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The presence of the Dalmatian Pelican *Pelecanus crispus* on Ulcinj saltpans (Montenegro)

Pojavljanje kodrastega pelikana *Pelecanus crispus* v Ulcinjskih solinah (Črna gora)

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1. Introduction

Dalmatian Pelican *Pelecanus crispus* is classified as a globally threatened species by BirdLife International. It is also classified as vulnerable even though the population has increased due to active preservation, particularly at its largest colony of 500 pairs on Mikri Prespa lake in Greece (Crivelli *et al.* 2000, BirdLife International 2001 & 2004a). The species' nesting population is local and confined to SE Europe, the Middle East and Central Asia. The world population of Dalmatian Pelican is estimated to be stabilised between 15,000 and 20,000 individuals. (BirdLife International 2004b). Latest estimates of the nesting population are between 4031 and 5196 pairs (Crivelli *et al.* 2000, Wetlands International 2002). Only about 15% of the population breeds in the Mediterranean region: 15 – 20 pairs in Albania, 7 – 11 pairs in Montenegro, 500 pairs in Greece and 120 pairs in Turkey (Hoffman *et al.* 1996, Wetlands International 2002, Bino 2004, Saveljić *et al.* 2004). The Mediterranean population is however considered to be stable (Perennou *et al.* 2000).

The first comprehensive data on Dalmatian Pelicans in Montenegro date from the late 19th century (Brusina 1891) and further observations were made in the same period (Führer 1894 & 1895, Reiser & Führer 1896). After a gap of more than 70 years, during which there was hardly any ornithological research on Montenegrin water bodies, intensive studies were begun in the 70s by Ondrej Vizi (Vizi 1975, 1979a, b, c, 1981a, b, 1991, 1995a, b & 2002). Nevertheless, he was occupied only with the Pelicans of the Skadar Lake. The Ulcinj coastal area thus remained ornithologically unresearched, with the exception of rare and sporadic visits (Vasić 1979, Ham 1986). Dalmatian Pelican is a protected species in Montenegro (Vizi 1982) and Skadar Lake is nowadays the species' only nesting area (Saveljić *et al.* 2004).

In this work, the literature and field data on the presence of Dalmatian Pelicans in Ulcinj saltpans and Zoganj Mud for the period between 1999 and 2004 are reviewed. The historical data are also presented.

2. Study Area and Methods

2.1 Study Area

The Ulcinj saltpans are one of the largest saltpans on the Adriatic coast. They are situated at the very SW end of Montenegro, east of the town of Ulcinj. Together with its surroundings, the Bojana / Buna river mouth complex, the Ulcinj saltpans are, ornithologically, one of the most important areas in Montenegro (Puzović & Grubač 2000). Its value is enhanced by the marshy habitats and the vicinity of the sea. It is a completely anthropogenically guided ecosystem, in which all factors significant for the birds are controlled by man. The area has no legal conservation status, but is classified as an IBA (Important Bird Area) by BirdLife International (Heath & Evans 2000).

The saltpans originated in the area of the former Zoganj Mud, a 25 km^2 marshy area with brackish water. The oldest saltpan basins were built between 1926 and 1934. From the mid 20th century they were gradually extended and in the beginning of the 1980s they were enlarged by 60% and today cover 14.5 km^2. Of the total area some 10 km^2 are currently active. The average depth of the pans' basins is 30 cm (Gazivoda 1998).

2.2 Methods

Literature and field data from 1999 to 2004 have been used in this study. During our field research (1999 – 2004) we were visiting the saltpans at irregular intervals for one to three days per month. The fieldwork was carried out mostly during the whole day but, during

Table 1: Historical data on the presence of Dalmatian Pelican *Pelecanus crispus* at Ulcinj saltpans

Tabela 1: Historični podatki o pojavljanju kodrastega pelikana *Pelecanus crispus* v Ulcinjskih solinah

Date / Datum	No. individuals/ Št. osebkov	Behaviour/ Obnašanje	Locality / Lokaliteta	Source / Vir
1.02.1895	6	Swimming	Zogaj Mud	Führer (1895)
29.03.1895	39 pairs	Nesting	Zogaj Mud	Führer (1895)
1895	20 pairs	Nesting	Zogaj Mud	Reiser & Führer (1896)
24.07.1975	"few"		Saltpans	Vasić (1979)
15.07.1984	1	Resting	Saltpans	Ham (1986)
20.09.1998	1	Flying	Saltpans	Simić (2003)

the summer months, between 5.00 and 10.00h and from 17.00h until dawn.

