



## **OSPREY RESTORATION PROJECT IN THE URDAIBAI BIOSPHERE RESERVE (BASQUE COUNTRY)**



### **ANNUAL REPORT 2016**





# **OSPREY RESTORATION PROJECT IN THE URDAIBAI BIOSPHERE RESERVE (BASQUE COUNTRY)**

## **INFORME ANUAL 2016**

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## **SUMMARY**

The osprey restoration program in the Basque Country started in 2013. Its aim is to establish a founder population in the Biosphere Reserve of Urdaibai. This may ultimately help the recolonization of estuaries and wetlands of northern Iberian Peninsula, thus promoting connectivity between the populations in Southern Iberia and continental France.

This year, the fourth in the project, 12 osprey chicks were translocated from Scotland to a hacking tower located at the Biosphere Reserve of Urdaibai (Biscay, Basque Country) under the license from Scottish Natural Heritage. The birds were kept in the hacking tower for between 17 and 31 days. During this period the birds ate properly (201,6 g/day per bird) and most of them experienced positive growth. All birds were fitted with a backpack transmitter (1.70 g PP Biotrack), which was replaced by a satellite transmitter (30 g Microwave Argos / GPS Solar PTT) in the case of a single bird. After release, the birds stayed on average 32.4 days in the vicinity of the hacking tower and left Urdaibai between August 23 and September 10. Three individuals died during the phase dependence, one was probably predated, another was electrocuted and a third died of an undetermined illness. The bird carrying satellite transmitter left Urdaibai on 10 September and reached the South of Senegal on 24 September.

In this fourth year of the project there have been four returns to the Urdaibai estuary: three males from the group released in 2013 and a fourth bird, also male, from the 2014 group.

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## 1. Introduction

The osprey (*Pandion haliaetus*) restoration project in the Urdaibai Biosphere Reserve (Basque Country) set on in 2013. The project is an initiative of the *Aranzadi Society of Sciences* ([www.aranzadi-zientziak.org](http://www.aranzadi-zientziak.org)) managed by the *Urdaibai Bird Center* ([www.birdcenter.org](http://www.birdcenter.org)) and is funded and supported by the Department of Environment of the County Council of Biscay and the Basque Government.

The programme is developed under the guidelines of the *Osprey restoration project in the Urdaibai Biosphere Reserve* (Galarza & Zuberogoitia, 2012) and authorized by the Board of the Urdaibai Biosphere Reserve and the Wildlife Committee of the Spanish Ministry of Environment.

The main objective of this project is to set up a reproductive population of ospreys in the Basque Country. It contributes to the following sub-objectives:

- To increase the osprey breeding range and promote the connectivity between French and Southern Iberian populations.
- To increase social awareness about osprey conservation and about biodiversity in general, using the process as a tool for education.
- To promote the image of the Urdaibai Biosphere Reserve and ecotourism.

This report describes actions carried out in 2016, the fourth year of translocation, adaptation and release of young ospreys in Urdaibai. Given that the 2013 report described the preparation process and the structures used for hacking in detail, the present report will refer only to significant technical aspects, in particular the changes or improvements made, the results of the process of hacking and release and the returns of birds released in previous years.

## 2. Nestling supply

Established in 2013 with the Government of Scotland (Scottish Natural Heritage), the general agreement guarantees the annual provision of 12 chicks in the period 2013-2017. This was maintained in 2016.



*Osprey nest in Scotland (Forres, Moray)*

## 3. Reintroduction

### 3.1. Nestling collecting and transportation

Between July 4 and 8, thirteen nestlings (8 male and 4 female) were collected from 9 nests in Moray and the Highlands (Scotland). This operation was conducted by Roy Dennis from the Highland Foundation for Wildlife. A member of the staff from the reintroduction programme was also involved, as were several volunteers. Nestlings were collected only from nests containing more than one chick and when the individual was in good physical condition. On three occasions two chicks were collected from nests containing three nestlings. All nestlings were weighed and measured (length of wing, tail and tarsus) *in situ*. After removal from the nest, nestlings were kept in four pens according to their age, and fed four times a day at the headquarters of the *Highland Foundation for Wildlife*, located near Forres (Moray, Scotland). They were identified with *Aranzadi Society of Sciences* metal rings and yellow colour PVC rings.





