

MORE BONELLI'S EAGLES IN THE WESTERN MEDITERRANEAN

AQUILA *a*life “the challenge  
of recovering an icon of European fauna”

LIFE16 NAT/ES/000235  
(Layman's report)



## Project fact sheet

AQUILA a-LIFE Project (LIFE16 NAT/ES/000235)

"Achieving the recovery of the Bonelli's eagle in the Western Mediterranean, working together for a bird-friendly electricity grid".

**Duration:** 1 October 2017 to 30 September 2022

**Coordinating beneficiary:** GREFA

### Associated beneficiaries:

Fundació Natura Parc, GAN-NIK and Government of Navarre, Alava Provincial Council, ISPRA (Italy), LPO (France).

Participants:



Col-laboradors:



**Budget:** 4,752,383 euros, 72.41% de contribución de la Unión Europea.

**Contact details:** [aquila-a-life@grefa.org](mailto:aquila-a-life@grefa.org)

Tel: +34 916387550

**Further information:** [www.aquila-a-life.org](http://www.aquila-a-life.org)

**Cover photo:** Sergio de la Fuente / GREFA

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All the specimens released by the AQUILA a-LIFE project have a GPS transmitter and leg rings to monitor their adaptation to the natural environment.  
Photo: Sergio de La Fuente/GREFA.

# Foreword

## Bonelli's eagle returns to its domain

The protagonist of the AQUILA a-LIFE project is a formidable eagle, through which we can follow the recent history of the birds of prey of the old continent. The direct persecution to which they were subjected during the 20th century almost extinguished many species of this fascinating group of birds and made many of their populations disappear.

Now, a society that is much more committed to nature conservation is calling for and supporting initiatives for the recovery and reintroduction of large predators. This is how, in 2010, a group of entities and organisations began the challenge of the demographic recovery of the Bonelli's eagle through reintroduction and reinforcement in several points of the Western Mediterranean. Subsequently, following the path initiated, in 2013 the LIFE Bonelli project was approved by the European Union for the integral conservation of the Bonelli's eagle in Spain, which was followed by a second project, AQUILA a-LIFE, between 2017 and 2022, which this document summarises.

GREFA has been the coordinating entity of AQUILA a-LIFE and, as president, I would like to give special thanks for having walked this journey together to the partners and collaborators, already friends, of GAN-NIK, the Álava Provincial Council, ISPRA-Government of Italy, Fundació Natura Parc, LPO/BirdLife France, the Government of Navarre, the Community of Madrid, the Regional Government of Andalusia, the Government of the Balearic Islands, the Regional Government of Sardinia, the Ministry of Ecological Transition and the Demographic Challenge and the Biodiversity Foundation for their support in this journey. We have also received the support of civil society, without which this type of project would not be viable.

It is an honour to be able to continue developing initiatives that aim to restore what has been lost. So, after years of persistent and convinced work, we can now say that we have the Bonelli's eagle back in its domain, playing its role in the natural spaces of Mallorca, Sardinia, Madrid, Alava and Navarre. Sincere thanks to all those who have made this possible over the years.

Ernesto Álvarez  
President of GREFA

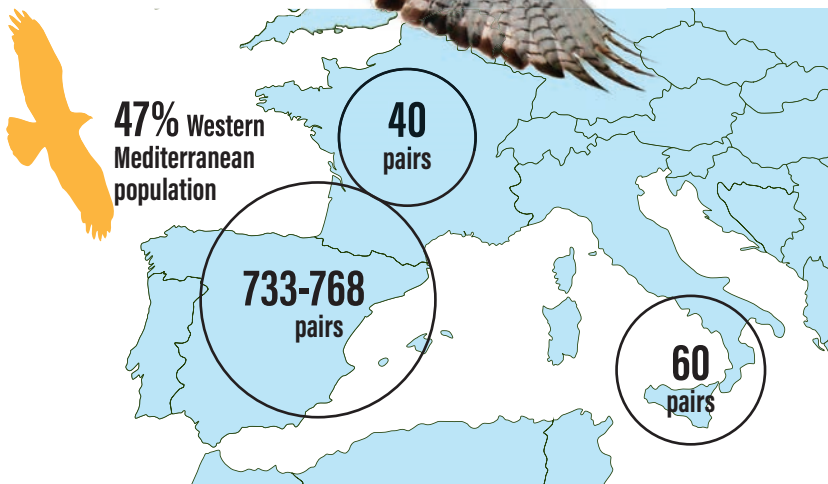
# BONELLI'S EAGLE AND ITS CONSERVATION STATUS

Juveniles have a distinctive, less conspicuous plumage to make them less visible to predators.

