

**OSPREY (*Pandion haliaetus*)  
REINTRODUCTION PROJECT IN CADIZ**

**2003 REPORT**

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## **INDEX**

1. Introduction
2. Reintroduction
  - 2.1 Nestling management and selection
  - 2.2 Rearing at hacking tower
  - 2.3 Release
  - 2.4 Post fledging period
  - 2.5 Migration
3. Conclusions
4. Additional bird
5. Acknowledgments

## **1. INTRODUCTION**

The preliminary stage of Osprey (*Pandion haliaetus*) reintroduction project in Cadiz (Andalusia) started in 2002, financially supported by Consejería de Medio Ambiente de la Junta de Andalucía (Andalusian Regional Environment Center). During preliminary stage were carried out the following activities:

1. Choosing of release area and within it, accurate point for hacking tower installation.
2. Establishment of agreements between Andalusian Regional Environment Center and donor countries in order to guarantee the stable supply of nestlings.
3. Building of hacking tower and other facilities.

First nestlings were released in July of 2003 and project will continue until 2006. They were from Häme and Pirkanmaa regions, Finland. This document summarizes the results of the first year of the project.

## **2. REINTRODUCTION**

### **2.1. Nestling management and selection**

Pertti Saurola chose the nests from which to take the nestlings. Since the suggested age to take nestlings from their nests were around 6 weeks, the nestlings were collected 16/07/03 by Pertti Saurola, Juhani Koivu (Sääksisaatiö), Miguel Ferrer and Eva Casado (Biological Station of Doñana). All nestling chosen were in good body condition. Nestlings had been ringed previously by metal rings of the Natural History Museum of Helsinki. Origin and identification marks of nestlings are showed in table 1.

After nestlings were taken from nests they were transported to Helsinki, and from there to Seville by plane on 17/07/03.

Nestlings arrived to Seville in good body condition and were immediately transported to Barbate reservoir by air conditioned car. They were kept in a cool room until sunset (21:00 Spanish hour) in order to mitigate heat stress. They were ringed with PVC rings and blood samples were taken before placing them into the hacking tower.



*Pertti Saurola and Miguel Ferrer with nestling taken from first nests*



*One nestling being introduced into hacking tower*

Transmitters were fitted on nestlings on 29/07/03 (49 days old) in order to monitor their movements after release. Two transmitters were VHF battery ones (26 gr, lifetime 2.5 years), and two other transmitters were satellite devices (PTT) powered by a solar panel (25 gr, lifetime 3-5 years). This kind of transmitter would allow us to know the migration routes using the ARGOS tracking system, using locations of high quality ( “1” error between 350-1.000 m, “2” error between 150-350 m and “3” error less than 150 m).

**Table 1.** Data of released nestlings

RING NUMBER	PVC	SEX	PLACE OF BIRTH	PROVINCE	VHF	TRANSM. KIND	MANUFACT.
M-47370	24	M	Tuulos	Häme		Satellite	Northstar
M-47378	23	F	Kuhmalahti	Pirkanmaa	149.183	VHF	Biotrack
M-47380	26	F	Luopioinen	Pirkanmaa	149.444	VHF	Biotrack
M-47385	10	F	Loppi	Häme		Satellite	Northstar

## 2.2. Rearing at hacking tower

This period included the care of nestlings inside the hacking tower until their release.

Nestlings were introduced into the hacking tower on 17/07/03 when they were 5-7 weeks old. Nestlings with PVC 23 and 10 were put in one cage and the other two nestlings (PVC 24 and 26) in other one.

### Diet

Nestlings were fed twice a day (at 8:00 and at 20:00 Spanish hour) with fresh fish captured by ourselves from Barbate reservoir. On the hottest days were also fed one more time in the middle of the day. Fish species caught were *Cyprinus carpio*, *Barbus sclateri* and *Micropterus salmoides*. Nestlings consumed 200-600 gr per day.

### Behaviour

While inside the release cages, the nestlings appeared quiet without aggressiveness between chicks, although a hierarchical structure was established during feeding bouts. They exercised their wings from the first day, this became more and more intensive. Short flights were observed five days before release.

## 2.3. Release

Osprey nestlings fly for first time at mean age of 52.8 (sd = 2.5) days old. In order to ensure nestlings were completely grown, the front of the boxes were opened 10 days later.

A larger amount of fish was supplied inside the cages and on artificial nest platforms in front of and in view of the hacking tower four days before the proposed release dates.

The front of cage which held the nestlings 23 and 10 (average of 65 days old) was opened on 13/08/03. The female 10 flew out immediately meanwhile the female 23 remained inside the cage two hours more. The front of the cage which hosted the nestlings 24 and 26 (average of 64 days old) was opened on 14/08/03. The male 24 flew out four hours after release, while the female 26 flew out at 7:50 the following day.