*Chick collection and measurement taking in Scotland*

**Table 1**

*Sex and weigh of the chicks when collected form the nest (1), on arrival to Urdaibai (2) and when fitted with transmitter in the hacking tower (3).*

| <b>Rings</b>  | <b>Sex</b> | <b>Weigh 1<br/>(Date)</b> | <b>Weigh 2<br/>(Date)</b> | <b>Weigh 3<br/>(Date)</b> |
|---------------|------------|---------------------------|---------------------------|---------------------------|
| U00<br>P00210 | M          | 1,500<br>(5/7/16)         | 1,371<br>(9/7/16)         | 1,380<br>(19/7/16)        |
| U01<br>P00211 | F          | 1,540<br>(5/7/16)         | 1,421<br>(9/7/16)         | 1,564<br>(25/7/16)        |
| U02<br>P00212 | F          | 1,660<br>(6/7/16)         | 1,511<br>(9/7/16)         | 1,589<br>(19/7/16)        |
| U03<br>F6088  | M          | 1,370<br>(6/7/16)         | 1,283<br>(9/7/16)         | 1,401<br>(6/8/16)         |
| U04<br>F6082  | M          | 1,350<br>(6/7/16)         | 1,256<br>(9/7/16)         | 1,250<br>(19/7/16)        |
| U05<br>F6085  | M          | 1,500<br>(6/7/16)         | 1,346<br>(9/7/16)         | 1,414<br>(25/7/16)        |
| U06<br>F6087  | M          | 1,450<br>(6/7/16)         | 1,316<br>(9/7/16)         | 1,392<br>(1/8/16)         |
| U07<br>F6084  | M          | 1,530<br>(6/7/16)         | 1,375<br>(9/7/16)         | 1,418<br>(1/8/16)         |
| U08<br>P00218 | F          | 1,620<br>(6/7/16)         | 1,460<br>(9/7/16)         | 1,462<br>(19/7/16)        |
| U09<br>P00219 | F          | 1,460<br>(6/7/16)         | 1,370<br>(9/7/16)         | 1,601<br>(6/8/16)         |
| U10<br>F6083  | M          | 1,330<br>(6/7/16)         | 1,346<br>(9/7/16)         | 1,269<br>(25/7/16)        |
| U11<br>F6086  | M          | 1,310<br>(6/7/16)         | 1,316<br>(9/7/16)         | 1,291<br>(27/7/16)        |



On the morning of July 8, nestlings were taken in a transit van from Forres to Aberdeen airport, where they were fed before being transported to London by plane. From London the individuals were transported on another flight to Madrid, where the birds were fed with anchovies (*Engraulis encrasicolus*). Finally, transportation from Madrid to the Basque Country was carried out by van. The nestlings arrived at the area of hacking on the morning of July 9. Aitor Galarza (County Council of Biscay) accompanied the birds during transport. On arrival, the veterinary service of the project examined the birds. Apparently all the nestlings were in good condition, despite the fact that most of them had experienced a slight weight loss since collection from the nest (Table 1). Feather samples were taken from each osprey. These were used for sexing using molecular techniques. Samples were analyzed in the Department of Zoology and Ecology of the University of Navarre.



*Transporting the ospreys in Heathrow airport (London)*

### **3.2. Stay in the hacking tower**

Each cage hosted 3 chicks, which were grouped according to their plumage development. Those who were siblings (U04/U05, U06/U07, U10/U11) were installed in the same cage. During their stay in the tower birds were fed four times daily. The food was pre-weighed and the amount consumed was noted. At first the fish was given in small pieces, large scales and bones having been removed. The size of the pieces and the amount of scales and bones increased as the days went on. Prior to each new intake of food, uneaten remains were removed from the cages. The ospreys were mainly fed on thick-lipped grey mullets (*Chelon labrosus*) which were caught directly from the estuary by the staff of the project.

Young ospreys were observed directly through the spyglass windows and through the CCTV system to monitor their behaviour and the amount of food they ate.





*Fishing for grey mullets in the estuary of Urdaibai*

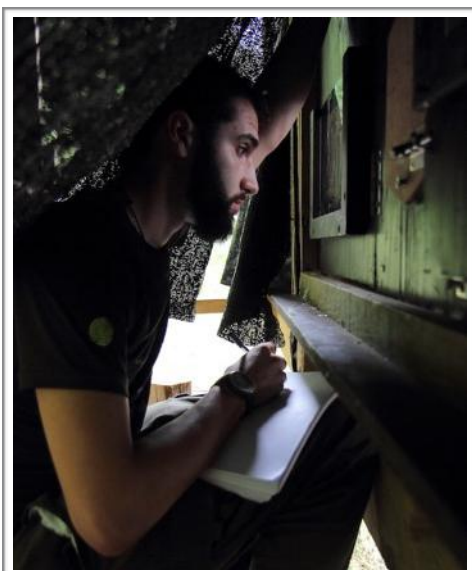
**Table 2**

*Growth rates from date of collecting from nest to the arrival in Urdaibai, and growth rates during the stay in the hacking tower. The mean daily food intake of each bird in the hacking tower is also shown.*