**Bonelli's eagle (*Aquila fasciata*) is one of the four great Iberian eagles.**

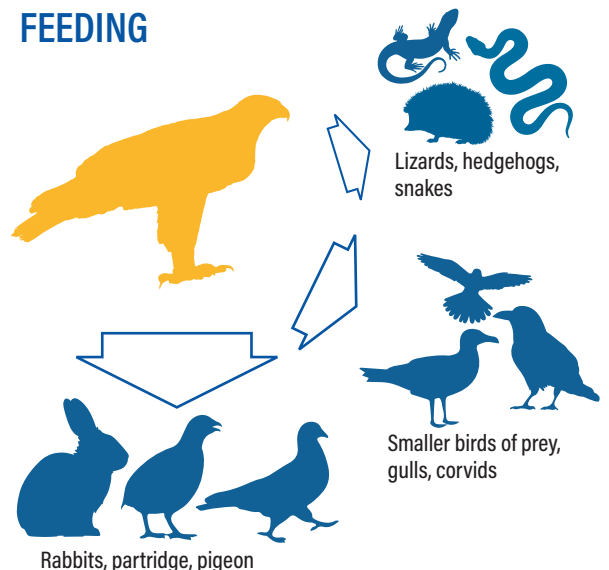
Known in Spanish as *águila de Bonelli* or *águila perdicera*, it is a slender bird, about 60-70 centimetres long and with a wingspan of 150-70 centimetres. Males weigh around 2 kg and the larger females just over 2.5 kg. Among the large eagles, it is the palest in colour and the most agile.

Adults are characterised by the black band on the tail, which is why in Catalan it is called 'cuabarrada', that is barred tail.



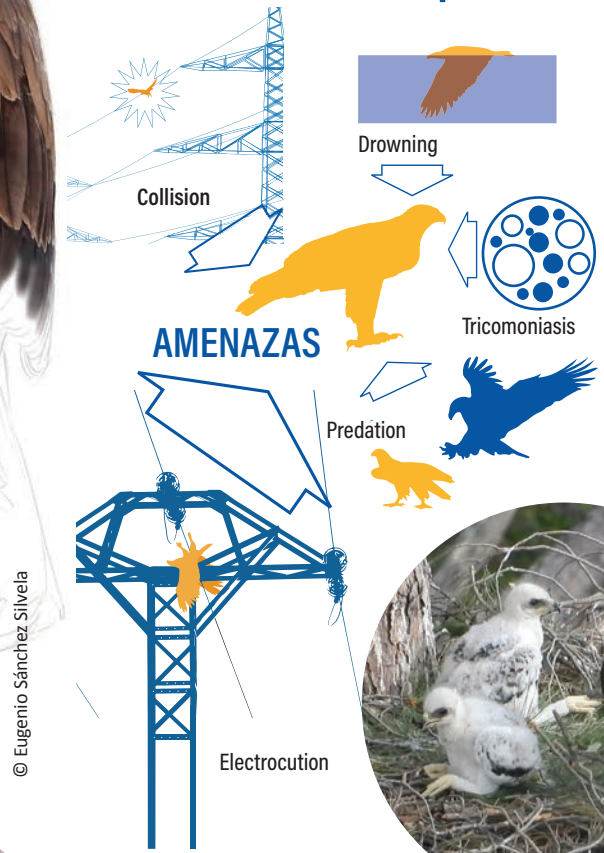
It is in regression in a large part of its populations. Spain (733-768 breeding pairs, including Mallorca), Italy (60 breeding pairs in Sicily) and France (40 breeding pairs) account for 47% of the Western Mediterranean population.