**Table 2.** Key dates in the nestlings life. Age in days.

RING NUMBER	PVC	SEX	BIRTH DAY	AGE OF TRANSLOC.	AGE OF RELEASING	FIRST SOARING FLY	FIRST FISHING
M-47370	24	M	10/06/03	37	65	21/09/03	12/09/03
M-47378	23	F	10/06/03	37	64	21/09/03	
M-47380	26	F	12/06/03	35	63	23/09/03	12/09/03
M-47385	10	F	7/06/08	40	67	26/09/03	

#### 2.4. Post fledging period

We followed the progress of the nestlings behaviour after release using visual contacts and telemetry.



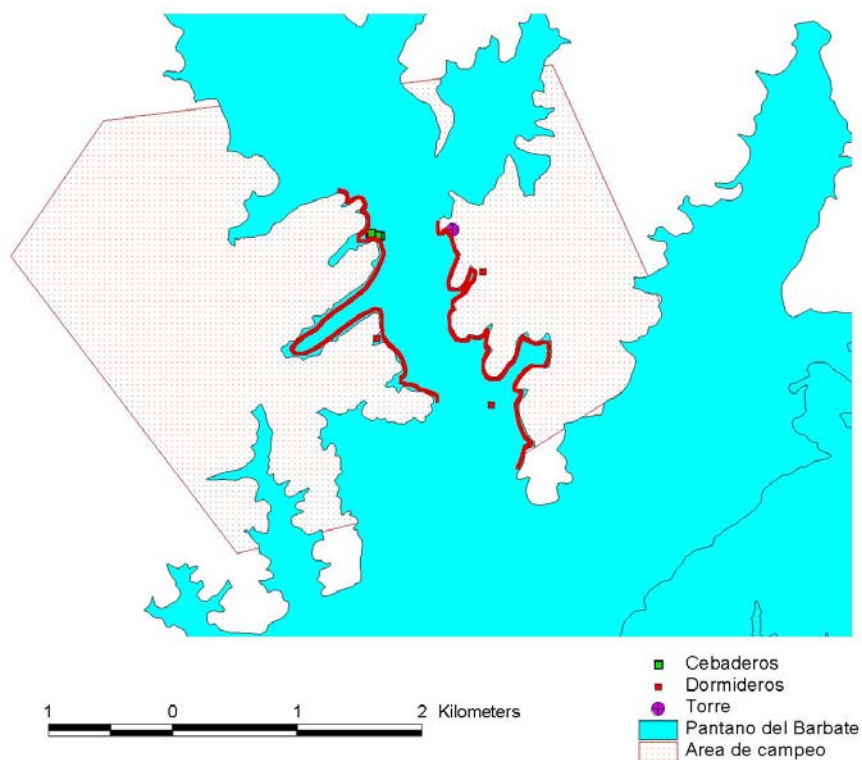
#### *Monitoring*

The post-fledging period from release until autumn migration is important and lasts over five weeks. In Spain it was 38.3 days (n=4, sd= 4.7). Throughout the whole period nestlings were in contact with at least one Osprey adult, begging for food and flying together. Intra specific interactions were non aggressive.

Nestlings were kept in visual contact, while they used the same artificial nests (where we put fresh fish every day before sunrise) and roosting sites. Their behaviour appeared really active from sunrise until sunset, moving along reservoir shoreline and eventually flying up to 9 km from the hacking tower. We did not detect any spatial and temporal pattern.

Hacking tower position, feeders, roosting sites and home range area are showed in map 1.

**Map 1.** Home range area of released Osprey nestlings



*Red line running along shore highlight the most intensively used area. Home range was obtained from telemetry.*



*Three nestlings on an artificial nest*



*Nestling 23 eating on a feeder. Antenna of VHF transmitter is just visible*

We could record the first attempts (and success) of fishing bouts for two nestlings when they were 92 and 94 days old, both on 12/09/03. We thought that by 14/09/03, all of the nestlings released were able to fish by themselves.



The juveniles were flying more and more skilfully day by day, until they made their first soaring flight in September at 74 days old (range 72 – 80), when it is considered raptors are competent to migrate.

Osprey nestlings typically begin the migration directly from the natal area without pre-dispersive movements. This was so for nestlings PVC 10 and 26. Satellite locations of male 24 showed he stayed the day before migration at Tajo de Barbate (more than 30 km from the hacking tower). Probably he came back to Barbate reservoir because of the strong wind from east. Nestling with PVC 23 spent the night before starting migration in Celemin reservoir, at 12 km from the hacking tower. Migration dates are shown in table 3.

## 2.5. Migration

Released nestlings started migration at mean age of 103 days (sd= 4.6), crossing the Gibraltar Strait.