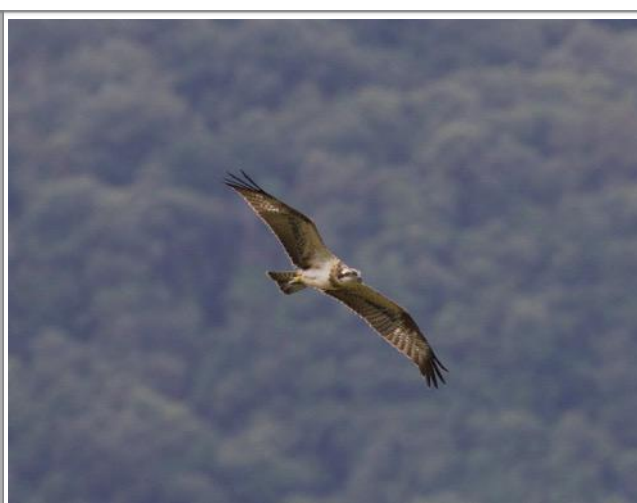
|     | <b>Daily growth rate<br/>from nest to arrival<br/>(%)</b> | <b>Dif<br/>(g)</b> | <b>Daily growth rate<br/>during hacking<br/>(%)</b> | <b>Dif<br/>(g)</b> | <b>Daily food<br/>intake<br/>(g)</b> |
|-----|---|--------------------|---|--------------------|--------------------------------------|
| U00 | -2.15   | -129               | 0.05  | 9                  | 202.29                               |
| U01 | -1.93   | -119               | 0.4   | 143                | 209.51                               |
| U02 | -2.99   | -149               | 0.39  | 78                 | 245.9                                |
| U03 | -2.11   | -87                | 0.3   | 118                | 190.56                               |
| U04 | -2.32   | -94                | -0.03   | -6                 | 153.76                               |
| U05 | -3.42   | -154               | 0.26  | 68                 | 167.85                               |
| U06 | -3.14   | -134               | 0.19  | 80                 | 213.71                               |
| U07 | -3.37   | -155               | 0.16  | 43                 | 192.75                               |
| U08 | -3.29   | -160               | 0.01  | 2                  | 176.22                               |
| U09 | -2.05   | -90                | 0.56  | 231                | 232.77                               |
| U10 | 0.4   | 16                 | -0.3  | -77                | 246.37                               |
| U11 | 0.15  | 6                  | -0.07   | -25                | 181.1                                |

The average amount of food eaten daily per individual was 201.06 g (Range = 153.76 -246.37 g). Three birds lost some weight during the stay in the hacking tower (Table 2).

Nestlings remained in the hacking tower for between 13 and 30 days (see Table 3).



*Data collection and feeding during the stay in the hacking tower*



*Release day: a newly released osprey and an observer team*

### **3.3. Release and first flights**

Two days after it was observed that the birds had started moving against the front mesh, the hacking tower cages were opened. Before dawn, fish was distributed on the feeders and the front panels were opened quietly so that the birds could decide themselves when to fly out of the cages. Staff and volunteers followed discreetly from a distance to check on the birds leaving the hacking cages and their first flights. Four openings of the hacking tower were conducted. Some individuals were changed from one cage to another depending on their stage of development.

**Table 3***Period of stay in the hacking tower and period of dependence*

| <b>PVC Ring</b> | <b>Arrival date</b> | <b>Release date</b> | <b>Days in hacking tower</b> | <b>Departure date</b> | <b>Days before departing</b> |
|-----------------|---------------------|---------------------|------------------------------|-----------------------|------------------------------|
| U00             | 9/7/16              | 21/7/16             | 13                           | 23/8/16               | 32                           |
| U01             | 9/7/16              | 3/8/16              | 25                           | 1/9/16                | 29                           |
| U02             | 9/7/16              | 21/7/16             | 13                           | 2/9/16                | 42                           |
| U03             | 9/7/16              | 8/8/16              | 30                           | 10/9/16               | 33                           |
| U04             | 9/7/16              | 21/7/16             | 13                           | 2/9/16                | 42                           |
| U05             | 9/7/16              | 27/7/16             | 19                           | 23/8/16               | 27                           |
| U06             | 9/7/16              | 3/8/16              | 30                           | 10/9/16               | 38                           |
| U07             | 9/7/16              | 27/7/16             | 19                           | 5/9/16                | 39                           |
| U08*            | 9/7/16              | 21/7/16             | 13                           | -                     | -                            |
| U09             | 9/7/16              | 8/8/16              | 30                           | 10/9/16               | 33                           |
| U10**           | 9/7/16              | 27/7/16             | 19                           | -                     | -                            |
| U11***          | 9/7/16              | 3/8/16              | 25                           | -                     | -                            |

