

CHANGES OF BREEDING NUMBERS AND HABITAT OF EURASIAN SPOONBILL *Platalea leucorodia* IN VOJVODINA (N SERBIA)

Spremembe v gnezditvenem številu in habitatu žličarke *Platalea leucorodia* v Vojvodini (S Srbija)

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In the 19th century, the Eurasian Spoonbill *Platalea leucorodia* was a numerous breeder in Vojvodina. Except for the lower Sava valley, where traditionally the strongest colony existed, breeding colonies have been recorded in Zasavica, Pančevački rit, Novosadski rit and in the lower Begej valley. Although in the first half of the 20th century 500 – 1000 pairs still bred, the population had already started to decrease in the first decade. During the second half of the 20th century it bred or attempted to breed on 9 localities: the lower Begej, Uzdin forest, Jazovo fish farm, natron lake Okanj, the Danube floodplain near Apatin, Bečej fish farm, Ludaš lake, Obeska bara and Platičevo. In the mid 1980's, when the breeding numbers were lowest, Spoonbills started to colonize reed beds in a carp fish farm. Today, three out of the four existing breeding colonies in Serbia are situated on these man-made habitats. 147 to 182 pairs bred in Serbia in 2004, which is 2.49% of the European population. The historical and present breeding distributions in Vojvodina, features of current feeding sites, and threats and measures needed for the protection of Spoonbill breeding sites are described.

Key words: Eurasian Spoonbill, *Platalea leucorodia*, Vojvodina, Serbia, breeding, distribution, fish farms

Ključne besede: žličarka, *Platalea leucorodia*, Vojvodina, Srbija, gnezditve, razširjenost, ribogojnice

1. Introduction

The Eurasian Spoonbill *Platalea leucorodia* is a species concentrated in Europe (SPEC 2; BURFIELD & VAN BOMMEL 2004), where between 5081 and 8125 pairs bred in 2000/2001 in three clearly separated regions. In NW Europe (The Netherlands, Belgium, France, Great Britain, Germany and Denmark) 1243 to 1290, in SW Europe (Italy, Portugal and Spain) 1738 to 2058 pairs, and in central and south-eastern Europe (Greece, Turkey, Hungary, Austria, Croatia, Ukraine, Romania and Czech Republic) 1950 to 4277 pairs bred (OVERDIJK & ZWART 2003). The species is, however, also breeding in Montenegro (two small colonies, 19 plus 8 pairs in 2002 and 2003; B. ŠTUMBERGER & M. SCHNEIDER-JACOBY *pers. comm.*) and, in recent times, Serbia (PUZOVIĆ *et al.*

1999). Data on breeding distribution and numbers in Serbia and Montenegro have not been considered in almost any research or publication about European birds and their numbers over the last decade (TUCKER & HEATH 1994, HAGEMEIJER & BLAIR 1997), mainly due to the lack of quality data coming from these two countries (OVERDIJK & ZWART 2003). The aim of this work is to list and describe the Eurasian Spoonbill's current breeding grounds, to recommend measures needed for their active conservation, and to analyse the development of breeding numbers of Spoonbill in Vojvodina (northern province of Serbia), from the first accessible data until 2004. Although the recent population status of the Spoonbill in parts of Serbia outside Vojvodina is not surveyed or discussed in the present paper, it is known that this species does not breed there (PUZOVIĆ *et al.* 1999). However, the

research on the basis of which this study was done was restricted just to Vojvodina.

2. Methods

In order to collect detailed data about the characteristics of recent breeding grounds and breeding colonies of Eurasian Spoonbill in Vojvodina, intensive research carried out by the members of the Bird Study and Protection Society of Vojvodina (BSPSV) took place in 2003 and 2004. During 2003, the census of breeding pairs was conducted during colour-ringing of chicks in the colony on Bečej fish farm, organized as part of the International Spoonbill Colour Ringing Project. In 2004, the work was accomplished by a detailed census of pairs in all known breeding colonies, and a systematic search for possible unknown breeding sites. Apart from the localities where colonies were found, 90% of other suitable wetlands in Vojvodina were surveyed at least once during the breeding season. The basis for the field work was a survey of the historic distribution of the Spoonbill in Vojvodina.

3. Results

3.1. Contemporary distribution and breeding numbers

Research on breeding distribution and numbers of breeding pairs carried out in 2004 has been concentrated on all existing and potential colonies. Breeding has been proved at three localities, while on another, breeding was very probable (Figure 1).