**Table 3.** Migration

RING NUMBER	PVC	SEX	MIGRATION DATE	MIGRATION AGE	ORIENTACIÓN
M-47370	24	M	20/09/03	102	120°
M-47378	23	F	27/09/03	109	173°
M-47380	26	F	18/09/03	98	
M-47385	10	F	17/09/03	102	240°

We didn't get information regarding migration routes from nestlings fitted with VHF transmitters, although one was tracked heading across The Straits. Below we detail the behaviour of individuals fitted with satellite transmitters. We have considered only the high quality locations.

### Male 24

He started the migration on 21/09/03, with 120° as estimated orientation. He travelled 2340 km with out an extended stopover until arriving in his wintering area (Níger river, Mali) on 9/10/03. Maximum distance covered was 2755 km. We received no satellite locations after 22/12/03 which may mean the radio has stopped functioning.

**Map 2.** Migration route of nestling M-47370/24

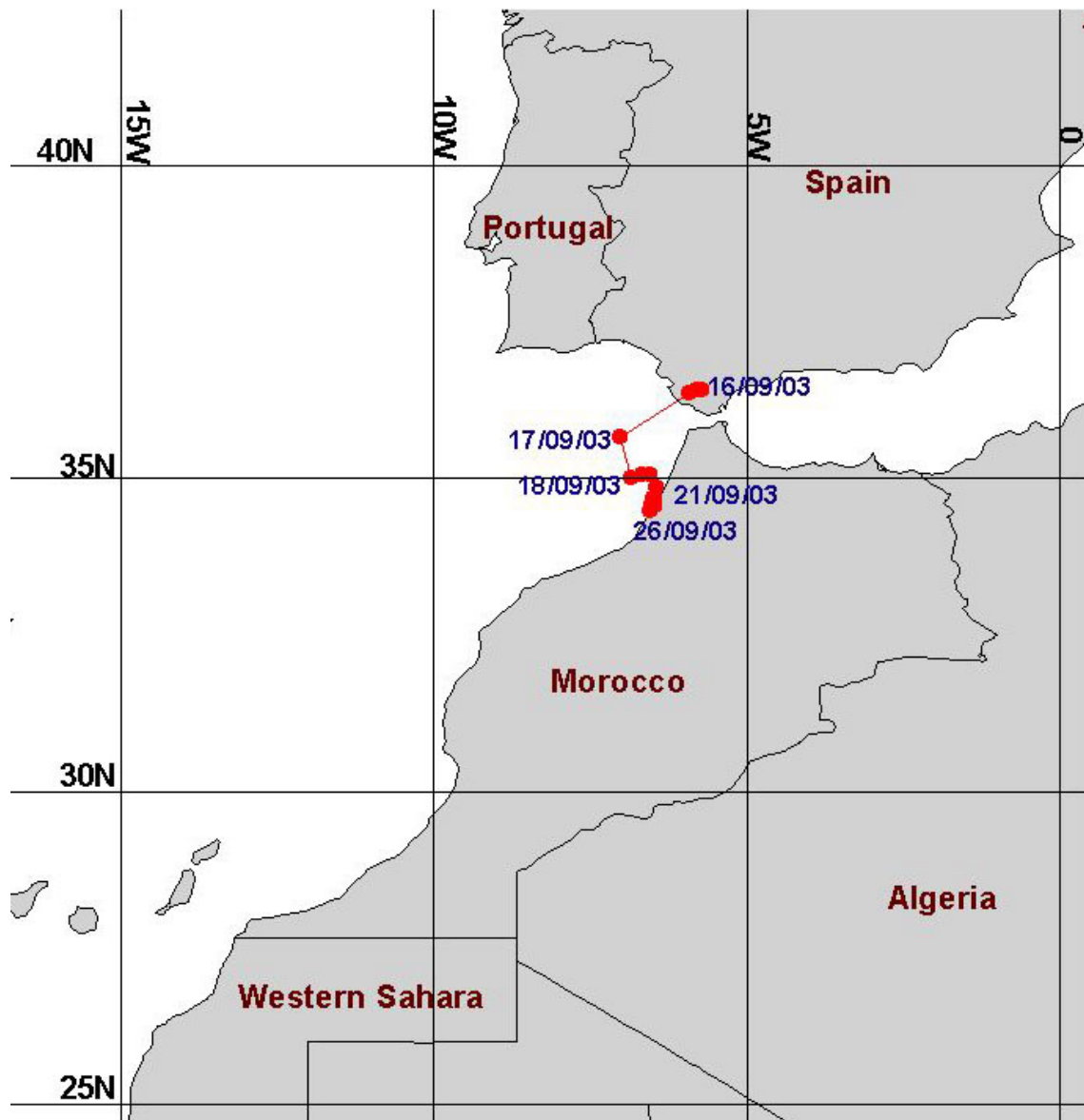


### Female 10

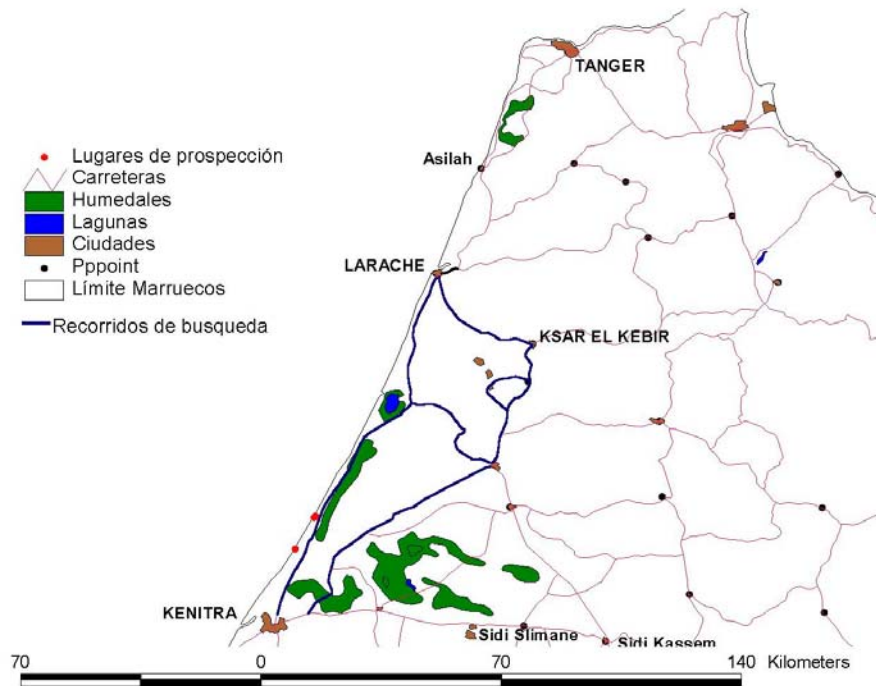
This individual was the first one in leaving the natal area, on 17/09/03. The first transmission was over the sea west of Morocco at an estimated orientation was 240° on 18/09/03. It is not known whether it headed directly to this area or was drifted westwards while crossing to Africa. Harassment by yellow-legged gulls is a known hazard for some large raptors crossing the open sea. It is probable that it was on a floating object on the sea from its erratic movements. Maybe she was on a boat or maybe she was floating until finally sank on Morocco coast on 26/08/09, the date when we got the last satellite location (high quality one). Maximum distance covered was 228 km.

Last satellite location place was visited and surveyed by Biological Station of Doñana staff without success. Potential threats for species (fisheries, power lines) were not detected, and other Osprey were observed.

**Map 3.** Migration route of nestling M-47385/10



**Map 4.** Surveyed area looking for nestling M-47385/10



*Place of last satellite location*

