

# Renewed hope of survival for one of the Middle East's rarest birds: donation of juveniles to the remaining northern bald ibises

Fritz J & Riedler B.  
Waldrappteam, Austria



Contact: Johannes Fritz, &, E-mail: jfritz@waldrapp.eu

## Introduction

The Northern Bald Ibises (*Geronticus eremita*; NBI) is at the brink of extinction. In the Middle East there are only three birds remaining which fly the traditional migration route from Syria to Ethiopia (Serra et al. 2009). Supplementation of juvenile birds is a key attempt to conserve and enlarge this relict population. The scenario is based on the assumption that NBI have roughly inherited the migratory direction towards the south, but the exact migration route to the wintering grounds is passed on as a vertical social tradition from experienced adults to juveniles in their first year of life. In summer 2010 a conservation project started. The project Waldrappteam participates as a scientific advisor and executive partner.

## Supplementation 2010

On June 26<sup>th</sup> three juveniles (Amina, Ishtar & Ameer) were transported to a release aviary inside the Syria Northern Bald Ibis Reserve north of Palmyra. Amina & Ishtar originate from the semi-wild Turkish population in Birecik, whereas Ameer was raised by the last wild Syrian breeding pair, but found abandoned by the parents shortly before fledging. Together with the three juveniles one adult pair was kept in a separate compartment of the release aviary to help attracting the three wild NBI.

**Table 1**  
Chronology of the events and behaviors from release till start of the joined migration.

Date	Event	adult wild NBI	juvenile supplemented NBI
25 June 2010	Transport to release aviary	Visit of release site	
26 June 2010		Visit of aviary	
27 June 2010		Day-roosting on top of aviary	Social triggered foraging in aviary Social triggered flying in aviary Begging behaviour
			Greeting behaviour
28 June 2010	Start of migration 1st adult		
29 June 2010	Start of migration 2nd adult Taggin of juveniles		
30 June 2010		Night roost on top of the aviary	
01 July 2010	Opening of field aviary	Social foraging Social night-roosting at breeding cliff Synchronized flights	
02 July 2010		Permanent stay at the release site	
03 July 2010		Synchronized start of joined migration	

The wild NBI were immediately attracted by their enclosed conspecifics (Tab.1). First social interactions already occurred on day three. The wild birds changed their spatio-temporal pattern, spending an increasing proportion of their active time at a close distance (< 10m) to

the enclosed NBI. After two of the wild adults left for their migration the remaining female (Salama) started to sleep close to the aviary.

Straight after release, on July 1<sup>st</sup>, the three juveniles bonded with Salama. The group permanently stayed at the release site (Fig. 1). Salama spent more than 60% of her daily activity time close to the juvenile NBI. The juveniles followed her to the nearby feeding grounds and to a breeding cliff, where all birds except Ameer remained overnight.



**Figure 1**  
July 2<sup>nd</sup> after release; three juveniles with the wild adult Salama roosting on top of the release aviary; two adults remained as social attractors in the aviary. B. Riedler 2010.

Two days after release, on July 3<sup>rd</sup>, the four birds started their joined autumn migration. The group flew in total more than 1.700 km together towards the south - with a mean of 240 km/day and a maximum of 350 km/day.

The group was last located together on July 8<sup>th</sup> in Saudi Arabia, around 450 km north of the border to Yemen. Salama continued her migration to the Ethiopian wintering area alone. Ameer, the youngest and weakest of the supplemented birds, was found dead on the Saudi Arabian coast just nine days after separating from the adult female. The other two juveniles remained in Saudi Arabia. Ishtar also died in the middle of August, while Amina is still alive.

### **Implications for the future Conservation**

- Overall, the trial in 2010 showed that supplementation is a powerful invasive conservation tool. Joined migration for up to 1.700 km is a remarkable success, considering that it was the first supplementation ever undertaken with NBI.
- The group split about half the way to the wintering area. Thereafter the spatio-temporal pattern of the juveniles was seemingly disoriented and two of them already died. This indicates the outstanding relevance of adult leadership for juvenile NBI during their migration.

- Additional scenarios to overcome the consequences of separation need to be implemented into further supplementation trials. Such trials will be difficult to achieve, but it will probably be the last chance to preserve this endangered species from extinction.

### **Literature**

Serra G, Peske L, Scheisch Abdallah M & al Quaim G 2009: Breeding ecology and behaviour of the last wild oriental Northern Bald Ibises (*Geronticus eremita*) in Syria. J. Ornithol. 150: 769-782.

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