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# Waterbirds around the world

A global overview of the conservation,  
management and research of the  
world's waterbird flyways

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*Cover photography:* Whooper Swans *Cygnus cygnus* arriving at Martin Mere, England. Photo: Paul Marshall.  
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## Population size and trend of the Red-crested Pochard *Netta rufina* in southwest/central Europe: an update

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The southwest/central European flyway population of the Red-crested Pochard *Netta rufina* is assumed to be a distinct population separate from the eastern European and Asian ones (Scott & Rose 1996, Defos du Rau 2002). An analysis of the results of the International Waterbird Census (IWC) up to 1994 indicated that the overall population size of the southwest/central European flyway population had not increased but that birds had shifted their winter distribution (Keller 2000a, 2000b). This was most likely the consequence of a drought period in Spain and improved wintering conditions in central Europe. This paper updates the situation to 2001, based on the data from the mid-winter counts of the IWC.

Since 1994, wintering numbers of the Red-crested Pochard in central Europe have continued to increase, but numbers in the western Mediterranean have been fluctuating (Fig. 1). Trends and Indicators for Monitoring Data (TRIM) analyses (Pannekoek & van Strien 1998) indicate a significant increase of the total flyway population for the period 1990 to 2001 (overall index trend:  $1.0698 \pm 0.0115$ ). However, high overdispersion and strong fluctuations of numbers at individual sites result in a poor statistical fit of the model. Thus the long-term trend is difficult to interpret, also because coverage by the IWC of sites

used by Red-crested Pochard prior to 1990 was limited (Keller 2000a).

Since the 1990s, Red-crested Pochards have overwintered mainly in Spain and Switzerland/Germany (Fig. 2). They are concentrated on a small number of sites. The six most important sites - Albufera de Valencia and Delta del Ebro in Spain, Bodensee (Switzerland, Germany and Austria), Lac de Neuchâtel and Vierwaldstättersee in Switzerland and Camargue in France hold, on average, about 75% of the total flyway population.

Red-crested Pochards can shift between sites in large numbers within short periods. If censuses are not well co-ordinated the risk of double-counting, or of missing large flocks, is high. Shifts and the high concentrations on a few sites may result in high proportions of the population being missed or double-counted. In 1999, the year with a peak count of 40 000 individuals, the waterbird census on the three main lakes in Switzerland/Germany took place on the same date (17 January). Censuses in Spain were also carried out in mid-January, but exact counting dates are not available.

In the second edition of Waterbird Population Estimates (Rose & Scott 1997) the size of the southwest/central European flyway population was estimated at 25 000 individuals. In the