## FEEDING





The EU-supported AQUILA a-LIFE project has focused on the Bonelli's eagle, one of Europe's most endangered birds of prey. This project takes over from a previous one, LIFE Bonelli, and during its term Bonelli's eagles have been released in central and northern Spain and on the Italian island of Sardinia, and work has been done to reduce their deaths on power lines, among other actions.



It is estimated that, in the wild, the Bonelli's eagle lives for 20-25 years. The main cause of unnatural death of the species is electrocution on power lines, but there are also cases of collision with cables or drowning in irrigation ponds. Currently, in Spain, direct persecution has ceased to be one of its main problems. As for natural mortality, there are cases due to diseases (trichomoniasis) and predation or attacks by other large birds of prey, especially the golden eagle.

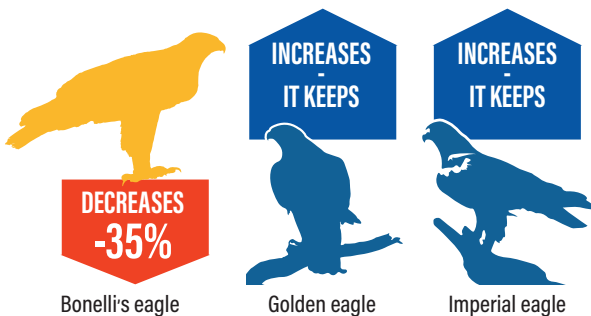
The Bonelli's eagle inhabits very variable habitats, preferring rocky areas and cliffs in general to build its nests, although it can also do it in trees. Their breeding period runs from February to mid-June. It lays between 1 and 3 eggs, usually two. Breeding specimens are territorial, monogamous and sedentary, with a territory that can range from 40 to 120 km<sup>2</sup>.



©GREFA/AQUILA a-LIFE.

Its decline in Europe (35% less than in the 1970s) contrasts with the stability or even recovery during this same period of other large birds of prey, such as the Iberian imperial eagle or the golden eagle, with which it shares problems and threats. Although in recent decades it has stabilised or recovered locally.

1970 ||||| 2022



In their first 3-4 years, juveniles concentrate in areas with a large amount of food. Subsequently, they seek to join a territory where there is a widowed specimen, or to establish new territories or territories that have disappeared for some time.



The weak point of the Bonelli's eagle could be its high vulnerability to electrocution, as it also uses - unlike the other large eagles - the inner parts of the crossarms, where the risk is multiplied.

# HOW HAVE WE RECOVERED POPULATIONS?

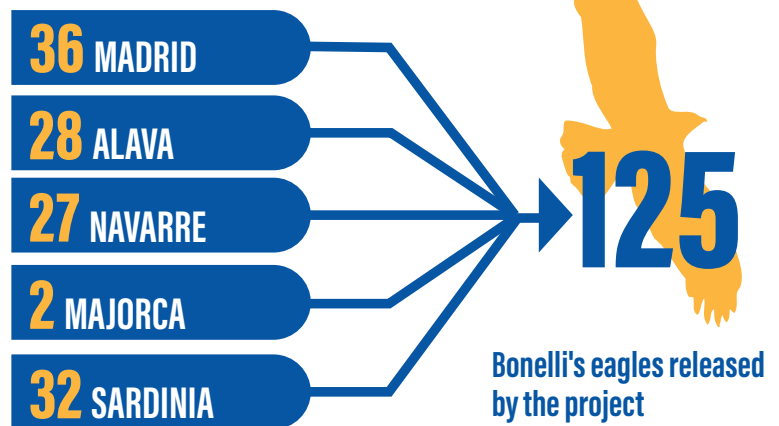
## A SUPER-PREDATOR TO RESTORE ECOLOGICAL BALANCE

Studies have confirmed that Bonelli's eagle populations in the Western Mediterranean, although separated from each other, are connected through occasional immigration and emigration. This structure is called 'metapopulation'. In the Bonelli's eagle metapopulation in the western Mediterranean, we are witnessing a process of local extinctions in the north of the distribution area, with difficult natural recolonisation for several reasons such as high mortality due to electrocution in some areas or that the juveniles of the most numerous populations (in the south of the Iberian Peninsula) do not leave their native environment to reproduce in areas with fewer specimens, or they find that other raptors have occupied their historical territories, among other reasons.

