

**WHITE-HEADED DUCK  
BREEDING AND  
REINTRODUCTION  
PROGRAMME IN HUNGARY,  
1982-1992**

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**INTRODUCTION**

The Hungarian Ornithological Society, in collaboration with the Wildfowl & Wetlands Trust, launched a White-headed Duck captive breeding and reintroduction programme in 1982. It was the first attempt to reintroduce this endangered species to an area from where it had previously become extinct. Unfortunately, problems arose both with the breeding programme and the release of the birds, so a self-sustaining population could not be attained. The programme was stopped in 1992. Most of the available literature (Haraszty 1984, 1986; Molnár 1987, 1990; MME *et al.* Undated; Andrési 2002) does not provide a detailed analysis of the causes of the failure. One exception is Tolnai (1991), but this report was not published and some of its conclusions need revision. The results of this new analysis may be helpful when planning other reintroductions.

**HISTORIC STATUS OF THE WHITE-HEADED DUCK IN HUNGARY**

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 (Schmidt 1967; Anstey 1989). The last breeding record was in 1961 at Lake Kondor (Molnár 1987). The causes of the population fluctuations and the subsequent local extinction are unknown. According to Anstey (1989), the fate of the White-headed Duck in Hungary was "largely influenced by the population dynamics of the species in the main breeding areas of 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 (Schmidt 1967; Anstey 1989).

**FÜLÖPHÁZA BREEDING PROGRAMME**

The White-headed Duck breeding programme began in 1982, when Hungarian aviculturists were trained at Slimbridge. Between 1983 and 1986, a White-headed Duck breeding centre was established at Fülöpháza. The site is situated next to Lake Kondor, where the last breeding of the species was recorded in 1961 (Molnár 1987). The centre consisted of seven ponds with a total surface area of 1,300m<sup>2</sup>. The ponds were lined with rubber sheets and covered with netting. Winter facilities were also built with a direct link to the outside ponds (Haraszty 1984). 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 (Molnár *pers. comm.* 2002). These problems could have been avoided if the breeding centre had been built next to a thermal spring, which are relatively common in Hungary.

Between 1984 and 1988, 162 eggs were transported from England to Fülöpháza and then artificially incubated (Tolnai 1991). The hatched birds started to breed in 1985 although no eggs hatched in that year (Haraszty 1986). During the first two years, when all the birds were kept together on the same pond, aggression was a significant problem. 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 (Tolnai 1991). Hatching success peaked at 52% in 1988 (Figure 1), but the 60% hatching success normally recorded at Slimbridge (Hughes *pers. comm.* 2002) was not reached during the Hungarian programme.

Hatching success started to decline in 1989, and no eggs were subsequently

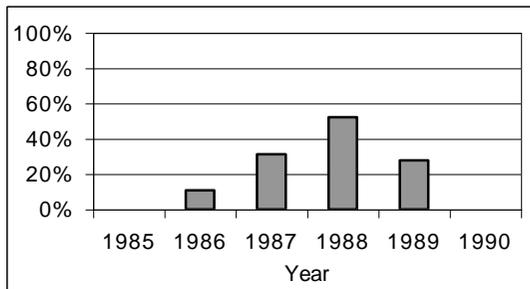
hatched. No data are available for 1991, because some birds were transferred to Budapest Zoo. In 1992, the remaining birds were transferred to Budapest, representing the end of the Hungarian White-headed Duck breeding programme. The White-headed Ducks did not breed at Budapest Zoo and none survive today (Molnár *pers. comm.* 2002).

The hatching success during the last two years decreased mainly because the proportion of damaged and abandoned eggs increased (Figure 2). This increase had three causes:

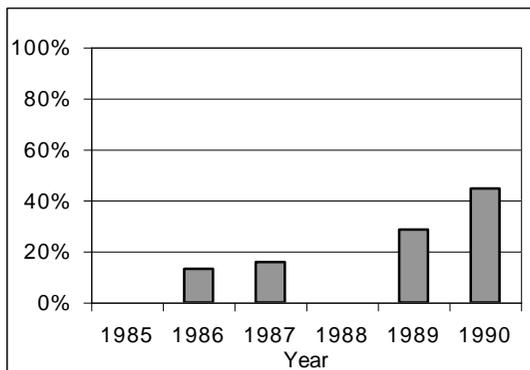
- Abnormal behaviour: nest-desertion, nest-parasitism and early abandonment of ducklings;
- Higher aggression, because birds were not segregated for the 1990 breeding season;
- Egg predation by rats (Molnár *pers. comm.* 2002).

The proportion of infertile / addled eggs was high throughout the breeding programme (Figure 3).

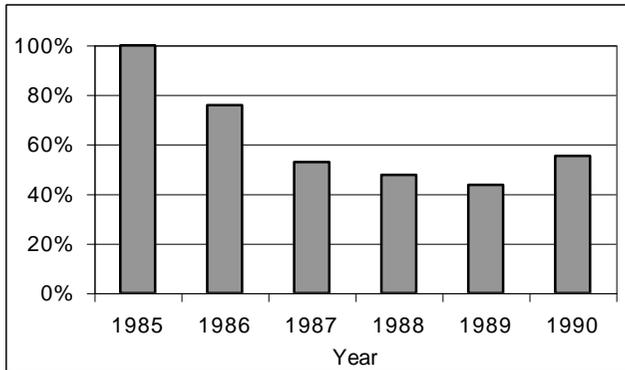
**Figure 1. Hatching success of White-headed Ducks at Fülöpháza, 1986-1990.**



**Figure 2. Percentage of damaged or abandoned White-headed Duck eggs at Fülöpháza, 1986-1990.**



**Figure 3. Percentage of infertile / addled White-headed Duck eggs at Fülöpháza, 1986-1990.**



Several factors may have caused the behavioural aberrations and the high proportion of infertile eggs:

1. Inadequate food. According to the experience at Slimbridge, the menu at Fülöpháza was diverse enough to avoid this problem (Hughes *pers. comm.* 2002).
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. The birds at Fülöpháza were not marked individually (Molnár *pers. comm.* 2001), 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 (Hughes *pers. comm.* 2002).

The reasons for the low breeding success therefore remain unknown.

### REINTRODUCTION

A total of 52 birds were released between 1986 and 1988 (Table 1). No information is

available on the fourth and last release in 1991.

**Table 1. White-headed Duck releases in Hungary, 1986-1988.**

Date	Site	F	M	Total
7.6.86	Lake Péteri, Pálmonostora	5	5	10
22.5.87	Lake Péteri, Pálmonostora	7	6	13
16.4.88	Lake Kondor, Fülöpháza	17	12	29
Total		29	23	52

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 neighbouring hunting area, from where they disappeared at the beginning of the hunting season. I believe 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 (Tolnai 1991).

Obviously 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 reintroduction, and there may not have

been enough food for a species preferring eutrophic, productive habitats (Anstey 1989; Green & Hughes 2001). This highlights the importance of detailed studies on release sites and environmental evaluation before the start of costly reintroduction programmes. Factors which cause the initial extinction also need to have been rectified.

Experience from Mallorca suggests that acclimatisation in a fenced area at the release site improves the success of White-headed Duck reintroduction (Brunner & Andreotti 2001). In Hungary, this method was not used due to shortage of funds. The Hungarian White-headed Duck reintroduction programme was the first project of this kind, and when it was planned, no previous experience was available.

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