\* predated

\*\* sick

\*\*\* electrocuted

### 3.4. Dependence phase

The dependence period was 35 days (range: 24-42 days, n=9) (Table 3), similar to that observed in North American (32.5 days) (Stinson, 1978) and Scottish (30.4 days) (Bustamante, 1995) natural populations, and shorter than that observed in reintroduction programmes in Andalusia (38.3 days) (Muriel et al., 2010), Portugal (44 days) (Palma & Beja, 2011) and Italy (48.7 days) (Monti et al., 2012).

After the first release day, food was provided once a day before dawn. The ospreys behaved in a similar way as the juvenile behave in the Scottish population (Bustamante, 1995): the first attempts at fishing were reported during the first week after release, attempts at fishing gradually increased intensity and most of the ospreys tried to fish but only a few (U05 and U07) did so successfully.

As in previous years, the ospreys came to the feeding sites preferably during the first two hours of the morning and the last two before dusk.

Three ospreys died during the dependency phase. U8 was found dead three days after being released and appeared to have been attacked by a carnivorous mammal. However, the

cause of death could not be confirmed due to the fact that only the rings could be recovered. U10 was found dead at the feeding site (see veterinary section) and U11 died of electrocution.



*Electrocuted individual (U11) and pole where it died.*

### 3.5. Intraspecific interactions

Throughout the dependence period, the juveniles showed semi-gregarious behaviour with frequent visual and vocal contact and often used the feeders, perches and artificial nests together. Up to six individuals were observed on the same feeder and the same artificial platform. We noted the absence of any aggressive or hierarchical interactions that reduce the feeding of subordinate birds. During the dependence phase the young ospreys coincided with at least four returned males and one young female with no rings. The newly released ospreys were often observed in the company of these returned males, especially with N3 from whom they begged for food. The presence of N3 on a nesting platform was very positive as several birds flew directly to it from the hacking tower when they were released.

The female with no rings was very aggressive towards the individuals from the project and on one occasion she caused one of them to fall to the ground. She then attacked it with her talons.

### 3.6. Interspecific interactions

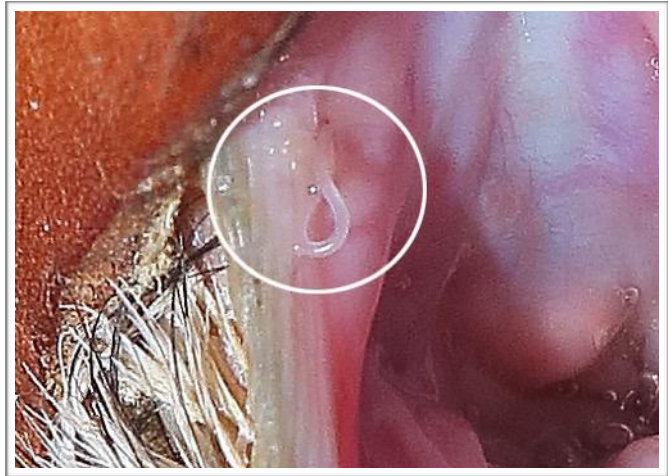
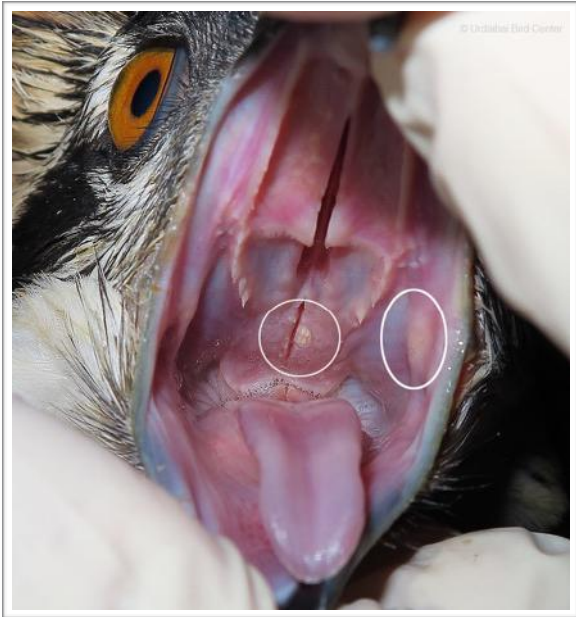
We recorded 50 interactions with other bird species: crow (*Corvus corone*) (18), marsh harrier (*Circus aeruginosus*) (2), common buzzard (*Buteo buteo*) (1), Peregrine (*Falco peregrinus*) (1), honey buzzard (*Pernis apivorus*) (1), grey heron (*Ardea cinerea*) (1) and wader spp. (2). Ospreys chased other birds in 14 cases, while the ospreys were chased in 2 cases (crow and peregrine). These interactions are considered normal. Physical contact or apparent negative results did not occur.