The ecological role of the Bonelli's eagle is extremely important because it is at the top of the trophic pyramid (superpredator) and therefore acts as a corrector of the excessive growth of intermediate predators. Its absence can lead to population explosions of the latter, with unforeseeable ecological, social and economic consequences, as has been demonstrated in numerous ecosystems.

AQUILA a-LIFE set out to work for the recovery of the species from a broad geographical scope, not at the level of small local populations, but by managing the weakest nuclei from a metapopulation perspective. The release of eagles in these areas allows not only the return of the species, but also the threats to be tackled effectively. This has been the key to the success of this project and its predecessor, LIFE Bonelli.

Thus, one of the milestones of AQUILA a-LIFE has been the high number of eagles released in the project areas, 125 in total. In this second project, 36 Bonelli's eagles have been released in the Community of Madrid, 28 in Álava, 27 in Navarre, 2 in Mallorca and 32 in Sardinia, all of them destinations with very precarious populations of the species, if not already extinct.



© ALBERTO ÁLVAREZ



This number is in addition to the 100 Bonelli's eagles that were released between 2013 and 2017 thanks to a previous project also promoted by the European Union, LIFE Bonelli.





## CHICKS OF DIFFERENT ORIGINS

One of the challenges of both AQUILA a-LIFE and its predecessor LIFE Bonelli has been to have enough Bonelli's eagle chicks for their reintroduction and to achieve the planned objectives. The solution adopted has been to obtain them in different ways, two of which stand out for their relevance.

Some sixty specimens released come from the two captive breeding centres of the species associated with the project: the GREFA centre in Majadahonda (Madrid), an association that is also responsible for coordinating the entire project, and the UFCS-LPO centre in Vendée (France). The teams of breeders, from their respective centres, have made available to AQUILA a-LIFE all the experience they have in captive breeding of Bonelli's eagles in order to obtain the greatest number of chicks in the best conditions.

Fifty of the reintroduced birds come from wild nest extractions in eastern Andalusia. The collaboration of the Environmental Agents of the Regional Government of Andalusia, especially its Vertical Environmental Conservation Unit (UVCA), specialised in high-altitude work, has been fundamental in obtaining these chicks, an action that reflects the solidarity of an autonomous community such as Andalusia, which has the best European population of Bonelli's eagle, as it contributes



Most of the birds released have been non-fledged chicks, which, through hacking, are much better adapted to their new environment. Photo: GREFA/AQUILA a-LIFE.

## A PIONEERING BREEDING CENTRE

The captive breeding centre of the UFCS-LPO Vendée (France), directed by Christian Pacteau, has been the pioneer in captive breeding of the Bonelli's eagle since its inception in 1995. During the AQUILA a-LIFE project, this centre provided 36 eagles for release, 28% of the eagles released in the project, thus reducing the number of wildlife captures that are usually necessary to carry out reintroduction operations.

The UFCS-LPO Vendée breeding centre has endeavoured to describe precisely the breeding methodology used:

PACTEAU C. (2014) - Reproduction en captivité de l'Aigle de Bonelli *Aquila fasciata*: l'attachement entre partenaires. *Alauda* 82 (2): 91-104.

PACTEAU C. (2020) - Reproduction de l'Aigle de Bonelli *Aquila fasciata* en captivité: Observations et enseignements. *Alauda* 88 (1): 59-70.



Bonelli's eagle chick reared at the UFCS-LPO Vendée centre. Photo: Philippe Garguil.

its birds to other regions and countries. Access to these Andalusian breeding areas has also made it possible to GPS-tag 36 nesting chicks, most of them Bonelli's eagles and some golden eagles.

