STRATEGIES FOR CONSERVING BIRDS BIODIVERSITY IN DANUBE DELTA

Ionita Carmen*, Bogdan T. Alexandru*, Ipate Idith**, Ivana Simona*, Ionita Lucian*, Gogu-Bogdan M.*****

*Faculty of Veterinary Medicine Bucharest
**Romanian Academy - National Institute of Economic Research, Research Center for studies in Agrosilvic Biodiversity" Acad. David Davidescu"
***PS I Romanian Ornithological Center Coordinator
ionitacarmen63@yahoo.com

Abstract

The Danube delta is considered to be a bird paradise because every season is animated by more than 330 species of birds. There is so much ornithological biodiversity in this area. Wild birds are both vectors and victims of the High pathogenic avian influenza virus H5N1. At the end of last century, the bird flu was identified in domestic geese in southern China during the year 1996 and in humans in Hong Kong during the year 1997. In the late 2002, the first cases of bird flu among migratory birds and waterfowl were reported, and disease began to spread quickly, outbreaks being also reported in poultry, wild birds and other species of mammals, in more than 60 countries. In response, over 200 million poultry have been killed by the virus or been killed as a prophylactic strategy in order to prevent the virus from spreading. The vectors that supported the spreading of H5N1around the Danube Delta are represented by migratory birds (aquatic and land). Our study presents the most common birds that may be transmitting, the passage being quoted as reservoirs of avian influenza virus. The main orders are: Charadriiformes, Anseriformes, Ciconiiformes, Gaviiformes, etc. Pelicaniiformes.

Keywords: complex, ornithological biodiversity, bird flu, tanks passage

INTRODUCTION

In order to preserve biodiversity , we have to find means to care for the natural ecological systems by keeping them as close to their original formas we can and avoiding as much as possible any human contact with nature.

Biosphere Reservation includes specific ecosystems with a surface of 458.945 ha and a buffer zone that reaches the Black sea. Of all the surface, 52.980 ha were preserved exclusively for scientific purposes (thaken from "Management targets in preserving biodivesity on Biosphere Reservation Danube Delta Romani"a, 1995).

Human intervention reffers to 23.270 ha of forest, 32.732 ha of aglicultural assemblies and 4900 ha of construction. These surfaces were taken from the total of 61.513 ha resulted from the narrowing of lakes, reed, grape vines and fruit trees, leaving almost 195.954 ha of reed.

The arranged surface in the Danube Delta measures only 18%, the smallest among European Deltas. Human management lead to an ecological imballance and even determined new natural ecosystems to develop . Due to the anthropological pressure in the area, many of the bird species became or are soon to become extinct.

MATERIALS AND METODS

The study method is based on presenting the ornithological biodiversity in the Danube Delta and the results that humans had on the fauna. Aspects on why the Danube Delta in thought to be a biological risk in spreading avian influenza viruses are also presented in the paper.

RESULTS AND DISCUSSION

The Danube Delta is considered to be an ''avian paradise'' because no matter the season, this area shelters over 330 bird species; 50% are summer species, such as: *Ardeola ralloides (Squacco heron), Egretta garzetta (Little egret), Egreta alba (Great egret), Nycticorax nycticorax (Black-crowned Night Heron), Ardea cinerea (Grey heron), Ardea purpurea (Purple heron)* and many more (Ciochia et al, 2000).

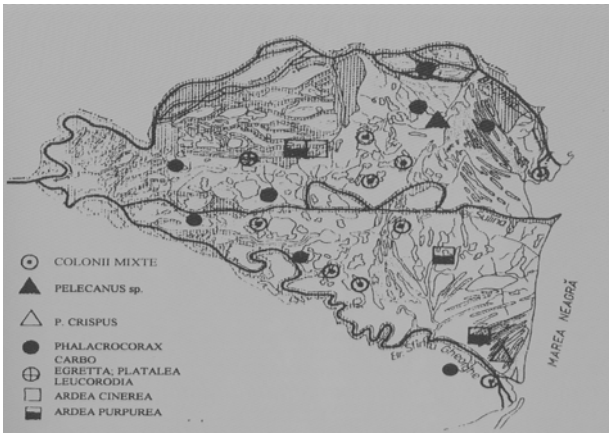

Fig. 1 The main bird colonies in the Danube Delta
(after Ciochia and col., 2000; Gogu, B.M., 2001)

Here, at Roscova-Buhaionva, is the only place in Europe where over 2000 couples of *Pelecanus Onocrotalus* can be found and that may include also *Pelecanus crispus* couples, and the number of these couples does not exceed 250 in the entire reservation . (Ciochia V., Gogu B.M., 2001).

