



## THE RESULTS OF BLACK STORK CENSUS IN UKRAINE IN 2008-2009

Oleksandr S. PANCHUK\* and Valentyn V. SEREBRIAKOV

\* Corresponding author, Biol.Dept., Shevchenko National University in Kiev, Ukraine: ciconia@ukr.net

### SYNOPSIS

#### Key words:

Black Stork,  
numbers,  
factors,  
nest biology,  
Ukraine.

In 2008-2009 the next account of Black Storks (*Ciconia nigra* Linnaeus, 1758) was conducted in Ukraine. Due to the results it was learned that about 264-273 pair of Black Storks breed in the state. But we consider that the real number could be more than 500 pair because it was investigated near a half territory of its area in Ukraine. Its numbers are slowly increase and the main reason for this is an adaptation to the anthropogenic factor. The basic negative factor for its number increasing is the intensive timber cutting. Some aspects of Black Stork nest biology are presented in the article, also.

### INTRODUCTION

Black Stork (*Ciconia nigra* Linnaeus, 1758) is a species that has a very wide natural breeding habitat. It is stretched out through the whole forest zone from Western Europe to the banks of the Japanese Sea. The birds breed on the south of the Pyrenean peninsula, in the Middle Asia, Iran, Mongolia, China, on Sakhalin Island, on Caucasus and Transcaucasia as well. A small local population is known on the south of Africa. European birds usually spent winter in Africa, to the South of Sahara desert; Asian birds – in India and in South-East part of China. In spite of such large natural habitat, its numbers is low everywhere. For example, European population was estimated as 5513-6111 pair in 1997 (Hagemeijer & Blair, 1997). Therefore this species is protected with Bonn, Bern and Washington Conventions.

In Ukraine Black Stork is spread in the Forest zone, which is on the North of the country, and in Carpathian region – on the West (fig. 1). It is a rare Red book species (Akimov, 2009).

In Ukraine Black Storks census was conducted three times. They showed gradual increase of the species numbers. In 1977 its number was estimated as 200-250 pairs, in 1984 – 250-300, in 1990-91 – 300-350 breeding pairs (Golovach et al., 1990; Gryshchenko et al., 1992). After the last census studies were conducted only

in separate regions: in the Transcarpathian (Lugovoy & Potish, 2004) and Rivne regions (Dziubenko et al., 2009). In order to make clear the modern number of the species in the whole country the All-Ukrainian census was organized and conducted by the authors of the article, together with the Department of zoology of Shevchenko National University in Kiev and Bird Conservation and Study Society of Ukraine in 2008-2009.

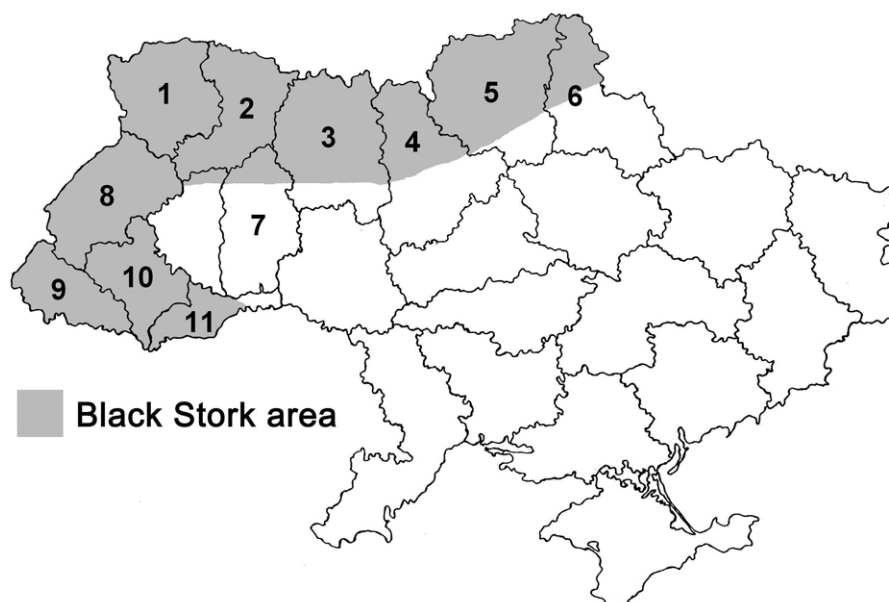


Figure 1: The Black Storks area in Ukraine.