### **i** From receiving to giving: Mallorca closes the circle

Mallorca has also started to transfer chicks, specifically two in 2022, one to Navarre and the other to Aragon, where a new Bonelli's eagle recovery project has just started, in which the lessons learned thanks to AQUILA a-LIFE are already being applied. But what is most relevant in this case is that on the Balearic island the species had been extinct since the 1970s, and has managed to recover thanks to the reintroductions and other measures promoted by the LIFE Bonelli and AQUILA a-LIFE projects. To such an extent that, as certified by a study by the Autonomous University of Barcelona, it now has a breeding population that is self-sustaining and is even in a position to provide chicks to other areas, as has in fact happened.

A third donor territory is Sicily, where the entire breeding population of Bonelli's eagle in Italy is concentrated, estimated at more than fifty pairs. The collaboration between the LIFE ConRaSi -which works to support Sicilian birds of prey and in which Spain participates through GREFA - and AQUILA a-LIFE projects is allowing the transfer of Bonelli's eagle chicks to Sardinia since 2019.

## MORE THAN TWENTY NEW PAIRS

The Bonelli's eagles to be released are usually brought to the release areas each year when they are about fifty days old as a general rule. In the first phase, the birds are placed in a large, enclosed enclosure, called a hacking cage by experts, which is designed in such a way that it serves as an artificial nest and a flying nest, thus covering all the stages of the eaglets' rearing until their final release.

## THE FIGHT AGAINST THE TRICHOMONAS PARASITE

63 chicks from Andalusian nests were found to be infected with trichomonas. These chicks have received the necessary treatment to overcome the disease. In addition, if there were more chicks in the nest, the siblings were treated with antiparasitics even if they did not have plaques as a preventive measure.



Checking a chick during its tagging in the nest, at which time the trichomonas infection is detected and treatment is carried out *in situ*. Photo: Francisco Márquez/GREFA.



The hacking cage, with the nest in the foreground and a younger chick, and the five fledglings in the large enclosure where they are preparing for their life in the wild. Photo: GREFA/ AQUILA a-LIFE.

One of the 7 pairs formed in the Community of Madrid thanks to the release of Bonelli's eagles, on their perch. Photo: GREFA/ AQUILA a-LIFE.

In each reintroduction area a hacking cage has been built and is operational (in the case of Sardinia even two), one of the achievements of the project being to have found an effective design after years of trials.

### **i** Methodology transfer

The novel methodology designed for the release of Bonelli's eagles is already being replicated in other projects for the reintroduction of birds of prey, such as the red kite (*Milvus milvus*) in Cazorla, the white-tailed eagle (*Haliaeetus albicilla*) in Asturias, the Egyptian vulture (*Neophron percnopterus*) in the province of Cadiz or the Bonelli's eagle itself in Aragon. This is an example of one of the objectives that is always in the focus of the LIFE funds approved by the European Commission: to transfer the results obtained to other projects for the benefit of biodiversity recovery.

After ten years of reintroductions promoted successively by the LIFE Bonelli and AQUILA a-LIFE projects, it can be said that the effort has been worthwhile. Looking back, it is striking to remember that we were starting from a critical point. Looking back over the situation of the Bonelli's eagle in the areas where these two European projects have been most active, we remember when in the Community of Madrid there was only one pair left, while in Mallorca, Navarre, Alava and Sardinia there was no trace of this bird of prey. Over the years, the result in these five areas





Tagging with GPS transmitters is a very useful tool for monitoring the birds managed in the project. It requires specialised personnel, such as Víctor García Matarranz from the Ministry of Environment of the Spanish Government, who has collaborated intensively with AQUILA a-LIFE. Photo: Francisco Márquez.

is that more than twenty breeding pairs have been formed, at least one of whose members is a reintroduced specimen. From this new breeding population, 17 chicks were hatched in their natural habitat - 9 in the Community of Madrid and 8 in Mallorca - in the 2022 breeding season alone, the last year of AQUILA a-LIFE. During the five years that this project has lasted, more than fifty Bonelli's eagles have hatched, all of them in nests in Madrid and Mallorca, except for the first hatching recorded in the Basque Country in almost twenty years, which took place in 2021 in the Montaña Alavesa.

### **i** The first chick hatched in 40 years

As a result of the territory recovered after the reintroduction of Bonelli's eagles, a chick has hatched naturally in the Montaña Alavesa; the species had not reproduced in this region for more than 40 years.

