

THE STUDY OF THE NIDOBIOLOGY AND OF THE POSTEMBRYONIC DEVELOPMENT AT *Ciconia ciconia* (AVES) IN THE COURSE OF INFERIOR PRUT

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Abstract. For the Republic of Moldova, *Ciconia ciconia* is a migrant species. Decreased effective of the *Ciconia ciconia* it is stopped and stabilized in other places. I study the nidobiology and the postembryonic development at the *Ciconia ciconia*, nests from the course of inferior Prut monitorized always, it was observed a nest the Slobozia Mare village in the 2006 and 2007 years, it was a nest in the Colibasi, a nest in the Valeni village and a nest in the Manta village from the Cahul district. All the nests were placed on shiny and high places with a good looking towards food places. The nests were built from branches, roots, ground and were lined with straw, hay, grass, paper or rag. Number of eggs in the nests was 4. The male and the female hatch alternatively, and the change of the partners at the nest it is usually through a plathering. The young one at the age of a day he is not wet, covered with down, white and seldom down. At 14-17 days, the cubs do movements in their nest always. To the age of 21-25 days, the cubs stay in their feet already. To the age of 7 weeks the youngs goes to the measure of adults, and to the end of the july month they go from the nest. At the age of three months, they don't depend on their parents and they can feed them selves. *Ciconia ciconia* feed it self without animals. The undigestible remainders are eliminated after 1-2 days, through regurgitation. Parents bring water to the nest in the hot days, pouring out from above to the opened beaks of the youngs. We want to unfurl projects for the adoption of a law who will protect the stork and her nest, because in our Republic of Moldova doesn't exist such a law.

Keywords: nidobiology, postembrionic, nest, young, development.

Rezumat. Studiul nidobiologiei și al dezvoltării postembrionare la *Ciconia ciconia* (Aves) în cursul Prutului inferior. Pentru Republica Moldova *Ciconia ciconia* este o specie migratoare. În țară scăderea efectivului de *Ciconia ciconia* s-a oprit și s-a stabilizat. Am studiat nidobiologia și dezvoltarea postembrionară la specia *Ciconia ciconia* referindu-ne la 4 cuiburi din cursul inferior al Prutului, monitorizate în permanență fiind observat un cuib în localitatea Slobozia Mare în anii 2006 și 2007, un cuib în localitatea Colibași, un cuib în localitatea Văleni și un cuib în localitatea Manta din raionul Cahul. Toate cuiburile au fost amplasate pe locuri înșorite și înalte, cu o vedere bună asupra zonelor de hrănire. Cuiburile au fost construite din crengi, rădăcini, pământ și au fost căptușite cu paie, fân, iarbă, hârtie sau cârpe. Numărul ouălor în cuib au fost în număr de 4. Masculul și femela clocesc alternativ, iar schimbul partenerilor la cuib este de obicei însoțit de clămpănit. La vârsta de o zi, puilul este uscat, acoperit cu puf alb și des. La 14-17 zile, puilii realizează mereu mișcări în cuib. La vârsta de 21-25 zile, puilii stau deja în picioare. La vârsta de 7 săptămâni, puilii ating mărimea adulților, iar la sfârșitul lunii iulie părăsesc cuibul. La vârsta de 3 luni, nu mai depind de părinți și se pot hrăni singuri. *Ciconia ciconia* se hrănește exclusiv cu animale. Resturile nedigerate sunt eliminate după 1-2 zile, prin regurgitare sub formă de ingluviu. În zilele foarte călduroase și caniculare, părinții aduc apă la cuib, vârsând-o de sus în ciocurile deschise ale puilor. În Republica Moldova nu există o lege care să protejeze barza și cuibul acesteia, dorim ca să derulăm proiecte pentru adoptarea ei.

Cuvinte cheie: nidobiologie, postembrionar, cuib, pui, dezvoltare.

INTRODUCTION

Referring to the area of *Ciconia ciconia* (LINAEUS 1758), it includes the Europe, the North Africa, the west part of the Asia and a part of Middle East. In the Europe it is missing from the Great Britain, Scandinavia, Italy, few being – with the exception of Iberian half-isle and in the Western Europe. According to the last international census of the *Ciconia ciconia* done between 1994-1995, the whole number of the pairs of *Ciconia ciconia* from the Earth it is estimated to 168 000. The population of this species decreased continuous from the beginning of the last century, the effective is stabilized only in the last two decades.

