

**Action C.2**  
**REFORZAMIENTO POBLACIONAL**  
**C.2.2 Reintroduction in Sardinia**



ISPRA

December 2018



## **LIFE PROJECT “AQUILA a-LIFE” (LIFE16 NAT/ES/000235)**

### **BONELLI’S EAGLE (*Aquila fasciata* Vieillot, 1822) REINTRODUCTION IN SARDINIA**

**Azione C2:** Reinforcemento poblacional  
C.2.2 Reintroduction In Sardinia

ISPRA team:

Elisabetta Raganella Pelliccioni

Massimiliano Di Vittorio

Riccardo Nardelli

Lorenzo Serra

Fernando Spina

According to a formal agreement with ISPRA, Forestas Agency set up the cage.

*Responsibility for the information and views set out in this report lies entirely with the authors.*

*The content of this report does not reflect the official opinion of the European Union. Responsibility for the information and views expressed in this report lies entirely with the authors.*

## SUMMARY

1. HACKING CAGE: LOCATION AND SETTING UP.....	3
2. INDIVIDUAL HISTORIES .....	5
3. HACKING AND RELEASE .....	6
<b>3.1 Feeding</b> .....	6
<b>3.2 Behaviour in the cage</b> .....	7
<b>3.3 Release in nature</b> .....	7

---

### 1. HACKING CAGE: LOCATION AND SETTING UP

The hacking cage was set in the first selected release site, Crastazza, Tepilora Regional Park, within an area patrolled by Forestas state agency. Access to the site was restricted and controlled by Forestas personnel, both during day and night. To reinforce site patrolling, we put three camera traps along the main tracks towards the cage; these camera traps didn't detect any intrusion by human beings. Occasionally, the presence of sheep dogs was detected, but dogs never came close to the aviary. Regional Forestry Corp was also involved in this phase, in order to intensify the patrolling of the whole site.

The cage was built up according to technical instructions from Grefa (Fig.1), which also supervised (J.J. Iglesias) the operations at a later stage of construction, also giving advices for the location of the outer platforms. Two feeding platforms were available inside the aviary as well as two drinking points. Overall three inspection windows with tinted glasses were set, two in the nest and one in the main cage. In the nest, two camera traps were also set, recording three min video every five minutes.

One day before the arrival of the first eagles, the Veterinary Service requested to "seal" the nest with an extra-net, in order to prevent insects to come inside the nest. We used a metal net with tight texture all around the nest. Although it reduced air circulation, it was very useful to effectively prevent wasp and flies to come into the nest, attracted by the meat waste, thus improving eagle's welfare during the nest-stage.

Outside the cage, six feeding platforms were set up as well as one drinking point. Camera traps were also set up at five outer platforms; for the fifth, we put the camera trap on the top of a pole, which was however removed soon after release, since it could prevent the animals from feeding at the corresponding platform. To prevent the access of martens to the outer platforms we put plastic cones along the pole: these were also removed for the same reasons as above.

After completion of the first hacking season, the aviary will not be modified, apart from some minor changes that will be realized to improve, as an example, the view of the observers.



**Fig. 1** View of the hacking aviary and nest

## 2. INDIVIDUAL HISTORIES

In 2018, hacking started at the end of June (29<sup>th</sup>) in Crastazza (Bitti, NU), when 4 chicks, all coming from UFCS/LPO breeding centre in Vendée (France), coordinated by Christian Pachteau, were released in the hacking cage, at 51-56 days of age (Tab.1). They were kept in the nest section of the cage for 18 days and then released (at 69-74 days of age) in the main aviary, where they remained for 34 days. By mid-July, when the first birds had been already moved from the nest to the aviary, a fifth 56 days-old eagle, coming from GREFA captive breeding centre, was hosted inside the nest (Tab.1), from which it was released after 8 days, when 64 days-old.

On 15 December another bird, A06-Saccaia, was hosted in the hacking cage; it was a 2017 wild-born eagle from Andalusia, recovered by Grefa after being found shot. It spent a week in the hacking cage in Crastazza before being released on 21 December.

All the animals were tagged in Grefa with e-OBS GPS GSM devices, which were set with the same sampling schedule applied by the other partners of the project, and marked with coloured metal rings with individual alphanumeric codes readable at distance (base colour yellow, with black inscriptions). Upon arrival in Crastazza, they were also ringed with metal rings issued by the Italian ringing centre ISPRA.

