Re-introduction of the white-headed duck to Kiskunság, Hungary

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Introduction

The white-headed duck (***Oxiura leucocephala***) is listed on the IUCN Red List as endangered, and on the Appendix II of CITES. The species became extinct in Hungary in the 1960's. It is now listed as strictly protected by the countries legislation. The re-introduction sites of Lake Kondor and Lake Péteri are situated on the Great Hungarian Plain, the region between the rivers Danube and Tisza. They are part of the Kiskunság National Park.

Goals

- Goal 1: To establish a breeding population of the white-headed duck in Hungary

Success Indicators

- Indicator 1: No success indicator was determined before initiation of project.

Project Summary

Feasibility stage: Hungary was on the periphery of the white-headed duck's former breeding range with only a small and fluctuating population, which probably never exceeded 100 birds. The last breeding record was in 1961 at Lake Kondor. The fate of the white-headed duck in Hungary was probably dependent upon the population dynamics of the species in the eastern breeding areas in the (former) USSR. Decline of the eastern population, habitat loss due to climate change and drainage, hunting and egg collection were probably the factors driving the species to local extinction. The white-headed duck breeding and re-introduction program began in 1982, when Hungarian aviculturalists were trained by the Wildfowl and Wetlands Trust at Slimbridge, England. Between 1983 and 1986, a breeding centre was established at Fülöpháza. The site is situated next to Lake Kondor, where the last breeding of the species was recorded. No detailed feasibility study was carried out prior to the project.

White-headed duck (*Oxiura leucocephala*) - female (left) & male (right)

Pond & wintering house

The project was carried out by the Hungarian Ornithological Society, with the support of many volunteers, the Wildfowl & Wetlands Trust, and the companies Taurus and British Airways.

Implementation Stage: Fülöpháza breeding program - The centre consisted of seven ponds with a total surface area of 1,300m^2. The ponds were lined with rubber sheets and covered with netting. Winter facilities were also built with a direct link to the outside ponds. However, the birds did not use the heated buildings, and preferred to stay outside despite the low temperatures, where it was difficult to maintain an ice-free water surface, even when water was constantly circulated. Between 1984 and 1988, 162 eggs were transported from England to Fülöpháza and then artificially incubated. The hatched birds started to breed in 1985 although no eggs hatched in that year. During the first two years, when all the birds were kept together on the same pond, aggression was a significant problem and the hatching success remained low. From 1987, birds were therefore separated into trios of one male and two females for the courtship and nesting seasons. Aggression subsequently decreased and breeding success improved. Hatching success peaked at 52% in 1988, but the 60% hatching success normally recorded at Slimbridge was not reached during the Hungarian program. Hatching success started to decline in 1989, and no eggs were subsequently hatched. No data are available for 1991, because some birds were transferred to Budapest Zoo. In 1992, the remaining birds were transferred to Budapest, representing the end of the Hungarian white-headed duck breeding program. The birds did not breed at Budapest Zoo and none survive today.

The hatching success during the last two years decreased mainly because the proportion of damaged and abandoned eggs increased. This increase had three causes: 1) Abnormal behavior: nest-desertion, nest-parasitism and early abandonment of ducklings; 2) Higher aggression, because birds were not segregated for the 1990 breeding season & 3) Egg predation by rats. The proportion of infertile/addled eggs was high throughout the breeding program. Several factors may have caused the behavioral aberrations and the high proportion of infertile eggs such as 1) Inadequate food. According to the experience at Slimbridge, the menu at Fülöpháza was diverse enough to avoid this problem; 2) Disease - negative results of several veterinary visits and toxicological analyses suggests disease was not the cause of the low breeding success; 3) Inbreeding depression - the captive white-headed duck populations are descendants of only three founder pairs captured in 1968, so they could be threatened by inbreeding depression; 4) the birds at Fülöpháza were not marked individually, so it was impossible to apply methods to preserve genetic variability.

At Slimbridge, inbreeding depression was not apparent even though the Slimbridge population has the same origin. The reasons for the low breeding success therefore remain unknown.

Table 1. white-headed duck releases in Hungary, 1986-1988

Date	Site	Females	Males	Total
07/06/86	Lake Péteri, Pálmonostora	5	5	10
22/05/87	Lake Péteri, Pálmonostora	7	6	13
16/04/88	Lake Kondor, Fülöpháza	17	12	29
Total		29	23	52

Re-introduction: A total of 52 birds were released between 1986 and 1988. No information is available on the fourth and last release in 1991.

Post-release monitoring: The releases were not successful. Seven birds from the third release were recaptured after three months when the lake dried out. Three or four birds dispersed to a neighboring hunting area, from where they disappeared at the beginning of the hunting season. Perhaps they had been shot illegally. Most of the released birds disappeared within a period of two months. No information is available on their subsequent fate.

Major difficulties faced

- Low hatching success during the breeding program, difficulties with supplying birds for re-introduction.
- The Lake Kondor dried out, so the released birds had to be recaptured.

Major lessons learned

- The release sites were not suitable. Lake Péteri was not a past breeding site for white-headed duck and, moreover, it is a fishing area with human disturbance. Lake Kondor had been largely dry for several years before the re-introduction, and there may not have been enough food for a species preferring eutrophic, productive habitats. This highlights the importance of detailed studies on release sites and environmental evaluation before the start of costly re-introduction programs.
- Factors which caused the initial extinction need to be identified and rectified.
- Experience from Mallorca suggests that acclimatization in a fenced area at the release site improves the success of white-headed duck re-introduction. In Hungary, this method was not used due to shortage of funds.
- This was the first project of this kind with this species and no previous experience was available.

Success of project

Highly Successful	Successful	Partially Successful	**Failure**
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Reasons for success:

- The project failed to establish a population.