### 3.7. Human disturbances

Humans caused the flight reaction of the ospreys on one occasion only. In this case, two canoes approaching to a distance of approximately 150 m were the cause of the fright. When possible, people causing disturbance were warned of temporary restrictions on use and to leave the



area voluntarily. Once the disturbance finished, frightened birds returned to the area and recovered their normal activity, usually in less than an hour.



*Detail of the mouth of ospreys U10 and U11.*

**Left:** Plates in the throat of U10. **Right:** Nematode at the corner of the mouth of U11

### 3.8. Veterinary care

Before leaving Scotland, the chicks were examined, as in previous years, by Jane Harley, veterinarian of the Strathspey Veterinary Center (Grantown on Spey). She certified that they were in good physical condition. Upon arrival in Urdaibai, a new inspection was carried out and no apparent disease or problem was detected.

However, five days later, two individuals (U10 and U11) which were siblings, each had an inflamed cheek and regurgitated the food quite frequently. On July 14, a check was carried out. In both cases a slight inflammation and plaques in the oral cavity were observed, as well as the presence of nematodes in the case of the osprey U11. It was thought that the lesions could have been compatible with a disease caused by trichomoniasis, so two days later treatment with Metronidazole Normon (250mg EFG): 50mg/kg) (once a day for 5 days) and the antibiotic Hydroxyl B1 -B6-B12. 25 mg/kg OR (every 24 hours) was started. In addition, on July 18 they were given a single dose of antiparasitic Levamisole. Although plaques were not observed at the second inspection (16 July), we considered it necessary to complete the 5 days of treatment against trichomoniasis and the course of antibiotics.



Both birds seemed to have experienced improvement in the second inspection conducted on July 18. However, U10 continued to regurgitate, albeit with less intensity. They were released on July 27 (U10) and August 3rd (U11). U11 behaved normally but eventually died of electrocution five days after release. U10 flew well and accessed the feeding platforms regularly but continued to regurgitate. It was found dead at the feeding site on July 10. There were no signs of it having been attacked by predators. The two corpses were sent to the laboratory Neiker Tecnalia (Derio, Bizkaia) for analysis. In both cadavers lesions were observed in the esophagus and stomach compatible with an infection by *Trichomonas* spp.. However, these microorganisms were not detected in either of them. Both ospreys presented nematodes in the esophagus, gourd and gizzard of morphology compatible with *Echinuria* (Acuaria) spp. (Family Acuariidae).

#### 4. Telemetry

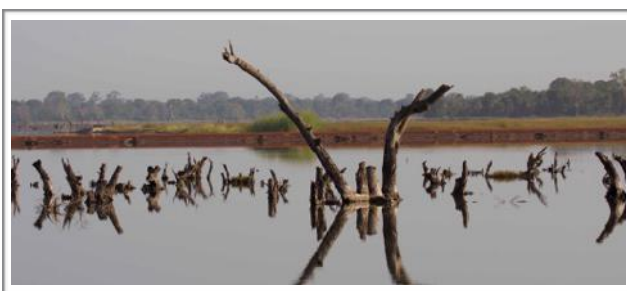
Each bird was equipped with VHF radio-tags (Biotrack PP 1.70 g), attached to a pair of their back feathers. They were tagged during the night, two days before release. These transmitters were used to detect the individuals on a daily basis, to ascertain their departure date and eventually to locate and rescue them in emergencies. The VHF device was replaced with a satellite transmitter on one bird.



This year the team decided to reduce the satellite transmitter monitoring programme to only one bird. This was due to the preliminary results of the monitoring of juvenile ospreys through satellite transmitters. As in previous years, a trap with nooses was installed on a feeding platform approximately a month after the release of the birds. On August 29th one of the birds (U06, Cousteau) was captured and tagged with a satellite transmitter (Microwave 30 g Argos/GPS Solar PTT) attached to its back using a Teflon harness.

