

A CASE OF LATE BREEDING OF THE BLACK STORK *Ciconia nigra* IN NORTHWESTERN VOIVODINA (SERBIA)

Primer poznega gnezdenja črne štorke *Ciconia nigra* v severozahodni Vojvodini

MARKO TUČAKOV

Marka Oreškovića 9, YU-25275 Bački Breg, Yugoslavia, e-mail: tucakovm@yahoo.com

The Black Stork *Ciconia nigra* is a regular member of the breeding bird fauna of Serbia (VASIĆ 1995). The present breeding distribution includes primarily the Pannonian plain, and only some breeding pairs are present south of the rivers Sava and Danube. In Serbia, 95-100 pairs have bred recently (PUZOVIĆ & RAŠAJSKI 1996).

The special nature reserve, "Gornje Podunavlje", is situated in the northwestern part of Voivodina province (Pannonian part of Serbia), along the left bank of the Danube. This is a large inundated area, with alluvial wetlands and extensive oak, willow, poplar and ash forests. The site also comprises numerous swamps, backwaters with reedbeds, and poplar plantations (PUZOVIĆ & GRUBAČ 2000). At the national level, the area has been protected as a nature reserve since 2001, and proposals for its designation as a Ramsar site and biosphere reserve are now prepared. This site is most important at the national level for the breeding of Black Storks, as it supports 35-45 pairs, which is 40% of the whole Serbian population (PUZOVIĆ & RAŠAJSKI 1996). Most pairs breed in old enclaves of oak and white poplar forests, on old trees in the southern and northern parts of the reserve (Apatinski rit floodplain and Karapandža forest).

During a visit to Karapandža (northernmost part of the reserve) on September 23rd 2000, a hitherto unknown nest of Black Storks was found by chance on an old oak tree in a mixed stand of hornbeam and red oak (ass. *Carpinio betulis-Quercetum roboris*). The nest was on the border of the stand close to a poplar plantation, near the state border between Yugoslavia and Hungary, more than two kilometres to the west of the village Bački Breg (UTM CR38). One individual of unknown age flew out of the nest, and three Black Storks in juvenile plumage were on a branch in front of the nest. These individuals did not fly away, even on my nearest approach. From that I assumed that they were hatched there. Under a tree there was a circle of fresh excrements.

Three questions are important in this case: 1) why breeding started so late, 2) whether this number of reared juveniles is usual for Black Storks in Serbia, and 3) where the adults found enough food for their

young, considering the unfavourable weather conditions in 2000?

This is the only known case of extremely late, but successful breeding of Black Stork in Serbia. There are other records of incubation starting at the end of June, but it is not known whether the breeding was successful or not (CRAMP & SIMMONS 1977). If the juveniles were about 70 days old, they hatched between July 16th and 24th, and incubation of eggs started between June 12th and 14th. Incubation usually starts in mid-April, and lasts 35-36 days. Young birds stay in the nest for 63-71 days after hatching (CRAMP & SIMMONS 1977). In Voivodina, egg laying takes place in the second half of April, hatching of young in early June, and the nest is vacated in late July or early August (PUZOVIĆ *et al.* 1989). It is possible that this breeding was started so late because the birds were disturbed by the presence of humans. In such cases, Black Storks could build a new nest (KALOCSA 1996). It is also possible that the breeding was repeated, but there is no evidence for that.

The number of juveniles (3 or maybe 4) in this case is higher than the average for Black Storks in Voivodina. In Apatinski rit floodplain during the 1970's breeding success was 2.6 juveniles per nest (LAKATOŠ 1979), the same as the breeding success at Obedska bara wetland in southern Voivodina during a five-year study (PUZOVIĆ *et al.* 1989). It is interesting that the average number of juveniles per nest in 2000 in the alluvial forests of Gemenc in Hungary (some 20 km north from reserve) were the largest in the last decade - 4.05 (KALOCSA & TAMAS 2001).

The whole of Serbia in 2000 was unusually warm, with minimal precipitation. According to information from the Weather Bureau of Serbia, at the nearest meteorological station in Sombor, the median temperature for the year was 12.8°C, and the total precipitation just 277.5 mm. By comparison, in the period between 1961 and 2000, at the same station, the median annual temperature was 10.6°C, and the total precipitation per year, 583.5 mm. Shallow depressions in the abandoned fishpond at Labudnjača, the most important feeding site of local Black Storks in Karapandža, were completely dry. Therefore, it is not

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clear where the adults found enough food for raising three young.

For many other wetland birds with similar ecology, the whole breeding activity depends on feeding sites with enough food. Years with more precipitation are known to be more favourable for reproduction of White Storks *Ciconia ciconia*. Such conditions offer abundant food supply in eutrophic swamps and meadows, which are the main feeding places of this species in south-eastern Voivodina (RAŠAJSKI 1989). An optimal source of food makes it possible for White Storks to rear more juveniles (DELIC & MATIJEVIĆ 1989). In contrast, other authors have found a negative correlation between precipitation in the breeding season and the number of reared juveniles (BERT & LORENZI 1999). There is just one confirmed case of extremely late breeding of White Stork in Vojvodina. On September 12th 1980, two nestlings were observed in the village of Nikolinci, in southeastern Banat region, but the reasons were not determined (RAŠAJSKI 1989).

HAM (1977) concluded that the beginning of the breeding period in four heron species (Night Heron *Nycticorax nycticorax*, Squacco Heron *Ardeola ralloides*, Grey Heron *Ardea cinerea* and Little Egret *Egretta garzetta*) in a mixed colony at the mouth of the Begej in the Tisa (central Voivodina) correlated with suitable water regime.

Based on the available data, it is difficult to conclude what the main reason was for such late, but successful breeding of Black Stork.

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Summary

In Karapandža forest, in northwestern Voivodina, a nest of Black Stork *Ciconia nigra* was discovered on September 23th 2000. One individual of unknown age flew out and three juveniles were on branch in front of the nest. If the juveniles were about 70 days old, they hatched between July 16th and 24th, and incubation of eggs started between June 12th and 14th. This is the only documented case for such late breeding of Black Storks in Serbia, but the reasons for it are not clear.

Povzetek

V gozdu Karapandža (SZ Vojvodina) je bilo 23.9.2000 najdeno gnezdo črne štoklje *Ciconia nigra*. Ob odkritju je osebek neznane starosti zletel iz gnezda, medtem ko

so bili ob gnezdu na vejah opazovani trije juvenilni osebki. Avtor sklepa, da so se mladiči v primeru, da so bili ob odkritju stari okoli 70 dni, izvalili med 16. in 24. julijem, samica pa je začela valiti med 12. in 14. junijem. To je doslej edino dokumentirano pozno gnezdenje črne štoklje v Srbiji, vzroki zanj pa še vedno niso znani.

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