3.1.1. Bečej fish farm

In 2004, the colony was situated in the western part, on the island slightly elevated from the water level, and overgrown by emergent vegetation. The nests were built just above the water surface, exclusively inside small, vegetation-free patches on the island. They were massive and solid platforms composed of dry plant material: reed stems at the base, leaves of reed and cattail on the top. 80 to 100 pairs bred in the colony, together with Grey Heron *Ardea cinerea*, Purple Heron *A. purpurea*, Little Egret *Egretta garzetta*, Great White Egret *E. alba*, Squacco Heron *Ardeola ralloides* and Night Heron *Nycticorax nycticorax*.

3.1.2. Jazovo fish farm

The colony is located on two distinct sites within the fishpond system. 20 to 30 pairs bred in the first

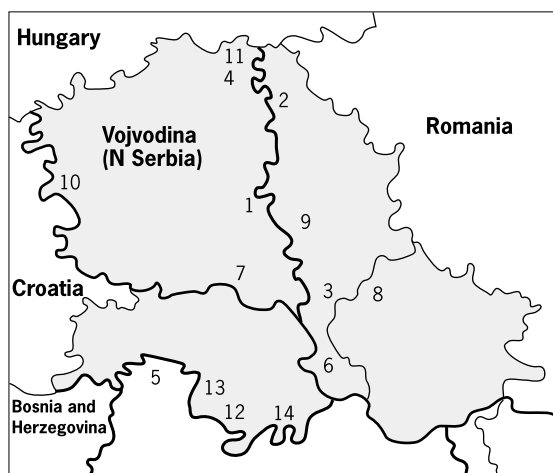


Figure 1: Eurasian Spoonbill *Platalea leucorodia* breeding distribution in Vojvodina. Breeding sites in 2004: Bečej fish farm (1), Jazovo fish farm (2), Perleska bara (3), Kapetanski rit fish farm (4). Historical breeding sites: Zasavica (5), Pančevački rit (6), Novosadski rit (7), Uzdin forest (8), Okanj (9), Apatinski rit (10), Ludaš lake (11), Obedska bara (12), Trskovača marsh (13), and Fenečka bara (14).

Slika 1: Gnezditvena razširjenost žličarke *Platalea leucorodia* v Vojvodini. Gnezditvene lokalitete v letu 2004: ribniki v Bečeju (1), ribniki Jazovo (2), Perleska bara (3), ribniki Kapetanski rit (4). Zgodovinske gnezditvene lokalitete: Zasavica (5), Pančevački rit (6), Novosadski rit (7), gozd Uzdin (8), Okanj (9), Apatinski rit (10), jezero Ludaš (11), Obedska bara (12), močvirje Trskovača (13) in Fenečka bara (14).

location, in dense cattail vegetation situated close to the western edge of the fishpond. Purple Herons bred in the same colony. On the second location, 40 to 50 pairs bred in the reed island, together with Great White Egret and Purple Heron. Most of the nests were placed on platforms composed of plant material, built in small patches of open water.

3.1.3. Perleska bara

Two pairs bred in the colony, accompanied by Little Egret, Squacco Heron, Great White Egret and Night Heron, in a spacious reedbed.

3.1.4. Kapetanski rit fish farm

The breeding on this fish farm has not been confirmed by entering the colony, but it was nevertheless very probable. Up to 25 individuals were foraging, throughout the breeding cycle, on wet meadows around the fishpond (N. STOJNIĆ, J. GERGELJ, & K. BARNA *pers. comm.*). They were flying in the close vicinity of the local Great White Egret and Purple Heron colony but breeding could not be checked by

direct inspection. The probable minimal number of breeding pairs was 5 to 10.

4. Discussion

4.1. Historical overview of breeding sites and breeding population

4.1.1. 19th century

The key breeding ground at Obedska bara in Posavina supported 300 pairs in 1838 and 350 in 1869 (GAROVNIKOV 1992). PUZOVIĆ (1998) published a maximum of 500 pairs in the second half of the century. Although Obedska bara was the strongest breeding ground during the 19th century, Spoonbills also bred at other wetlands: Zasavica (DOMBROVSKI 1895), the floodplain of the Danube – Pančevački rit and Novosadski rit – as well as in the lower Begej floodplain (MARČETIĆ 1955/56).

