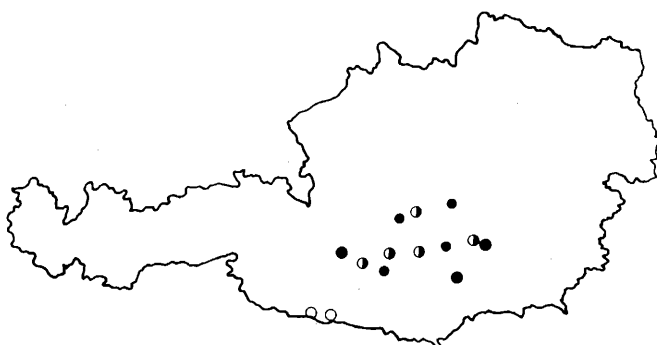
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The Palearctic breeding range of Dotterel *Eudromias morinellus* is confined to open tundra habitats in northern Eurasia and the arctic-alpine zone of the mountains of central Asia, i.e. Mongolia, southern Siberia and Kazakhstan, separated from the main arctic distribution area. Further small, and fragmented populations exist in mountainous areas of continental and southern Europe. Whereas most of these European breeding areas were used just erratically and are now abandoned, breeding of the Dotterel in the central Alps of Austria has been documented continuously since the second half of the 19th century (Glutz von Blotzheim *et al.* 1975; Cramp 1983). The first breeding record was reported in 1852 by Hanf (1884) for the Seetaler Alps near the Styrian-Carinthian border, and since the 1880s Dotterels have also been found also in a few other locations in the Saualpe and Gurktal Alps in northern Carinthia (Keller 1890; details in Glutz von Blotzheim *et al.* 1975).

Excluding old records from the Carnic Alps in southern Carinthia not confirmed since the 1880s, the current breeding range since the 1950s is restricted to some 12 locations of flat spacious plateaux or smooth mountain ridges in the central Alps of Styria, Carinthia and Salzburg (E. Hable pers. comm.; Figure 1). The breeding habitats in the arctic-alpine zone above the treeline between (1750) 2000 - 2300 metres asl are characterized by flat,

Figure 1. Breeding distribution of the Dotterel *Eudromias morinellus* in the Austrian Alps. ○ = historical breeding sites not confirmed since the 19th century; ● = confirmed breeding site since 1950 surveyed at least once during 1991-93; ● = breeding site controlled regularly during 1991-93.



open and unvegetated or sparsely vegetated ground, regularly intermingled with patches of grit or bare rock. The sparse vegetation cover of the alpine breeding habitats is dominated by *Carex curvula*, *Loiseleuria procumbens*, *Cladonia rangiferina*, *Thamniola vermicularis* and several species of *Cetraria*. (Hable 1973; Hable in Glutz von Blotzheim *et al.* 1975; Brunner 1992).

The number of breeding pairs for the alpine population is given in Spitzenberger (1988) with 12 pairs for the years 1953 - 1963, 22 in 1971 and 9 - 11 pairs in 1986. Because the area covered by this data is not clearly defined the best estimation for the long-term population trend is given probably by Hable & Präsent's (1990) data for the main alpine breeding site in the c. 25 sqkm conservation area in the Seetaler Alps. As shown in Figure 2, the number of breeding pairs in this area has declined gradually from 3 - 9 in the 1970s to a lower level with a maximum of 3 pairs at the end of the 1980s.

To obtain more detailed information on the current distribution and numbers of Dotterels in Austria in co-operation with G. Bierbaumer, G. Brunner, H. Brunner, I. Brunner, M. Dimpelnik, E. Hable, A. Hlebaina, I. Präsent, S. Präsent and J. Spreitzer, seven historically known breeding sites have been surveyed annually and five additional ones sporadically since 1991 (cf. Figure 1). Financial support has been granted by the Nature Conservation Authorities of Styria in Graz.