Forest zone: 1 – Volyn, 2 – Rivne, 3 - Zhytomyr, 4 – Kiev, 5 - Chernihiv, 6 – Sumy, 7 - Khmel'nitsk; Carpathian region: 8 – Lviv, 9 – Transcarpathian, 10 - Ivano-Frankivsk, 11 - Chernivtsi.

## MATERIALS AND METHODS

The main data on Black Stork distribution and breed were collected as during the previous censuses due to questionnaires (Golovach et al., 1990; Gryshchenko et al., 1992). In 2008 they were distributed in the regions which were included in the species area. Questionnaires were addressed to professional ornithologists, forestry and hunting managers, teachers of biology, birdwatchers, etc. There was a request to reply if one had information on Black Stork nest or had observed birds during their migration or breeding season. Nests need to be described in following format: its location, tree species and altitude as placed on it, type of the forest, etc. If nests were not known in the area, but the birds were observed it was needed to specify the dates. Localities where birds were often recorded we take as places of possible breeding. In the questionnaire there were such questions: whether numbers

increased in the district; reasons of number changes; whether the cases of species death known or their nests destroying, reasons for that, etc.

The most part of information was collected during the own field researches. During field studies we marked nests and possible places of their location by asking local people. All nests were described according to above mentioned format. Thus some data on species nest biology were also collected. Breeding pairs were recorded as well by observations conducted in sites characteristic for Black Stork.

Also valuable information was used which was kindly given to us by professional ornithologists of different scientific establishments.

## RESULTS AND DISCUSSION

822 questionnaires were distributed during Black Stork census in Ukraine in 2008-2009. We got 60 with one and more questionnaires filled in. Recovery equal 7,2%. It is low enough in comparison with previous censuses (Golovach et al., 1990). There were 105 Black Stork nests exactly indicated and 80-89 records of possible breeding. Most of the replies came from forestry and hunting managers, teachers and young birdwatchers.

Due to some expeditions, organized in 2009, 23 nests were found and 51 places of possible breeding were recorded. Ornithologists reported 5 places of possible breeding.

Thus, as a result of the census in 2008-2009 128 nests and 136-145 probable places of breeding were recorded. So, not less than 264-273 pairs of Black Stork breed in Ukraine.

The most number of breeding pairs are recorded in the Western part of the Forest Zone of Ukraine. In Volyn region there are 49-52 pairs, in Zhytomyr – 68-71 pairs. Only a half territory of the region was studied. Therefore to our opinion, about 140 pairs are breeding here. We have studied the densest part of forests in the region. The average density of the nests in this area is 3,2 pairs per 100 km<sup>2</sup>. There are 29 pairs in the Rivne region. But this area is the most forest-covered, and information came from one fourth part of its territory. So we consider that not less than 100 pairs could breed here. 2 pairs are recorded in the Khmel'nitsk region, but it could be about 10.

There are fewer birds in the Eastern part of Forest Zone than in the Western one. Kiev region was studied very well by us. During the expeditions 38 nests were recorded on its territory, except far Northern its part. The average density was 1,7 nests per 100 km<sup>2</sup> of the forests. Only area of alienation of the Chernobyl was not studied, where a couple dozens of pairs probably could breed. 27 pairs recorded in Chernihiv, but it is possible in the area that two times more pairs could be because

only half of the forests were studied. Only two nests are recorded in the Sumy area, but as for our estimates about 10 could have happened.