4.1.2. 20th century

In Serbia 500 to 1000 pairs bred within this period (OSIECK & VOŠLAMBER 1997), almost entirely in Vojvodina. On traditionally the largest breeding ground, Obedska bara, 1000 pairs bred in 1908, 120 in 1930, and 100 in 1945 (GAROVNIKOV 1992). About 50 pairs bred on the same locality in 1946 (MATVEJEV 1950). Breeding has been recorded on some other marshes accessible only with difficulty, for example in Pančevački rit, where some pairs still bred in the first half of the century (MATVEJEV 1950). At lower Begej Spoonbill probably bred in the late 1940's (PEKIĆ 1958).

The number of breeding pairs in Vojvodina decreased in the first decade of the 20th century. Other than at Obedska bara, it had become an irregular breeder on almost all the former breeding sites (MARČETIĆ 1955/56).

During the second half of the 20th century it bred or attempted to breed at 11 localities (Figure 1). However, the predominantly negative trend of breeding continued to dominate: it was marked as a disappearing species (HAM 1977).

4.1.2.1. Breeding colonies in Banat

From 1950 to 1959, 1 to 2 pairs probably bred in the valley of the lower Begej, a wetland complex near the mouth of the river Begej, nowadays composed of "Stari Begej – Carska bara" special nature reserve, and "Ečka" fishponds. Spoonbill did not breed in the area between 1960 and 1990 (HAM 1977 & 1989, PUZOVIĆ

1998). From 1965 to 1973 the species did not breed in the western Banat at all (ŠOTI & DIMITRIJEVIĆ 1974). Its breeding is questionable during the 1980's (PUZOVIĆ 1998). It is possible that a very small number of pairs bred (PUZOVIĆ *et al.* 1999) and that, in the early 1990's, the number slowly started to increase. In 1996, 17 pairs bred (LUKAČ & TERNOVAC 1997) and, in 1998, 21 pairs (PUZOVIĆ *et al.* 1999). Data between 1998 and 2001 are missing. In 2001, 20 to 30 pairs bred, dropping to just 1 pair in 2003 (I. HAM *pers. comm.*).

In 1958 and 1967 Spoonbill bred in Uzdin forest, situated on the left bank of the Tamiš river (SZLIVKA 1959, PELLE *et al.* 1977). About 100 pairs bred there in 1965 (PELLE 1966/67). Later, there is no confirmation of breeding in this or in other parts of the Tamiš floodplain, although about 50 individuals used to stay regularly during the breeding season at nearby Uzdin fishpond between 1977 and 1992 (DEVIĆ 1995).

In the late 1980's, 40 pairs bred on Jazovo fish farm (PUZOVIĆ *et al.* 1999). Although adult individuals were observed on the fishpond in 2001, the first proved breeding was recorded in 2002, when six pairs bred (GERGELJ 2002). In 2003 four pairs bred on the fishpond (J. GERGELJ *pers. comm.*).

In natron lake Okanj, 59 to 60 pairs bred in 1998 (PUZOVIĆ *et al.* 1999). There is no data about breeding on this site before or after.

4.1.2.2. Breeding colonies in Bačka

Spoonbill bred in 1969 in the colonies at Srebrenica and Milšval (Danube floodplain near Apatin; SZLIVKA 1959), but since then, it no longer breeds in north-western Bačka (LAKATOŠ 1977).

In Bečej fish farm, Spoonbills have been observed regularly during the breeding cycle since 1987. The breeding of one pair was first confirmed in 1991, although breeding had probably occurred before that (I. BALOGH *pers. comm.*). The number increased to 45 in the following year (LUKAČ & LUKAČ 1992). From 1993 to 1995 the colony was situated in small pond with dense reedbed, the centre of the island being covered by White Willows *Salix alba* (BALOGH 1997A). 5 to 6 pairs bred in the reedbed below the willows, while 15 to 20 built their nests on the northern edge of the same pond, in cattail (I. BALOGH *pers. comm.*). Although 30 chicks were ringed in 1996, the total number of breeding pairs was not recorded (BALOGH 1997B). In 1997, 60 to 80 pairs bred and, in 1997 and 1998, 50 to 60 pairs (PUZOVIĆ *et al.* 1999). Although the colony was visited in 1999 and Spoonbills were recorded, no breeding pairs were found (BARNA &

MATOVIĆ 2001, K. BARNA *pers. comm.*). In 2002 two pairs bred (GERGELJ *et al.* 2000). The number of breeding pairs is again unknown for 2001, while in 2002 25 to 30 pairs bred (GERGELJ 2002). In 2003 50 to 70 pairs bred, but the colony had shifted to a different microlocation (A. ŽULJEVIĆ & I. BALOGH *pers. comm.*).

