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Nesting success of the Great Reed Warbler (*Acrocephalus arundinaceus* Linnaeus, 1758) in Sombor municipality

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INTRODUCTION

Methods for survey of nests of the Great Reed Warbler (*Acrocephalus arundinaceus*) are presented in studies done in Europe (BEIER, 1981; DYRCZ, 1981). In a German study it was written that reed must be surveyed systematically to find every nest (BEIER, 1981). During the regular nest control the reed must be pursued systematically in the time of the whole breeding season, if we want to find the nests built in the late period (BEIER, 1981; DYRCZ, 1981, 1986).

The aim of this study was to present the breeding success of the Great Reed Warbler at five different habitats in Sombor municipality.

STUDY AREA

Pond Bager and Pista

The pond Bager is located in the suburban area of the northern periphery of Sombor (Table 1), which was established during the digging of clay for the local brickyard in the 1940s and 1960s. The water level of the pond depends from the participation and ground water. During the dry summer season the water decreases because of the intensive evapotranspiration. At the end of summer 2009 the pond was completely dry. In the surroundings there are crop fields and houses of the periphery of the town.

Pista is also a small pond which is surrounded by arable land 8 km northwest from Sombor (Table 1). According to our informations the pond was established during the 1970s as it was diged for sand.

Veliki Bački canal-Lugovo

Veliki Bački canal is one of the canals of the open canal net (OKM), and a part of the hidro-system Dunav-Tisa-Dunav. The total length of the OKM in Sombor municipality is 77 km (Table 1). The banks of the Veliki Bački canal are generally rich with reed vegetation (*pers. obs.*).

Čonić (Mostonga) and river Plazović

Mostonga is a water flow near Sombor, which was formed from two arms, the northern and the eastern, respectively. The water flow is one of the most important melioration canals in the municipality and it is a part of the detailed canal net (DKM). The total length of the DKM in Sombor municipality is 821,01 km (VDP „Zapadna Bačka”, 2009). The Čonić is a smaller arm of the Eastern Mostonga which lies at the eastern periphery of Sombor. The river Plazović is also part of the DKM which comes from Hungary in Serbia where its total length is about 37 km (VDP „Zapadna Bačka”, 2009).

Table 1. Main characteristics of study area.

Study area	Central location	Size of study area	Reed (%)	Other herb vegetation (%)	Woody vegetation (%)	Water area (%)
Bager	45°47'16" N 19°05'54" E	1,2 ha	85	5	0	10
Pista	45°50'24" N 19°02'53" E	0.58 ha	60	35	0	5
Veliki Bački canal-Lugovo	45°44'20" N 19°09'57" E	750 m	15	4	1	80
Čonić (Mostonga)	45°47'48" N 19°08'30" E	759 m	20	11	1	68
Plazović - Kolut	45°50'52" N 18°51'53" E	705 m	17	2	1	80

METHODS

Nests were surveyed from 23th of May to 1th September 2009. At the randomly chosen locations at the Veliki Bački canal, Čonić (Mostonga) and Plazović river both sides were surveyed, while in case of pond Bager and Pista the whole territory was explored for nests. The reed was systematically surveyed, and during the breeding season the locations were completely explored every five days in case of nests which appeared in later time of the nesting season. Every nest found was visited for every five days when the following parameters were registered: deepness of water under the nest, the height of the nest from water or dry ground, number and the changes of the clutch and young, the weight of the nestlings, humidity of the nest. The weight of the nestlings was measured by a precise scale. Every nestling was ringed.

We calculated mean clutch size and mean number of fledglings. For estimating breeding success we used Mayfield's method for estimating nesting success (MAYFIELD, 1975). With this method we calculated mortality rate, which included lost nests and nests with a Cuckoo fledgling because Cuckoo fledglings usually kill Great Reed Warbler nestlings. There was used J-test which compares two Mayfield's statistics (JOHNSON, 1979; HENSLER & NICHOLS, 1981).



Figure 1. Clutch and nest with young of Great Reed Warbler (*Acrocephalus arundinaceus*). Photo by: A. ŽULJEVIĆ

RESULTS

A total of 40 Great Reed Warbler nests was found with a total of 147 eggs, from which 59 fledglings fledged out. Only in case Pista the survival of eggs was much higher than the survival

of nestlings (Table 2). In this report under „breeding success“ we understand the possibility that one egg becomes a fledgling (Table 2).

Table 2. Breeding success of the Great Reed Warbler in Sombor municipality.

Study area	<i>z</i> *	<i>P</i> <	Rate of lost eggs	Mortality rate of nestlings	Mean clutch size	Mean number of nestling	Hatching rate	Breeding success
Bager	1,43	<i>NS</i>	0,19	0,09	4,09 <i>SD</i> ±1,22	2,54 <i>SD</i> ±1,75	0,91	0,67
Pista	2,89	0,01	0,00	0,44	4,60 <i>SD</i> ±0,55	2,20 <i>SD</i> ±2,28	0,95	0,53
Veliki Bački canal-Lugovo	1,36	<i>NS</i>	0,83	0,98	3,85 <i>SD</i> ±1,57	0,00 <i>SD</i> ±0,00	1,00	0,003
Čonić (Mostonga)	0,34	<i>NS</i>	0,52	0,46	3,55 <i>SD</i> ±1,13	1,11 <i>SD</i> ±1,76	0,89	0,23
Plazović - Koluta	0,89	<i>NS</i>	0,34	0,36	4,00 <i>SD</i> ±0,71	2,00 <i>SD</i> ±1,87	1,00	0,42
Total	0,83	<i>NS</i>	0,36	0,31	4,10 <i>SD</i> ±0,50	1,60 <i>SD</i> ±1,00	0,94	0,42

* *z*: is a value got from J-test, which shows the connection between the daily survival rate of eggs and nestlings.

CONCLUSIONS

These are preliminary results because the research had been done only in one breeding season. To have a better information about the breeding success of the Great Reed Warbler in Sombor municipality we need to do further researches during several breeding seasons at the same localities. The members of the society NATURA are planning further researches to do in the next years too.

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