It was observed that U06 had increased its weight by 220 g. This had occurred at a rate of +0.74 g per day (data corrected by the biomass of the bird) from the installation of the transmitter in the tower hacking until further capture (21 days later). U06 (Cousteau) departed on September 10th and arrived at the wintering area in the river Casamance, close to the town of Ziguinchor (South Senegal) (12°48'N, 15°59'W) on September 24th.





*Autumn route of U06 (Cousteau) and detail of the wintering area in Casamance (South Senegal)*



*U06 (Cousteau)*

## 5. Returned ospreys

We have recorded the return of four ospreys to Urdaibai, three from the 2013 cohort and one from the 2014 cohort.



*Localities in Northern Iberian Peninsula and Southern France where returned individuals were observed in 2016.*

### P1 (2013)

Photo trapped in Villaviciosa (Asturias) on July 28th. Observed in Urdaibai on August 4, 5, 7, 8, 9, 17 and 18th. This osprey was observed in Ribadeo (Asturias) in 2015.



*P1 perching on an artificial nest in the estuary of Villaviciosa (Asturias) (picture: FAPAS)*

#### N4 (2013)

Observed in Urdaibai and also in the Reserve of Courant D'Huchet (Las Landas, France), located 120 km north.

##### Behaviour:

- It stayed close to the released ospreys and no territorial behaviour exhibited with them during the fledging dependence phase
- It often came to eat at the feeding platforms
- It made display flights both in Urdaibai and in Courant D'Huchet
- In Courant D'Huchet it transported nesting material to an artificial platform on several occasions and made display flights with an old female at the end of the summer

|           |    |    |    |    |    |    |
|-----------|----|----|----|----|----|----|
| APRIL     |    |    |    |    |    |    |
| 18        | 19 | 20 | 21 | 22 | 23 | 24 |
| 25        | 26 | 27 | 28 | 29 | 30 |    |
| MAY       |    |    |    |    |    |    |
| 2         | 3  | 4  | 5  | 6  | 7  | 8  |
| 9         | 10 | 11 | 12 | 13 | 14 | 15 |
| 16        | 17 | 18 | 19 | 20 | 21 | 22 |
| 23        | 24 | 25 | 26 | 27 | 28 | 29 |
| 30        | 31 |    |    |    |    |    |
| JUNE      |    |    |    |    |    |    |
|           |    | 1  | 2  | 3  | 4  | 5  |
| 6         | 7  | 8  | 9  | 10 | 11 | 12 |
| 13        | 14 | 15 | 16 | 17 | 18 | 19 |
| 20        | 21 | 22 | 23 | 24 | 25 | 26 |
| 27        | 28 | 29 | 30 |    |    |    |
| JULY      |    |    |    |    |    |    |
|           |    |    |    | 1  | 2  | 3  |
| 4         | 5  | 6  | 7  | 8  | 9  | 10 |
| 11        | 12 | 13 | 14 | 15 | 16 | 17 |
| 18        | 19 | 20 | 21 | 22 | 23 | 24 |
| 25        | 26 | 27 | 28 | 29 | 30 | 31 |
| AUGUST    |    |    |    |    |    |    |
| 1         | 2  | 3  | 4  | 5  | 6  | 7  |
| 8         | 9  | 10 | 11 | 12 | 13 | 14 |
| 15        | 16 | 17 | 18 | 19 | 20 | 21 |
| 22        | 23 | 24 | 25 | 26 | 27 | 28 |
| 29        | 30 | 31 |    |    |    |    |
| SEPTEMBER |    |    |    |    |    |    |
|           |    |    | 1  | 2  | 3  | 4  |
| 5         | 6  | 7  | 8  | 9  | 10 | 11 |
| 12        | 13 | 14 | 15 | 16 | 17 | 18 |

*Calendar of observations of N4 (2013) in Urdaibai (grey) (UBC) and Courant D'Huchet (red) (Paul Lesclaux)*

#### N3 (2013)

Observed in Urdaibai almost everyday from April 14th to September 9th. This bird was also observed in Urdaibai in 2015.

##### Behaviour:

- It stayed close to the released ospreys and exhibited no territorial behaviour with them during the fledging dependence phase. Sometimes it gave fish to the young ones.
- it behaved aggressively with other birds, such as grey herons.
- It often came to eat at the feeders.
- It made display flights in the presence of other subadult or adult ospreys



- It showed mating behavior with a female of unknown origin
- It transported nesting material to an artificial platform on several occasions



*N3 with a first year female in Urdaibai*

## PF (2014)

- It was observed in Urdaibai on August 15, 16, 22, 23 and 24th

## 6. Technical visits

In May and July we received a visit from the staff (technicians and park keepers) of the Marais d'Orx, L'Etang Noir and Courant d'Huchet Nature Reserves, located in the French department of Landes.