On the day of the first 4 chicks arrival, a public event was organized to get the involvement of local population and authorities (Bitti major, president of Tepilora regional park, regional forestry corp, Fig. 2). Forestas and Grefa were also present.

In this occasion, individual names for the eagles were also determined, choosing local toponyms (Posada and Tepilora while Abbaluchente, in Sardinian dialect, means “shining water”) apart for Helmar, named following the ornithologist Helmar Schenk, who greatly improved the knowledge of Sardinian birds in the past century.

The name for the fifth eagle, as well as for the one arrived in December, were chosen by Forestas team who built up the hacking cage (Nurasè: a close by valley; Saccaia: name for a lamb of approximately two years old, as the eagle was when it arrived in Crastazza).

The start of hacking was followed by dedicated press releases (Fig.2).

Name	PVC Ring	Origin	Sex	Birth date	Arrival	Release from the nest	Release in nature
<b>Abbaluchente</b>	A01	LPO	F	4-5-18	29-6-18	17-7-18	20-8-18
<b>Helmar</b>	A02	LPO	M	5-5-18	29-6-18	17-7-18	20-8-18
<b>Posada</b>	A03	LPO	F	7-5-18	29-6-18	17-7-18	20-8-18
<b>Tepilora</b>	A04	LPO	F	9-5-18	29-6-18	17-7-18	20-8-18
<b>Nurasè</b>	A05	GREFA	F	29-5-18	24-7-18	02-8-18	20-8-18
<b>Saccaia</b>	A06	Andalusia	F	10-4-17	15-12-18	-	21-12-18

**Tab. 1** List of the Bonelli's eagles hacked in 2018, in Crastazza as the first selected release site for the project. PVC rings are yellow with black inscriptions. Eagles were also fitted with metal rings and GPS-tags (data omitted). A01 and A03 are sisters.



**Fig. 2** On the top, eagles presented to the public in Bitti (NU) on 29/6/2018. On the right, the news reported by “La Nuova Sardegna”.



### 3. HACKING AND RELEASE

#### 3.1 Feeding

During the hacking phase, the birds were fed mainly with quails (99% of all prey items offered), but also with frozen crows (*Corvus corone cornix*), seldom with ducks and other species from the bird rehabilitation centres of the region. A veterinary carefully checked all prey items before being provided to the eagles. The same prey species were offered on platforms outside the cage, so that the eagles could feed after release.

Both during nest and aviary occupancy stages, the animals were monitored during the day to verify food consumption by all of them; feeding were adjusted daily in relation to the degree of consumption of previously given preys.

### *3.2 Behaviour in the cage*

The birds showed a good degree of sociality, both in the nest and in the cage, where they also showed the ability of cooperative hunting.

In the nest, all the eagles showed a strong attraction versus A01-Abbaluchente and A03-Posada, which were the eagles interested by the majority of the contacts, followed by A04-Tepilora and A02-Helmar.

Eagles spent most of the time resting, while flapping activity increased as time passed. The tree trunk put in the nest was strongly used by all the eagles, particularly for flapping.

On 17/7/2018, the nest was open at 5:05 in the morning. A03-Posada was the first to leave the nest after an hour, followed by A01-Abbaluchente and A02-Helmar. A04-Tepilora left the nest only around midday.

All the eagles continued to use the nest, mostly for resting and feeding, until it was closed to host A05- Nurasè. The latter occupied the nest all alone; the other eagles apparently didn't show any interest in her until the day when the nest was open, after eight days from A05-Nurase's arrival. Around two hours later, A03 Posada came into the nest, interacting with A05-Nurasè. One after the other, all the eagles entered in and went out the nest; A05-Nurasè left the nest late in the evening.

During all these interactions, A05-Nurasè showed a high level of vocalization, in contrast to all the other four eagles, which seldom vocalized.

Overall, A05-Nurasè was the shyest animal, seldom interacting with the other eagles that however quite often came close to her.

### *3.3 Release in nature*

The animals were released in nature all together on August 20<sup>th</sup> at 5.33 in the morning.

Upon release, A04-Tepilora left the cage first, followed by A03, A01 and A02. The latter eagles used the open gate to perch, before flying after A04. A05 left the cage last, more than two hours later than the other eagles. Five observers followed the released from two different observation points. Grefa (JJ Iglesias) was also present during the release.

During the first days after release the birds were located with UHF telemetry and observed several times.

By the end of August all the eagles dispersed. A number of times A03-Posada went back to Crastazza and fed at the feeding platforms.