The most number of nests in Carpathian region are registered in Lviv area – 21-23 pairs, in Transcarpathian area – 18-19 and in Chernivtsi – 8 pairs. We have got lack information on Ivano-Frankivsk area (only 2 pairs), where according to Red Data Book 30-40 pairs could breed there. In all Carpathians regions 100-150 pairs probably breeding (Akimov, 2009; Bokotei & Dziubenko, 2007).

As goes from the above mentioned information, larger part of Black Stork area on the territory of Ukraine remained not investigated. So we consider that information we got is at least twice less, than it could be in reality and the total number of breeding Black Storks in Ukraine is not less than 500 pair.

In comparison with previous census the results of the last one shows that bird numbers increased. It is confirmed by respondents which answered on questionnaires. The majority of them specified, that amount of the birds in their locality had been increased as compared to the last years. Black Stork number increasing is related to their adaptation to the man made environmental changes (Grishchenko, 1994; Gorban, 1992). They began to build their nests nearer to the settlements and intensively used highways. Many cases are known when storks continue to breed after woods was cut down close to the nest. Birds often feed themselves on the fields or wetlands not far away from dwellings of people. We recorded an interesting case, when adult stork was looking for food in a lake in a middle of a village, for 20 m from a house and for 15 m from a road. We observed it a half a hour, but it does not paid attention to us.

There is a process of swamping on territory of Forest zone, through overgrowing of the drainage channels and beavers' activities. It leads to increasing of forage resources of stocks and inaccessibility of territory that, sure, diminishes the anthropogenic loading. Forage lands also increase as a result of diminishing agriculture activities. Very often Black Storks were observed on small shallow bogs, which appeared on undeveloped fields. Another factor which positively influenced *C. nigra* numbers is the diminishing human population in the Forest zone. It reduces the factor of disturbing, because less people visit the forests. There are settlements which remained only on the map or are near to this position. So one of the recorded nests is situated less than in one hundred meters from former village, where fields and ponds of which storks use for foraging.

The most negative factor which influences on a storks number in Ukraine is the intensive timber cutting. It results in diminishing of quantity of trees suitable for nesting. Timber cutting, which is conducted during a breeding period, also disturbs storks here, whereupon they abandon nests.

For the future Black Stork number in Ukraine increase it is necessary to establish a protected area round the known inhabited nests, to increase the territory

of protected areas, to support the areas of the old ripe forests, install platforms in suitable for nesting places.

During an account the information on certain aspects of Black Stork nest biology was collected. In Ukraine they like to their nests on 10 trees species. The most of them are on oak and pine-tree on: 53,6% and 23,7% accordingly. They are also on alder (10%), aspen (4,6%), on beech, birch and ash (1,8%), on fir tree, silver fir and willow (0,9%) (n=110). The height of placing of nest vary from 4 to 32 m, average – 12,4±5 m (n=82). 97,5% of them are up to 20 m high. 84,8% are in the mixed and broad leaves forests, and 15,2% – in coniferous (n=92). Nests are located on lateral branches – 60,6% and in the fork of basic trunk – 39,4% (n=33). Nests are used up to 25 years. Among known nests 27,4% are old than 10 years (n=73). Size of broods is between 2 and 4 nestlings, in average – 3,03±0,82 (n=34). There were 2 nestling in 29,4% broods, 3 – in 41,2%, 4 – 26,5% and 5 nestlings in 2,9% of broods. Distance from a nest to the water body was 5 to 7000 m. Among them 69,9% of nests were on the distance up to 1000 m (n=83).

### CONCLUSION

Black Stork number in Ukraine is not less than 500 pair and it gradually, as well as in European, increases (Akimov, 2009). The most negative factor which influences on the number is an intensive timber cutting. The most positive is an adaptation of stocks to man made environmental changes. Birds build nests on 10 trees species: mainly on oak (53,6%) and pine-tree (23,7%). The height of placing of nest vary from 4 to 32 m, in average – 12,41±5 m. 84,8% nests are in the mixed and broad leaf forests, and 15,2% are in a pine-tree forests. The size of broods is between 2 and 5, in average – 3,03±0,82.

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Original research article

Received: 4 August 2010.