In the Danube Delta large populations of *Phalacrocorax pygmaeus (Pygmy cormorant)* can be found, over 60% of the total worldwide population and more than 50% of all the Red Breasted Geese (*Branta Ruficollis)* this beeing a winter visitor and present on the Global List of endangered species (Tâlpeanu I., 1977).

Fig. 2 Pelican colony

The rest are passage species, that meet on East Elbic, Pontic and Sarmatic pathways. Of all these species, 1.82% stay on the Danube, 23% are wintering in The Delta, 11% are stationary species and there are also accidental species. Some 10.19% of the summer guests that hatch in the Delta are replaced by wintering northern species (Ciochia V., Negruțiu A, 1996).

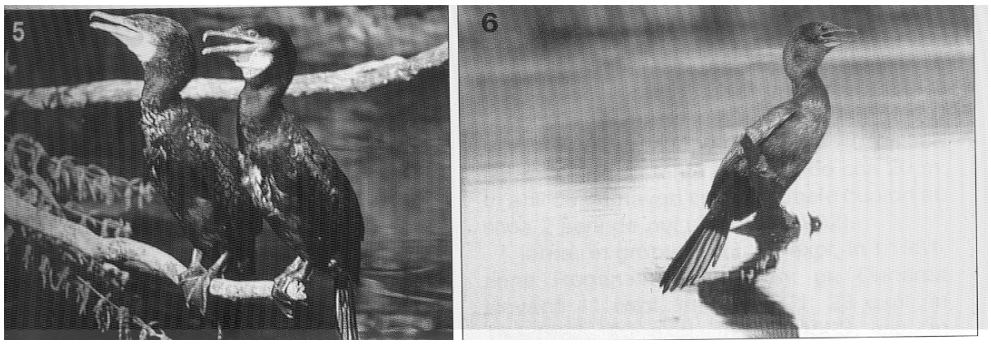

Fig. 3 Pigmy and Great cormorants

In the dissapearance of some species, changes in the flooding conditions, agricultual areas and fish tanks are incriminated as well as the excessive amount of nutrients added to the water supplies that have slowly cumulated in fish roe and in the eggs of the fish eating birds, reducing the fish supply and also the reproductive abbility of the birds, especially in pelicans, cormorans, storkes, fallows, great egrets and others. Many species of fish, such as sturgeons, pikes and perch are in a desolating situation due to the errors in natural resources management (Ciochia V., 1996).

One of the causes incriminated in the decrease of fish and bird population is an increase in the phosphorus levels from 0 mg/l to 0,20 mg/l in 1990. The nitrate concentration is low which indicates that the waters in the Danube Delta are mesotrophic with submerged vegetation and the birds are thought to be confident biological indicators that reflect the allarming situation in the Danube Delta.

Not all of the birds found dead in the Delta have died of the avian influenza. In three areas (Zmeica, Pardina and Dunavat) 934 wild birds were found dead: 632 Mallard (*Anas Platyrhychos),* 84 Greater White fronted Geese (*Anser albifrons)*, 31 Rooks (*Corvus*

frugilegus), 28 Red breasted Geese *(Branta ruficollis)*, 6 Greylag Geese *(Anser Anser)*, 1 Western Marsh Harrier (*Circus aeruginosus)* and another 150 birds found in an advanced state of putrefaction and in which the cause of death could not be identified. These birds had lost their ability to fly, had feet paralysis, respiratory fluids and in the end respiratory failure.

The lab results showed pesticide intoxication due to the fact that inhabitants used treated corn grains to put in the gardens, and disposed of the excess amount in waters.

CONCLUSIONS

1. The preservation of ornithological biodiversity in the Danube Delta is at a crossroad due to the economical crisis and the legislation.
2. Fatality still exists in the Danube Delta but the causes are on necessarily infectious, rather human involvment lead to decimation in bird population.
3. Ornithological biodiversity in the Danube Delta Tulcea is silently involved in spreading LPAI (low pathogenic avian influenza) and HPAI (high pathogenic avian influenza) from wild birds to domestic birds and the other way around. This ornithologiac biodiversity can hardly be identified or monitored.
4. In order to preserve Danube Delta species, "in situ" system can be used. This system implies a detailed inventory of the bird species, and the making of so called "Red lists" for endangered species. Urgent preservation measures are included on the "Pink lists" and the succesfully preserved species are included on the "Blue lists".
5. In zoos and spcialised institutions, endangered species can be preserved and stimulated to cross mating with birds that were brought from other units.
6. Developing gene banks for endangered species in specialised institutions that currently use this type of preservation.
7. The management plan of Biosphere Reservation Danube Delta represents the official paper that regulates currents activities in natural environments and the surroundings. The plan contains targets and measures for the years 2008-2012.

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