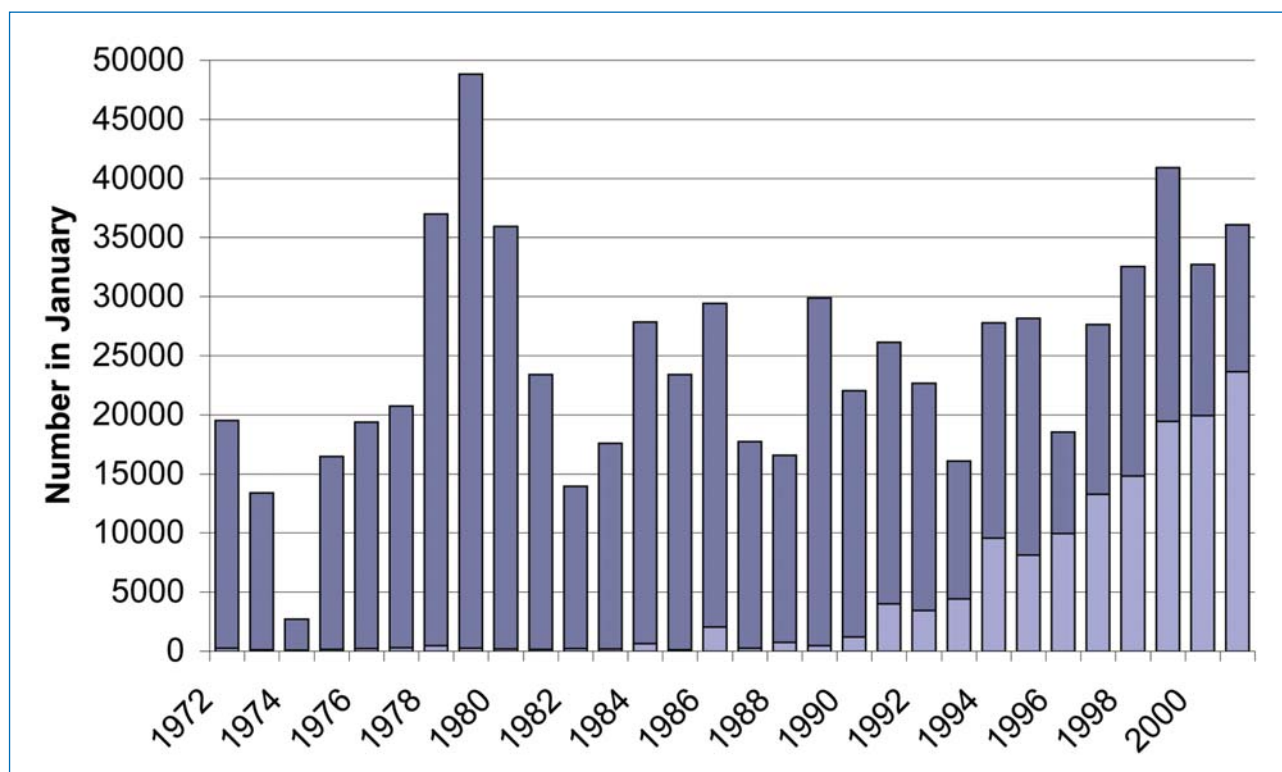
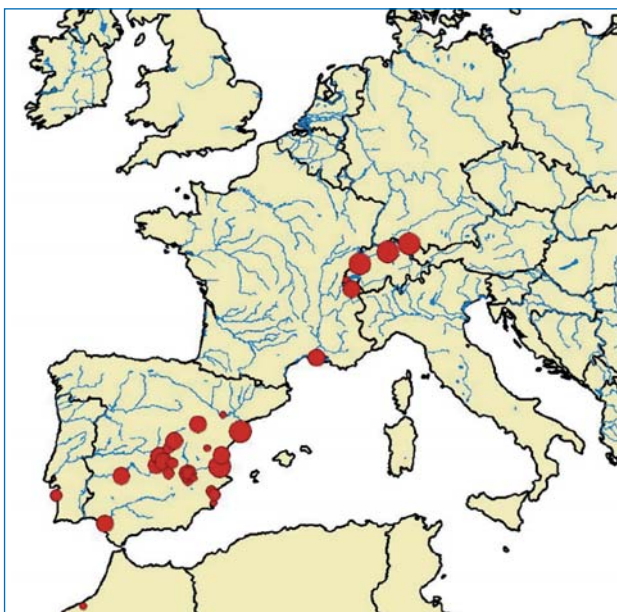


Fig. 1. Mid-winter numbers of Red-crested Pochards *Netta rufina* in the western Mediterranean (mainly Spain, Portugal and France; dark) and in central Europe (mainly Switzerland and Germany; light) 1972–2001. Data from the International Waterbird Census (IWC).



**Fig. 2.** Main wintering sites of Red-crested Pochards *Netta rufina* in south-west and central Europe in the 1990s.

third edition (Wetlands International 2002) the estimate was increased to 50 000, a revision based largely on the 40 000 individuals counted in January 1999. Although this 1999 census result appears to be realistic, even though double counts cannot be excluded, the total population estimate of 50 000 seems to be rather high. The main sites used by Red-crested Pochards have been well covered from 1996 onwards, making it unlikely that 10 000 individuals were missed in these years.

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Red-crested Pochards *Netta rufina* in Lucerne, Switzerland. Photo: N. Zbinden.