One breeding attempt at Ludaš lake was recorded during the 1980's. Before and after that this species has never bred in heron colonies on this lake (PUZOVIĆ 1998).

4.1.2.3. Breeding colonies in Srem

The number of breeding pairs on Obedska bara decreased from 1970 to 1980. Altogether 25 pairs

bred. In 1992 Spoonbill disappeared as a breeder in what had traditionally been the strongest breeding ground in Vojvodina (PUZOVIĆ 1998). In 2002, 1 – 2 pairs most probably bred again in a local heron colony (S. PUZOVIĆ *pers. comm.*).

In Trskovača marsh, near Platičevo, a well populated mixed heron and Spoonbill colony existed up to the mid 1970's, after which the area was drained, and birds stopped breeding (PUZOVIĆ *et al.* 1999).

4.2. Changes in breeding habitats

The breeding habitat of the Eurasian Spoonbill in Vojvodina changed significantly in the second half of the 20th century. Before, all colonies were situated

Table 1: Breeding sites of Eurasian Spoonbill *Platalea leucorodia* in Vojvodina, and their occupation by breeding pairs between 1800 and 2004 (+ breeding confirmed, – breeding absent).

Tabela 1: Zasedenost gnezditvenih lokalitet žličarke *Platalea leucorodia* v Vojvodini med letoma 1800 in 2004 (+ potrjena gnezditve, – ni gnezditve).

Site/ lokacija	1800– 1899	1900– 1910	1911– 1920	1921– 1930	1931– 1940	1941– 1950	1951– 1960	1961– 1970	1971– 1980	1981– 1990	1991– 2000	2000– 2004
Bečej fish farm	–	–	–	–	–	–	–	–	–	+	+	+
Jazovo fish farm	–	–	–	–	–	–	–	–	–	+	–	+
Perleska bara	+						+	–	–	–	+	+
Kapetanski rit fish farm	–	–	–	–	–	–	–	–	–	–	–	+
Zasavica river	+	–	–	–	–	–	–	–	–	–	–	–
Pančevački rit	+	+	+	+	+	+	–	–	–	–	–	–
Novosadski rit	+	+	–	–	–	–	–	–	–	–	–	–
Uzdin forest							+	+	–	–	–	–
Okanj natron lake		–	–	–	–	–	–	–	–	–	+	–
Apatinski rit								+	–	–	–	–
Ludaš lake		–	–	–	–	–	–	–	–	attempt/ poskus	–	–
Obedska bara	+	+	+	+	+	+	+	+	+	+	–	–
Trskovača marsh		+	+	+	+	+	+	+	+	–	–	–
Fenečka bara	+	+	–	–	–	–	–	–	–	–	–	–

on alluvial wetlands and river floodplains, or in marshy depressions. Following immense changes and shrinking in area and quality, influenced by the intensive drainage activities carried out throughout the 18th, 19th and 20th centuries (TOMIĆ *et al.* 2002), and having in mind that this species reacts immediately to the changes in its habitat (MÜLLER 1984), the number of pairs started to decrease as early as in the first quarter of the 20th century. This decrease continued and the population reached its lowest level in the 1970's, when breeding was confirmed only in Obedska bara. This unfavourable situation lasted until the late 1980's. At this time, breeding habitat became suitable on two fish farms, Jazovo and Bečej, which Spoonbills colonized. These fish farms were constructed in 1972 and 1969, respectively, but emergent vegetation had not been sufficiently structured, at least until the late 1980's when birds, probably at the same time, occupied both sites. Bečej fish farm has been a regular breeding site since then, Jazovo being only intermittently suitable. As breeding numbers continued to drop at Obedska bara, the importance of Bečej fish farm increased, and it was probably the only breeding site in Vojvodina between 1993 and 1996, when Spoonbills colonized the lower Begej complex. That was the period of stabilization of the breeding population. This lasted probably until 2000 or 2001, when the population started to increase. In 2004 it was 22% larger than in 1998. The increase in breeding numbers was probably connected with the increase in Hungarian colonies (OVERDIJK & ZWART 2003, VÉGVARI *et al.* 2003), as well as with the recent dispersal of birds which used to breed in colonies in Croatia, especially near Slavonski Brod (SCHNEIDER-JACOBY *et al.* 2002).