**Left:** Paul Lesclaux (Courant d'Huchet Nature Reserve), Fabienne Savary (Director of the Marais d'Orx Nature Reserve), Florent Lagarde (Marais d'Orx) and Stéphanie Darblade (L'Etang Noir Nature Reserve), with Aitor Galarza (Project leader). **Right:** Florent and Paul attending the explanations of Javier Elorriaga, staff member of the osprey project.

In July we were visited by Professor Mauricio Sara (University of Palermo), who was accompanied by several collaborators. In addition to this, we hosted a visit from Ben Ross and

Fiona Strachan who are staff of Scottish Natural Heritage. This organization is responsible for approving and issuing the license for the collection of ospreys in Scotland.



**Left:** Professor Maurizio Sara, Laura Zanca, Nicola James and Enrico Guzzo, with Aitor Galarza, leader of the osprey project. **Right:** Ben Ross and Fiona Strachan (Scottish Natural Heritage) during their visit to the Urdaibai Reserve.

## 7. Dissemination

### 7.1. Guided visits

During the dependence phase, twelve guided visits were organized. They aimed to raise awareness of the project and allow people to observe the ospreys. Around 170 people took part.



*Guided visits to observe the released ospreys*



## 7.2. Talks and conferences

February 2016

*The osprey recovery project at the Urdaibai Biosphere Reserve. Practices of the Agricultural School of Derio. Forest Management and Environment. Urdaibai Bird Center. Gautegiz Arteaga, Biscay.*



February 2016

*Osprey recovery programme in Urdaibai: activities and first results. First Basque Ornithology Congress. Basque Biodiversity Center. Busturia, Biscay.*

September 2016

*Recovering an environmental icon for the Northern Iberian estuaries: the osprey in the Urdaibai Biosphere Reserve. X Festival of Bird Migration. Santoña, Cantabria.*

Noviembre 2016

*Recovering the osprey by hacking. Practical Course of Vertebrate Zoology. University of the Basque Country. Urdaibai Bird Center. Gautegiz Arteaga, Biscay.*

Noviembre 2016

*Osprey recovery programme in Urdaibai. Friends of the Aiguamolls de l'Ampurdà Nature Reserve (Catalonia). Urdaibai Bird Center. Gautegiz Arteaga, Biscay*



### 7.3. Radio and TV

Several programmes on the Basque public radio. Of special note were the weekly programmes with Roge Blasco. These focused on Cousteau's migratory journey (U06) from Urdaibai to Senegal.

Senegalese Diáspora TV24 report.



**Left:** Diaspora TV24 in Urdaibai. **Right:** interviewing Jose Mari Unamuno, director of the Urdaibai Bird Center

### 7.4. Press and web

- [www.deia.com/.../regresa-a-urdaibai-la-primera-aguila-pescadora-candidata-a-reprod...](http://www.deia.com/.../regresa-a-urdaibai-la-primera-aguila-pescadora-candidata-a-reprod...)
- [www.deia.com/2016/08/22/bizkaia/.../hallada-muerta-un-aguila-pescadora-en-urdaiba..](http://www.deia.com/2016/08/22/bizkaia/.../hallada-muerta-un-aguila-pescadora-en-urdaiba..)
- [www.elcorreo.com/bizkaia/.../urdaibai-cobija-docena-polluelos-20160711205253.ht](http://www.elcorreo.com/bizkaia/.../urdaibai-cobija-docena-polluelos-20160711205253.ht)
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- [www.elcorreo.com/agencias/pais.../24/concurso-britanico-sobre-aguila-711747.htm](http://www.elcorreo.com/agencias/pais.../24/concurso-britanico-sobre-aguila-711747.htm)

## 8. Environmental education

In 2014 we began an environmental education programme. Focusing on one of the priorities of the osprey restoration project, it aims to raise awareness of the conservation of biodiversity in general and the osprey in particular. Several schools in the Basque Country take part in this programme. It is coordinated by the Urdaibai Bird Center in collaboration with the Department of Education and the Department of Environment of the Basque Government (Centre of Interpretation of the marshes of Txingudi) and the Araba County Council (Ornithological parks of Mendixur, Garai and Landa).