Although the high variability of weather and habitat conditions at the alpine breeding sites give rise to strong annual fluctuations of breeding numbers and success, the results of our surveys for the period 1991 - 1993, summarized in Table 1, show evidence of a significant decline in comparison to population numbers given for the 1970s. Ignoring the vague possibility of substantial undetected breeding sites in remote areas of the Austrian Alps not visited by ornithologists, the alpine population of Dotterels seems currently on the brink of extinction.

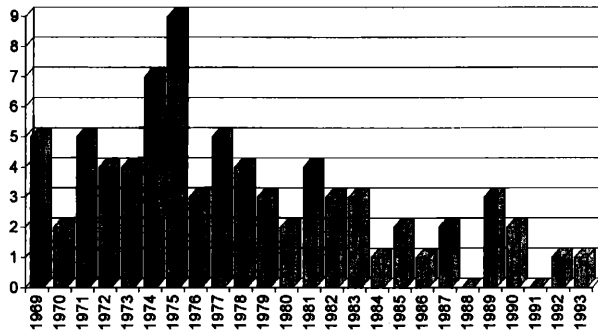
Table 1. Results of surveys of breeding Dotterel in the central Alps, Austria, 1991-93.

	1991	1992	1993
Number of breeding places surveyed	10	8 ^a	10 ^a
Number of breeding pairs	1-2	3-4	5

^a surveyed areas in Carinthia not exactly known



Figure 2. Population size (broods and nests) of Dotterel *Eudromias morinellus* in the Seetaler Alps, Austria, 1969-93 according to Hable & Präsent (1990), supplemented by recent data.



Before effective conservation strategies can be established we have to find out the factors responsible for the decline of population numbers. Generally, these factors may originally operate either (1) at the alpine breeding sites itself, or (2) on migration routes and in the wintering areas.

Concerning the breeding areas there is clear evidence that the number of hikers and sportsmen has increased dramatically since the 1960s. Furthermore a number of breeding sites have become more accessible to people by vehicle tracks. In at least three areas, ski developments and chair lifts have been in operation since the 1970s. Watson (1988) has shown that the density and breeding success of Scottish Dotterels does not correlate with human impact. For the alpine population it is at present unclear whether tourism, trekking and ski developments have any influence on population numbers. Hypothetically humans may have a detrimental effect on breeding success by disturbing birds directly on their breeding grounds and making them more vulnerable to predators such as Ravens *Corvus corax*. Furthermore human impact may influence population numbers more subtly by reducing nesting habitat and food supply through vegetation damage, soil erosion or eutrophication. Since all breeding sites in the Austrian Alps are managed as pastures, increasing grazing pressure by domestic cattle - or even game like Red Deer *Cervus elaphus* - may produce the same effects. However, even the careful guarding of breeding sites during the 1980s could not stop the decline of the population in the conservation area of the Seetaler Alps.

The winter quarters of European Dotterels are the stony steppes and semi-deserts of northern Africa. Birds from western populations show a tendency to winter in more western wintering areas in Morocco, Algeria and Tunisia (cf. Cramp 1983). According to Hable (1980), so far three Austrian-ringed Dotterels were recovered in wintering areas north of the Atlas mountains in Morocco and one in Tripolitania, Libya. Habitat destruction, the widespread use of pesticides for pest control as well as the persecution in northern Africa and the Mediterranean may have an important impact on all European populations. This is indicated by the decrease of breeding numbers at a Finnish study site (Pulliainen & Saari 1992) simultaneously with the decline of the Austrian population. According to T. Piersma (in litt.) at present there is no

collective information available concerning the numbers, habitats and conservation of Dotterels wintering in NW Africa. The collection of such information is of the utmost importance for an urgently needed conservation strategy in order to save the small alpine population.

ACKNOWLEDGEMENT

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REQUEST FOR INFORMATION

In view of the uncertain situation of Dotterels on their wintering and migration areas, the author would appreciate any information concerning numbers, behaviour, habitat and conservation of the species in north Africa and the Mediterranean. All information collected will be acknowledged in a future article.

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