At us, in the Republic of Moldova, *Ciconia ciconia* is a migrant species, man-eater one who wants in generally lower fields and the wet places among the Prut and Nistru rivers. They ignore the stretched afforested places. The most many examples of *Ciconia ciconia* are found in the north-west and the south-east of the country, after a period of 30-40 years the population of *Ciconia ciconia* from Moldova had known a continuous decreasing. In the last 8-10 years it is known an increasing of the number of the breeding species in some places of the country. It is stopped and stabilized the decreased effective of the *Ciconia ciconia* in other places. There are some regions where the population known decreased tendencies. The purpose of this work is the detailed description of the nidobiology and of the postembryonic development at the *Ciconia ciconia*.

MATERIALS AND METHODS

The observations were realized in the 2006, covering the prevernal, vernal and summer aspects – referring to those 4 nests from the course of inferior Prut monitorized always. It was observed a nest the Slobozia Mare village in the 2006 and 2007 years, it was a nest in the Colibasi, a nest in the Valeni village and a nest in the Manta village from the Cahul district. It will be enumerated in the text the nests according to the volume of number of done observations:

- the first nest: Slobozia Mare village (2006, 2007 years);

- the second nest: Colibasi village (2006, 2007 years);
- the third nest: Valeni village (2006 years);
- the fourth nest: Manta village (2007 years).

These observations were done using the method from exact point measuring, weighing and the monitorization to the eggs and of the young ones.

RESULT AND DISCUSSIONS

The description of the observed nests.

The first nest was traced out at about 2 km of the Prut river and 300 m of the Scientific Reservation called "Prutul de Jos" from the Slobozia Mare village. The nest was placed on an electric pillar. The second nest was discovered in the Colibasi village at about 300 m from the Prut river being around the easily flooded river meadow of Prut and many pastures. The nest was built on an electric pillar. The third nest was found in Valeni village to the edge of the village at 250 m from the Prut river. The nest was placed on a cut tree trunk. The fourth nest was found in the Manta village at about 1 km from the Prut river, at 300 m from the natural lake Manta and at 150 m from the highroad, having in the neighborhood some pastures and easily flooded wet places.

All the nests were placed on shiny and high places with a good looking towards food places.

The nests were built from branches, roots, ground and were lined with straw, hay, grass, paper or rag. A new nest, can be built in 8 days of a pair of storkes, like in the case of the Colibasi nest where the birds built by the beginning, from the foundation the destroyed nest by the people. The middle diameter of the nests is the 1-1,2 m, and the middle height it is from 0,5-to 1 m.

The description of the docks.

I have the occasion to study the docks of only two nests, the second nest and the third. The deposition of eggs in these cases took place in the middle of the april. In the second nest on the 19.04.2006 were yet three eggs, and on the 04.05.2006 the female was hatching on the nest. In the third nest on the 07.04.2007 was not found anything; on the 15.04.2007, were found two eggs, but on the 10.05.2007 the female was hatching on the nest yet. The form of the eggs it is oval-spherique, like those of the *Cygnus olor* (LINAEUS 1758). The dimensions of the eggs were measured only at the eggs from the second nest:

12,15 cm x 7,85 cm
12,05 cm x 8,00 cm
13,80 cm x 7,95 cm
12,43 cm x 9,05 cm
the media: 12,60 cm x 8,21 cm

In the both nests, eggs were placed in the center of the nest, in the front, like stars.

The period of incubation

The incubation to the *Ciconia ciconia* it is during 32-33 days. The eclozation of the eggs is not synchronic, but it spends separately, generally at intervals of two days, the case of the second nest. During the period of incubation, on the eggs bark could be observed brown spots. The male and the female hatch alternatively, and the change of the partners at the nest it is usually through a plathering.

The eclozation. The postembryonic development.

I could follow the eclozation of the eggs at the third nest, in 2006. The egg bark splits for the first time nears the round side of the egg, to the transversal line. To the opening of the bark it is the beak of young one. On the beak can be observed the diamond. The bark of the egg can be broken in two parts to the major cases, only to one it was broken in peces.