3. Results and Discussion

The first data concerning the Dalmatian Pelicans from the Ulcinj saltpans date from the end of the 19th century (Führer 1895). Führer (1895) found 39 Pelican nests, mostly with one egg, in the area of the former Zogaj Mud during March 1894. Two years later more than 20 nesting pairs were found in the same area (Reiser & Führer 1896).

From 1924 until 1936 hydro–melioration works were carried out and part of the swamp was transformed into saltpans. There is no data in the literature covering the period from the end of the 19th century (Reiser & Führer 1896) to the late seventies (Vasić 1979), when, in July of 1975, a 'few' Dalmatian Pelicans were recorded. A further, single young Dalmatian Pelican was observed resting on one of the salt pan basins in 1984 (Ham 1986; Table 1).

The number of Dalmatian Pelicans recently observed in the Ulcinj saltpans has varied from 1 to 56 individuals. They were present mainly from August to February, during the non–breeding period (Figure 1). When feeding in the saltpans, they were observed exclusively in the basins with a salinity equal to that of the sea – around 3.8‰ . Saltpans provide an ideal feeding place for ichthyophagic birds, due to the large, shallow water surface and to the fact that strong pumps (3000 lit/sec) bring large amounts of food, predominantly fish (A. Hegediš *pers. comm.*), from the sea into the saltpans (Gazivoda 1998). This process starts from the first half of April and lasts until the middle of May. The 29 fish species observed in the salt pan basins (A. Hegediš *pers. comm.*) cannot survive later than the first half of June, when the water starts to warm up to over 40°C, with the salinity rising above 12‰ .

It is interesting that, in the period from April to June when saltpans are full of food, appearances of the Dalmatian Pelicans are least and the Pelicans were not observed to be actually feeding in the saltpans during this period. This is not the case with the other ichthyophagic species, such as Cormorant *Phalacrocorax carbo*, Pygmy Cormorant *Phalacrocorax pygmeus*, Grey Heron *Ardea cinerea*, and Little Egret *Egretta garzetta*, which are commonly observed feeding in saltpans at this time of year (*personal observations*). The Dalmatian Pelicans in Montenegro (Skadar lake) start nesting in the second half of February (Vizi 1975), and the period of hatching thus overlaps with the process of water inflow in the saltpans. During this period the Pelicans are not usually far from their colonies (Vizi 1975), explaining their absence from the saltpans, which are not the species' breeding site.

The largest numbers of pelicans in the Ulcinj saltpans have been observed in the postbreeding period, between August and November (Figure 1). These are presumably adult and semi – adult birds that have finished nesting in nearby breeding areas and are foraging in the vicinity of these areas. The nearest Dalmatian Pelican breeding area is Skadar Lake, some 40 km away, where the pelicans, with a break from 1993 to 2000, have been regularly observed to breed (Saveljić *et al.* 2004). Presumably, individuals from the same breeding area are commonly seen also in Velipoja lagunas, on the Albanian side of the Bojana/ Buna river mouth complex (T. Bino *pers. comm.*). The closest Albanian nesting area, Karavasta lagunas (up to 62 pairs; Heath & Evans 2000) lies about 110 km to the South. The origin of the birds seen in the Ulcinj saltpans should be investigated.