The Okanj colony appeared to be quite large in 1998. It was reported during the census of heron and cormorant colonies in Serbia in 1998, but its existence was not proved, either before or after (personal observations). Having in mind the very intensive research on Okanj between 1965 and 1973 (ŠOTI & DIMITRIJEVIĆ 1974) and its inspection in 2004, it is hardly likely that conditions for breeding of Spoonbill existed there. It is a somewhat typical natron lake, with just a narrow belt of emergent vegetation composed of sparse reed. The water is not suitable for feeding – no foraging Spoonbill or herons were observed there throughout 2004.

The regular home range of the birds from the colonies, even if feeding conditions are suitable, is 25 – 30 km (SCHNEIDER-JACOBY *et al.* 2002). The changes of quality of feeding sites and lowered accessibility of food were the most important causes of drastic

and progressive decrease in the number of breeding pairs of Eurasian Spoonbills in Vojvodina. Spoonbill needs shallow water (up to 30 cm deep) for foraging (HANCOCK *et al.* 1992). The progressive deterioration of suitable feeding sites was the reason for the immense decrease in the number of pairs in the largest recorded colony at Obedska bara. In the lower Sava valley, after large-scale drainage of the wide floodplain, the rest of the shallow flooded depression that used to be the most important feeding sites for all wading birds, have been planted with clone poplar plantations (PUZOVIĆ 1998). The last breeding pairs from Obedska bara disappeared after the small fishpond near Obrež was closed in 1988 (PUZOVIĆ 1995).

4.3. Features of current feeding sites

The large number of individuals breeding on Bečej fish farm (maximum 60 on 24 May 2004) have regularly fed until mid June in the ponds created on the site of the former "pond 1", after it was partitioned. As part of work aimed at deepening these ponds, embankments have been constructed and consolidated, creating numerous shallow depressions with water on their bottoms. A ditch, projected for sluice, has been connected with one of the fishpond's channels, which provided water for the shallow depressions. This artificial and temporary habitat was only slowly overgrown by sedge *Carex* sp. and was very rich in food, indicated by the presence of numerous herons. During June, the reconstruction works progressed, all the water evaporated and, in one of the newly constructed ponds, water was released. By that time, these ponds had become invaluable as Spoonbill feeding sites. Suitable feeding habitats on other parts of the fishpond have been very limited, and were visited by only a small number of individuals.

A wide spectrum of suitable and regularly visited feeding sites exists in the Tisa inundation zone: regularly flooded sites and small floodplain lakes situated along both banks of the river, waste water basins of the local sugar factory situated near Žabalj, and other suitable wetland sites.

A new pond was dug in 2004 on the north-eastern edge of Jazovo fish farm. Since its bottom was not flat, a number of depressions filled with water, mainly rainfall, serving as a regular feeding ground for local Spoonbills during the breeding period (until the second decade of July). In addition, a large number of individuals foraged throughout the breeding season on a number of suitable niches in other parts of the fish farm. Birds, probably originating from this colony,

were also observed foraging at the Novi Kneževac fishponds, situated some 20 km to the NW.

4.4. Current threats

A large number of people frequent Bečej, Jazovo and Kapetanski rit fish farms while, on the contrary, Perleska bara is almost completely isolated from human disturbance – there are no regular man-induced activities in the vicinity. On fishponds, fish feeding boats pass next to the colony at least once every day. Regular shooting takes place, aimed to protect fish from Cormorants *Phalacrocorax carbo*. Nevertheless, the sites on which all the colonies were found (including the potential one at the Kapetanski rit) are well protected from predator intrusion by the surrounding water, which acts as virtual barrier. However, there is evidence of illegal entry by humans taking chicks for private bird collections and zoos.

Burning of emergent vegetation is widespread on all fishponds in Vojvodina (TUČAKOV 2004), the scale and timing depending on the estimates and decisions of fishpond directors. There is a real possibility of threatening colonies in this way, as in the case of Jazovo, where reedbed burning has taken place several times, the last time in 2002. Further, changes in water level during the breeding period, occasioned by the fish production process (sudden rise or lowering), can stop breeding and destroy the clutches.