During this year 2015 there have been carried out the following activities:

#### **Project “Ospreys flyways linking communities”**

Now in its fourth year, the project continues to participate in the international project "Ospreys Flyways linking communities" coordinated by Tim Mackrill and Pete Murray (Rutland Water, Leicester, England). Schools in Europe, America and Africa are involved in it. The main objective of this project is to develop a coordinated approach in the use of new technologies in education (Websites, Google Earth, Skype, ...). The osprey and its migration

route are used as a vehicle to connect schools in different parts of the world. Among other activities the World Osprey Week (WOW) was held in March and two state schools from Urdaibai (Montorre and Urretxindorra) participated. Work was shared by videoconference with schools in Italy, England, America and Gambia.

The works carried out by the Basque schools within the framework of this event are available on the project website([www.urdaibaiospreys.eu](http://www.urdaibaiospreys.eu)).

<https://www.youtube.com/watch?v=xFC5Qkn0W2w>

<http://www.ospreys.org.uk/osprey-festival-2016/>

### ***Basque local net of “Ospreys flyways linking communities”***

Running at the same time as the international network and following the same model of organization and participation, a network has been created on a local level. Schools involved use Basque as the vehicle language. In addition to this, a second level of involvement exists. Local schools participate in the international network and use English to communicate. This year, six schools participated in this network. The project was coordinated by the Urdaibai Bird Center and the Txingudi Ornithological Park. Two video conferences were held in which students explained the work they had developed throughout the school year.

<https://www.youtube.com/watch?v=ic5SolT-qC0>

### **Conferences for school centers**

In May two talks were given in Gernika. Their aim was to involve other schools in the project. Around 300 students from different schools in Urdaibai attended the talks.

<https://www.youtube.com/watch?v=rFjtfXi7C08>

### **Travelling exhibition**

The exhibition has been on display throughout the year at the Urdaibai Bird Center, the Txingudi Centre for Interpretation and in the Garaio Ornithological Park. It has been seen by thousands of people. It has also been displayed in different schools in the Basque Country.

### **Monographic visits**

In October schools involved in the environmental education programme visited the Urdaibai Bird Center and the Txingudi Center for Interpretation. This year, the most important development has been the incorporation of visits to the Mendixur Ornithological Park and to the parks in Garaio and Landa (Alava). These visits have been carried out with the company Galemys S.L. As a result, the presence of the project extends across the three historical territories which make up the Basque Country. A total of 27 schools (1,583 students and 103 teachers) were involved in these visits.

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## 10. Acknowledgements

### *Organizations*

- Scottish Natural Heritage, Scottish Government, UK
- Highland Foundation for Wildlife, Scotland, UK.
- Ministry of Agriculture, Food and Environment, Government of Spain
- Ministry of Economy and Competitiveness, Government of Spain
- Biodiversity Agency, Basque Government, Spain
- Department of Sustainable Development and Natural Environment, County Council of Biscay, Spain
- Department of Presidency, County Council of Biscay, Spain
- Board of the Urdaibai Biosphere Reserve, Basque Government, Spain
- City of Gautegiz Arteaga, Biscay, Spain
- Neiker Tecnalia, Biscay, Spain
- Courant D'Huchet Nature Reserve, Las Landas, France.
- Grupo de Recuperación de la Fauna Autóctona y su Habitat (GREFA), Madrid, Spain
- Fondo Asturiano para la Protección de la Naturaleza (FAPAS), Asturias, Spain

### *People*

- Roy and Moira Dennis (Highland Foundation for Wildlife, Scotland)
- Ian Perks, Brian Etheridge, Fraser Cormack, Tim Mckrill and Adam Ritchie (Volunteers in Scotland)
- Julian Orsi (Rothiemurchus Fishery, Scotland)
- Jane Harley (Strathspey Veterinary Centre, Scotland)
- Paul Lesclaux (Courant D'Huchet Nature Reserve, France)
- Igor Aginako, Eneko Díaz, Francisco Martínez, Julio Ruiz and Enrique Goikolea (Rangers, Department of Sustainable Development and Natural Environment, County Council of Biscay)
- Iñaki Berroeta and Oscar Lizarralde (Vehicle pool, County Council of Biscay)
- Manuel Castell, Irati Bizkarra, Enara Gorriño, Nayib Hamdoun, Rowan Hardman, Eneko Iturregi, Ane Koskorrotxa, Aitor Montes, Iraida Redondo, Ismael Reyes, Eduardo Rosa, Tomas Solaegi, Txope and Mikel Yarza (Volunteers in Urdaibai).
- José Miguel Escribano and Sonia Hidalgo (Wildlife Rescue Centre of Gorliz, Biscay County Council)
- Fernando González (GREFA, Madrid, Spain)