The postembryonic development could be observed at all the nests. The observations took place from 7 to 7 days, doing measures and heighers to the young ones. The young one at the age of a day he is not wet, covered with down, white and seldom down, having the media of 65-73 g. They can't rise up in their feet, the young ones can split. The movements are uneqnifibrated. The young is resting in his nest rolled up. The beak feet and the claws are of dark colours. At 14-17 days, the youngs do movements in their nest always. The plumage is white but not all clean, the sheathes appears on the wings and in the region on the tail. The sheathes are 14 mm to the wings but to the tail of 12 mm. The colour of beak fingers becomes more dark. In all this perved, the cubs are protected by one of the parrents, who remains always with them. To the age of 21-25 days, the youngs stay in their feet already and are unsilent always. At our appearance to the nest, they cry and take a position for save themselves. The sheathis on the wings and of the tail are of a dark colour, the next penage being white or white not full clean. To the age of 7 weeks the young goes to the measure of adults, and to the end of the jully month they go from the nest. To the beginning, they realize flying exercises in their nest, who consist of jumps and beatings og wings, makinng strong their muscles. Later, they realize to make little tryngs to fly in the near aproaching of the nest. At the age of three months, they don't depend on their parents and they can feed them selves. They begin to seem with other youngs from the other nests.

From to dotation of the first egg till to the destroying of the family, the life family of the storkes continues about 16 weeks.

It is known that in the 2007 year, according to the drought who affected the whole course of the inferior Prut, the docks were consisted of 4 eggs, with the exception of the first nest, where were donated 5 eggs.

Correlating with the drought, it is the decreased quantity of food sources, who can not be assured by the parents for all the youngs, so the male was that who throws from the nest two youngs, specially the least and little developed (phenomenon known like chronism at nest).

The activity and the behaviour of the youngs.

The peeping is the first sign of life, through whom they semnalize their presence. Before the eclozation can be heard a small peeping, like the "pii-pii-pii". When they hear hard sounds they rise up the head, they cradle and wait the food with the opened beak. The more of the young is desequilibrated. The youngs, when they rest they put their head in and below the body. The 7-9 days youngs follow the movements of our hands. When they hear hard sounds or that of the photos they stick to nest and remain in a kinetic position. In the eating time the youngs peep with a peeping like they cry. They are not easily draw out from their nest, because they struck with their clows and the beak.

Food. *Ciconia ciconia* feed it self without animals. The undigestible reimainders are eliminated after 1-2 days, through regurgitation, having medium dimensions of 50 x 35 mm, it's are easy found in the near of the nest. Some analises have an important role for determineting the composition of the food od adult birds and of the youngs. The youngs are fed in their nest at time, in a period of 53-55 days by the both parents, who gather the meal in the groit of the youngs. It is regurgitated in the middle of the nest and after this it is taken by the youngs who are arranged in a circle like they "beg" the food. At the beginning they are feed at 30 minutes intervals, but, after they, grow up, they are feed rarely, at 1-2 hours intervals. Thee food of the little youngs consists of earth worms, insects, big insects, like the locusts, grass hoppers and different big coleopterans. When they have 3 weeks age they are feed with mammals like the mice, moles, frogs, lizards, tool snakes, etc. Parents bring water to the nest in the hot days, pouring out from above to the opened beaks of the youngs.

CONCLUSIONS

Even the *Ciconia ciconia*, is a comunal bird at us, we have been surprised for observing and monitorized more detailed the description of the nidobiology and the postembryonic development. This work, also contributes to inhervt for us a great volume of researches of the nidobiology and of the postembryonic development at *Ciconia ciconia*, but also it is good for the future of the storks and their survaving for a long period in the Republic of Moldova. Also we have to protect the net places: pastures, hay fields, easily floded zones. It is important their protection and for the birds also for other specieses of animals or plants. We want to unfurl projects for the adoption of a law who will protect the stork and her nest, because in our Republic of Moldova doesn't exist such a law.

BIBLIOGRAPHY

- MUNTEANU D. 1999. *Păsările din România și Europa*. Determinator ilustrat, Hamlyn Guide, versiunea românească. Londra.
- FLINT V. E. et al. 1984. *A Field Guide to Birds of the USSR*. Princeton.
- Cartea Roșie a Republicii Moldova. 2002. Edit. Știința Chișinău.
- DOMBROWSKI R. 1912. *Ornis Romaniae*. Die Vogelwelt Rumaniens. București.
- SCOTT P. 1968. *The White Stork*. Londra.

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