The privatization of formerly state-owned fishponds that is currently taking place in Serbia is a matter of special concern. There is reasonable fear and a real possibility that, after almost unavoidable changes of ownership of the fishponds, fish production will be greatly intensified, and breeding niches destroyed.

Spoonbills breeding in 2004 in the listed colonies have used very wide surrounding areas for feeding. These habitats are very fragmented and quite small. Feeding conditions, numbers of foraging individuals and its the associated dynamics, as well as overall importance for Spoonbill colonies, remain unknown.

4.5. Spoonbill protection in Vojvodina

Of the recent Spoonbill colonies in Vojvodina, only the colony on Perleska bara is protected, since this site is within the “Stari Begej – Carska bara” special nature reserve and Ramsar site. All other colonies are unprotected. However, the diversity of species and habitats on all the sites described above have been evaluated according to the BirdLife International’s criteria, since all of them are inside Important Bird Areas (IBA). Bečej fish farm and its vicinity forms a

4000 ha large IBA site (IBA code 003), Jazovo fish farm is part of IBA “Jazovo – Mokrin” (8000 ha, IBA code 011), while Kapetanski rit fish farm is situated in IBA “Subotica lakes and sandy terrains” (20000 ha, IBA code 002; PUZOVIĆ & GRUBAČ 2000).

Today, 97.9% of Spoonbill pairs in Vojvodina are breeding on man-made wetlands. The shift from natural wetlands poses a serious threat, as the survival of this species in Vojvodina now depends completely on the management of its breeding sites. Considering the sensitivity of the man-made habitats on which Spoonbill breed in Vojvodina, management measures should be well defined in order to harmonize economical utilization of resources on these sites with preservation of stability of the breeding and feeding sites for Spoonbills. For all fish farms where Spoonbills breed in Vojvodina, it is urgent that consistent conservation activity is focused on implementation by fishpond management authorities of the measures already prescribed in national biodiversity protection legislation (Decree on Protection of Natural Rarities, Official Gazette of Republic of Serbia, 50/93), and on strict control of this implementation by inspectors. Special attention should be paid to:

1. prevention of any physical destruction or damage of breeding niches;
2. maintenance of the quality of breeding niches by limiting the entry of humans to the reedbed during the breeding season, and avoidance of burning or cutting emergent vegetation in winter and early spring;
3. maintenance of suitable surfaces and appropriate water levels on Spoonbill feeding sites situated within the fishponds;
4. creation of permanent feeding sites (shallow ponds) which will be managed exclusively for feeding specialized feeders.

Conservation should be very carefully directed. Not a single fishpond system in Vojvodina is currently protected, although these sites support a very important proportion of the national population of other waterbirds, as well. Of greatest importance is the globally threatened Ferruginous Duck *Aythya nyroca*, which is now almost completely a fishpond-breeder in Serbia (PUZOVIĆ & TUČAKOV 2003).

The value of feeding areas situated outside the fishpond for Spoonbills is more important than those situated within the ponds. All of them have to be mapped and, where possible, maintained suitably for Spoonbill.

Besides harmonization of the conservation needs of Spoonbill and other waterbirds breeding on fish farms, special attention should be paid to the restoration and

adequate management of historical breeding sites. This is particularly needed for Obedska bara, once the key site for the Eurasian Spoonbill in Vojvodina (PUZOVIĆ *et al.* 1999). Since the Spoonbill colony disappeared, due to deterioration of foraging sites, special attention, with international participation, is already being directed in order to ensure maintenance of regularly flooded meadows, and to slow their rapid eutrophication (S. PUZOVIĆ & M. SCHNEIDER-JACOBY *pers. comm.*)