During the winter months Dalmatian Pelicans have been observed mainly in the empty basins, mostly resting. They were also seen in smaller numbers a few

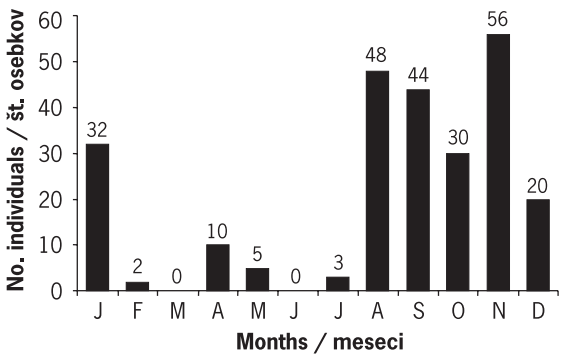

Figure 1: Maximum monthly counts of Dalmatian Pelicans *Pelecanus crispus* observed from 1999 to 2004 in Ulcinj saltpans (authors' data and from Simić 2003)

Slika 1: Maksimalno število osebkov kodrstega pelikana *Pelecanus crispus* po posameznih mesecih med leti 1999 – 2004 v Ulcinjskih solinah (avtorjevi podatki in Simić 2003)

kilometres from Skadar Lake, at the river Drim delta, Albania (Bego *et al.* 1998).

Ulcinj saltpans are an important post–breeding area which the Dalmatian Pelicans from the nearby colony at Skadar lake use frequently as a feeding and resting area between August and November. The importance of this area for Dalmatian Pelican, and for many other waterbirds, thus clearly indicates an urgent need for its legal protection. The need for efficient protection is even greater because of constant heavy pressure by local hunters.

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Summary

Before the melioration works were carried out, between 1924 and 1936, Dalmatian Pelicans *Pelecanus crispus* were nesting in the Zogaj Mud marshy area, the location of the present Ulcinj saltpans. In this large, marshy area 39 pairs of Dalmatian Pelican were recorded during the nesting period. Since Reiser & Führer (1896), there are no data on the birds until the mid–seventies, when "a few" Dalmatian Pelicans were recorded in the saltpan areas. During the last two decades of the 20th century only two records of Pelicans' presence on the saltpans could be found. As a result of intensified research activity since 1999, significant data have been gathered on the presence of Pelicans on the saltpans. Between 1999 and 2004, Dalmatian Pelicans have been observed in the Ulcinj saltpans throughout the year. The largest numbers are present in the postbreeding period, when birds from the nearby Skadar lake colony are regularly resting and feeding in the saltpans. The area is important for resting and, to a lesser extent, for feeding of the species. Being an IBA and an area of regular presence for Dalmatian Pelican, as well as many other Annex 1 and SPEC 1, SPEC 2 species, and still under extreme hunting pressure, it is our firm belief that the Ulcinj saltpans are in urgent need of effective protection.

Povzetek

Pred melioracijskimi deli v letih 1924 in 1936 so kodrasti pelikani *Pelecanus crispus* gnezdili v močvirnem območju Zogaj, kjer se danes raztezajo Ulcinjske soline. Na tem velikem močvirnem območju je bilo preštetih 39 parov kodrastih pelikanov. Po Reiser & Führer (1896) ni podatkov o pticah tega območja vse do sredine 70 – ih let 20. stoletja, ko je bilo opaženih nekaj teh ptic. Iz zadnjih dveh dekad 20. stoletja pa obstajata le dva podatka o pojavljanju kodrastih pelikanov v obravnavanem območju. Pričujoče delo temelji na bolj intenzivnih raziskavah avifavne območja med letoma 1999 in 2004. Kodrasti pelikani so bili opazovani v Ulcinjskih solinah prek celega leta, največ v pognezditvenem obdobju, ko se ptice iz kolonije na Skadarskem jezeru hranijo in klatijo po solinah. Območje je pod hudim pritiskom lova, kljub temu da gre za IBA in se tu poleg pelikanov zadržuje že veliko drugih vrst glede na Annex 1, SPEC 1 in SPEC 2. Avtorja priporočata takojšnjo in učinkovito zaščito Ulcinjskih solin.

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