### **3. CONCLUSIONS**

The release location at Barbate reservoir proved to be highly suitable and we found a very positive attitude by land owners and neighbours to the Osprey reintroduction project. Barbate reservoir was also excellent for catching fresh fish with nets to feed the young in the cages. The transport from Finland was successful as was the young birds capabilities to accept the hot weather in Spain.

Flying behaviour of nestlings was good, they learnt to use the fresh fish supplied by us on the artificial nests for the whole post-fledging period. They all set off on migration strongly. We are satisfied with the successful results of this first year of releasing at Barbate.

The male 24 is wintering in a typical wintering area. The possible death of female 10 falls within the estimated mortality rate for Osprey (50- 60%). The orientation at the start of migration is normal for Finnish Osprey according to maps on the web site <http://www.fmnh.helsinki.fi/>. Pertti Saurola fitted with PTTs individuals close to translocated nestlings (father, sister), which migration routes are available in upper mentioned web site.

### **4. ADDITIONAL BIRD**

On 12/08/03, Pertti Saurola brought with him to Cadiz a fifth Osprey which had fledged from a nest in Finland. This individual was found in circumstances where it had a high probability of dying. It was nursed back to health and it was thought worth trying to release it in Cadiz with the other nestlings. Unfortunately, this young bird died the day after its arrival in Spain, due to *miopatia* (according to “Zoo de Jerez” veterinarian report). The full autopsy report is in Annexe I of the Main Report in Spanish

### **5. ACKNOWLEDGMENTS**

We are indebted to Pertti Saurola and Roy Dennis for their expert advice and support. Francisco Blanco help us to find the release site. Borja Heredia from Environmental Ministry helped with the official side of the project. We thank to Javier

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