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5. Povzetek

V 19. stoletju je žličarka *Platalea leucorodia* v Vojvodini gnezдила v velikem številu. Odtlej so bile njene gnezdeče kolonije zabeležene – razen ob spodnjem toku Save, kjer že tradicionalno obstajajo njene najmočnejše kolonije – tudi v Zasavici, Pančevačkem in Novosadskem ritu in v spodnjem delu doline Begej. Čeprav je v prvi polovici 20. stoletja v Vojvodini še vedno gnezdilo od 500 do 1000 parov, pa je populacija žličarke v Vojvodini v prvem desetletju prejšnjega stoletja začela upadati. V drugi polovici 20. stoletja je gnezdila ali je poskusila gnezditi na 9 lokalitetah: v spodnjem delu doline Begej, v Uzdinskem, na ribnikih Jazovo, na Okanjskem jezeru, v donavskem poplavnem gozdu blizu Apatina, na Bečejskih ribnikih, Ludaškem jezeru, v Obedski bari in v Platičevem. Sredi osemdesetih let 20. stoletja, ko je bilo število gnezdečih osebkov najnižje, so se žličarke začele naseljevati v trstičjih ribogojnic. Te umetne habitate danes naseljujejo kar tri od štirih gnezdečih kolonij, obstoječih v Srbiji. Leta 2004 je v Srbiji gnezdilo od 147 do 182 parov, kar je 2,49% evropske populacije. Avtor prispevka opisuje zgodovinsko in današnjo gnezditveno razširjenost te ptice v Vojvodini, njeno ogroženost, značilnosti njenih trenutnih prehranjevalnih okolijev in ukrepe, ki bi jih bilo treba sprejeti za zaščito žličarkinih gnezdišč.

6. References

- BALOG, I. (1997A): Breeding of Pygmy Cormorant (*Phalacrocorax pygmeus*) on the Bečej fishpond. – *Ciconia* 6: 40–43. (In Serbian, with English abstract)
- BALOG, I. (1997B): Results of ringing herons at the Becej fishpond. – *Ciconia* 6: 17. (In Serbian, with English abstract)
- BARNA, K. & MATOVIĆ, Č. (2001): Results of ringing of herons in some breeding colonies in Vojvodina during 1998 – 2000. – *Ciconia* 10: 27–29. (In Serbian, with English abstract)
- BURFIELD, I. & VAN BOMMEL, F. (2004): Birds in Europe: Population Estimates, Trends and Conservation Status. – BirdLife International, Cambridge.
- DEVIĆ, I. (1995): The ornithofauna of the fishpond “Uzdin”. – *Ciconia* 5: 32–44. (In Serbian, with English abstract)
- DOMBROVSKI, E. (1895): Osnovi ornitologije sjeverozapadne Srbije. – *Glasnik Zemaljskog muzeja Bosne i Hercegovine* 7: 63–104.
- GAROVNIKOV, B. (1992): Svet u opasnosti – čaplja kašikara ili kašikar (*Platalea leucorodia*): Izuzetno korisna ptica. – *Lovačke novine* 681/682: 27. (In Serbian)
- GERGELJ, J., TOT, L. & FRANK Z. (2000): Birds of Tisa area from Kanjiza to Novi Becej. – *Ciconia* 9: 121–158. (In Serbian, with English summary)
- GERGELJ, J. (2002): White Stork and heron colonies – public information campaign. – *Ciconia* 11: 26–34.
- HAGEMEIJER, W. & BLAIR, M., eds. (1997): The EBCC Atlas of European Breeding Birds. – T & AD Poyser, London.
- HANCOCK, J.A., KUSHLAN, J.A. & KAHL, M.P. (1992): Storks, Ibisses and Spoonbills of the World. – Academic Press, London.
- HAM, I. (1977): Avifaunal dynamism in Vojvodina. – *Arhiv bioloških nauka* 29 (1/2): 83–87. (In Serbian, with English summary)
- HAM, I. (1989): Changes in heron populations on wider area of the Carska bara. – *Arhiv bioloških nauka* 41(3/4): 13P–14P.
- LAKATOŠ, J. (1977): Birds of Apatin region. – NIU “Glas Komune”, Apatin. (In Serbian, with English summary)
- LUKAČ, Š. & LUKAČ, A. (1992): Ornithofauna of the fishpond “Bečej”. – *Ciconia* 4: 4–27. (In Serbian, with English summary)
- LUKAČ, Š. & TERNOVAC, T. (1997): Heron colony on the Carska bara. – *Ciconia* 6: 115. (In Serbian, with English abstract)
- MARČETIĆ, M. (1955/56): Spoonbill, *Platalea leucorodia*, no longer a permanent nester of marsh bird colonies in Vojvodina. – *Larus* 9/10: 169–171.
- MATVEJEV, S. (1950): Rasprostranjenje i život ptica u Srbiji. – Srpska akademija nauka, Beograd. (In Serbian, with English summary)
- MÜLLER, C.Y. (1984): Bestandsentwicklung und Zugverhalten der Löffler (*Platalea leucorodia* L.) in österreichisch-ungarischen Raum. – *Egretta* 26: 43–46.