Sardinia has a territorial breeding pair since 2022, a great result to finish the project, after its extinction in the 1990s.

## MORE THAN TWO HUNDRED TAGGED BIRDS

A fundamental technique for detecting threats to Bonelli's eagles and knowing the extent to which they are affecting their populations is GPS/GSM tracking. Possibly no other endangered bird of prey species in Europe has given rise to a deployment of the magnitude involved in the marking of 233 Bonelli's eagles with this type of device during the AQUILA a-LIFE project (almost 400 if we also add those tagged with this technology by LIFE Bonelli).

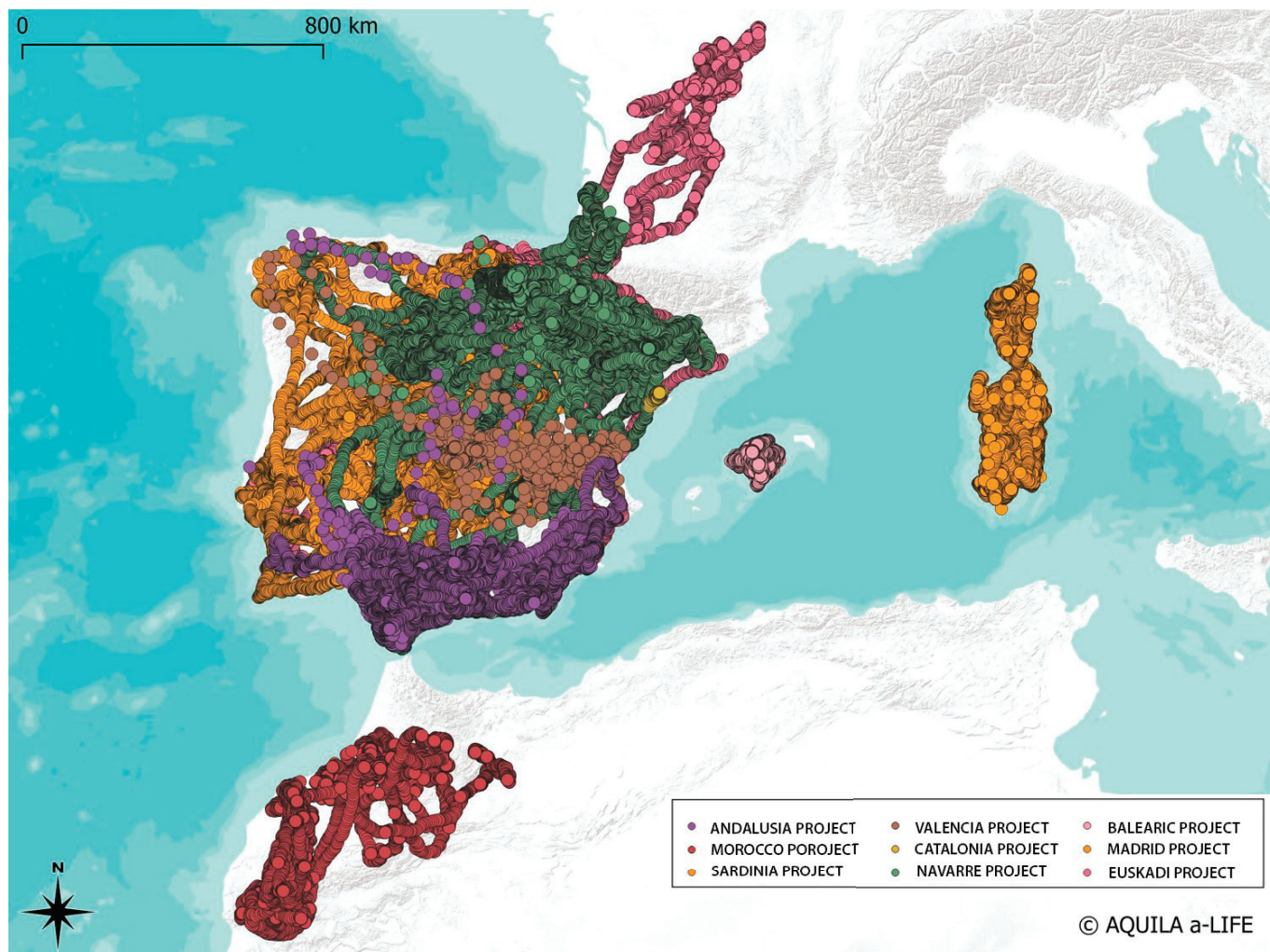
The movements of these eagles allow us to know whether they are still alive, whether they have formed a new territorial breeding pair or what they have died from. They have also helped us to know how the various sub-nuclei of the Bonelli's eagle metapopulation in the western Mediterranean are behaving. For example, while eagles from Mallorca have not left the island, those from Sardinia have visited neighbouring