- OSIECK, E. & VOSLAMBER, B. (1997): Spoonbill *Platalea leucorodia*. pp. 60–61 – In: HAGEMEIJER, W. & BLAIR, M. (eds.): The EBCC Atlas of European Breeding Birds. – T & A-D Poyser, London.
- OVERDIJK, O. & ZWART, F. (2003): The actual state of the Spoonbill in Europe. pp 7–8 In: VEEN, J. & STEPANOVA, O. (eds.): Wetland management for Spoonbills and associated waterbirds. – EUROSITE, Tilburg.
- PEKIĆ, B. (1958): A contribution to the knowledge of the birds of Carska Bara and its environment. – *Zaštita prirode* 14: 11–19. (In Serbian, with English summary)
- PELLE, I. (1966/67): Ornithological report from east Vojvodina. – *Aquila* 73–74: 204.
- PELLE, I., HAM, I., RAŠAJSKI, J. & GAVRILOV, T. (1977): Überblick über Brutvögel der Vojvodina. – *Larus* 29/30: 171–197. (In Serbian, with German summary)
- PUZOVIĆ, S. (1995): Savremeni ekološki okvir Obedske bare. – *Povratak Obedske bari* 1: 1–19. (In Serbian)
- PUZOVIĆ, S. (1998): Ramsar areas in Serbia and their function in preservation of diversity of birds in watery habitats. – *Zaštita prirode* 50: 283–290. (In Serbian, with English summary)
- PUZOVIĆ, S., GERGELJ, J. & LUKAČ, Š. (1999): Heron and cormorant colonies in Serbia 1998. – *Ciconia* 8: 11–114. (In Serbian, with English summary)
- PUZOVIĆ, S. & GRUBAČ, B. (2000): Federal Republic of Yugoslavia. pp. 725 – 745 In: HEATH, M.F. & EVANS, M.I. (eds): Important Bird Areas in Europe: priority sites for conservation. – BirdLife International, Cambridge.
- PUZOVIĆ, S. & TUČAKOV, M. (2003): Overview of Ferruginous Duck in Serbia. pp. 56–61 In: PETKOV, N., HUGHES, B. & GALLO-ORSI, U. (eds): Ferruginous Duck: From Research to Conservation. – BirdLife International – BSPB – TWSG, Sofia.
- SCHNEIDER-JACOBY, M., MIKUSKA, T., KOVAČIĆ, D., MIKUSKA, J., ŠETINA, M. & TADIĆ, Z. (2002): Dispersal by accident – the Spoonbill *Platalea leucorodia* population in Croatia. – *Acrocephalus* 22 (109): 3–18.
- SZLIVKA, L. (1959): Einiges über die Vogelwelt in der Vojvodina. – *Larus* 11: 29–36. (In Serbian, with German summary)
- ŠOTI, J. & DIMITRIJEVIĆ, S. (1974): Beitrag zur Kenntnis der Wasserwögel des west – Banats (Gaviiformes, Podicipediformes, Pelecaniformes, Ciconiiformes und Anseriformes). – *Zbornik za prirodne nauke matice srpske* 46: 127–160. (In Serbian, with German summary)
- TOMIĆ, P., ROMELIĆ, J., KICOŠEV, S. & LAZIĆ, L. (2002): Vojvodina: scientifically – popular monograph. – University of Novi Sad, Faculty of Natural Sciences, Department of Geography, Tourism and Hotel Management, Novi Sad.
- TUČAKOV, M. (2004): Can nature tolerate the destruction of sensitive habitats by fire? – *DEF Bulletin* 1/2004: 4–5.
- TUCKER, G.M. & HEATH, M.F. (1994): Birds in Europe: Their conservation status. – BirdLife conservation Series No. 3., BirdLife International, Cambridge.
- VÉGVARI, Z., KÓVACS, G. & KAPOCSI, I. (2003): Population trends, conservation and colony site selection of Spoonbills in the Hortobágy National Park, Hungary. pp. 31–34 In: VEEN, J. & STEPANOVA, O. (eds.): Wetland management for Spoonbills and associated waterbirds. – EUROSITE, Tilburg.
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