Moment of the tagging of 'Zélie', in 2021, the first Bonelli's eagle chick born in Álava in almost 20 years. At the end of 2022, she is still in her dispersal phase, in the fields of the north of the Iberian Peninsula. Its father comes from the Vendée captive breeding centre in France and its mother from a wild nest in Málaga, provided by the Andalusian Regional Government. Photo: Provincial Council of Alava.

Corsica intensively. Juveniles born in Andalusia rarely fly north of the Sierra Morena and therefore do not contribute to the recovery of the decimated northern populations. It has also been possible to corroborate, thanks to GPS transmitters, that the method of releasing chicks by field-rearing or hacking is very effective for the establishment of new individuals in the release area, generating breeding pairs in most of the areas where hacking has been practised.

**The movements of these eagles allow us to know whether they are still alive, whether they have formed a new territorial breeding pair or what they have died from.**



## **i** Update of the International Plan of Action

The previous plan dated back more than two decades, having been drafted in 1997 and adopted in 1999 by the Ornis Committee of the European Commission, and endorsed by the Bern Convention on the Conservation of European Wildlife and Natural Habitats. The implementation of this plan was revised in 2010, but it was absolutely necessary to update the only management document for the species that exists at supranational level in Europe.

After several meetings with experts in the Mediterranean area of the species, SEO/BirdLife, the entity contracted by AQUILA a-LIFE to update this plan, carried out a thorough revision, incorporating new priorities for conservation, increasing the severity of electrocution and adding, among others, reintroduction as a very useful tool for the recovery of their populations.

Movements of the eagles according to their marking area, both released eagles and eagles marked in wild nests. The behaviour of the various sub-nuclei of the Bonelli's eagle metapopulation in the project areas can be observed.

# TACKLING THE MAIN THREATS

## ELECTROCUTION IS THE MAJOR PROBLEM

Electrocution is the main cause of non-natural mortality of the Bonelli's eagle, being responsible for between 40% and 60% of the deaths of this species, according to the *Red Book of the Birds of Spain*, recently published by SEO/BirdLife. Of the eagles released by the project, 20 (15%) have died from this cause, and of the 233 eagles monitored by the project, 41 (40% of the 103 dead). There is no doubt that the thousands of corrected electrical supports will allow the 125 Bonelli's eagles reintroduced by the project to live more safely.

The results of the project have shown that electrocution is one of the most important causes of mortality of the species and of many other birds of prey in Sardinia, an aspect that was previously unknown. The huge attention and interest in the Bonelli's eagle have contributed to the formulation of a proposal for a regional law aimed at tackling the problem of electrocution.

In the past five years, anti-electrocution measures have been applied to no less than fifteen thousand dangerous power lines, where Bonelli's eagles no longer die, but also many other species of birds of prey. More than two hundred fifty of these pylons have been directly intervened with AQUILA a-LIFE funds, as the owners of the power lines were private individuals who could not afford to pay for the corrections themselves. In the remaining projects, the bulk of the financing has been provided by the electricity companies, such as Iberdrola, Enel, Naturgy and EDP, but with the basic information and advice provided by this project. The corrections have been carried out mainly in the five priority areas where AQUILA a-LIFE has been active: Community of Madrid, Mallorca, Navarre, Alava and the Italian island of Sardinia.



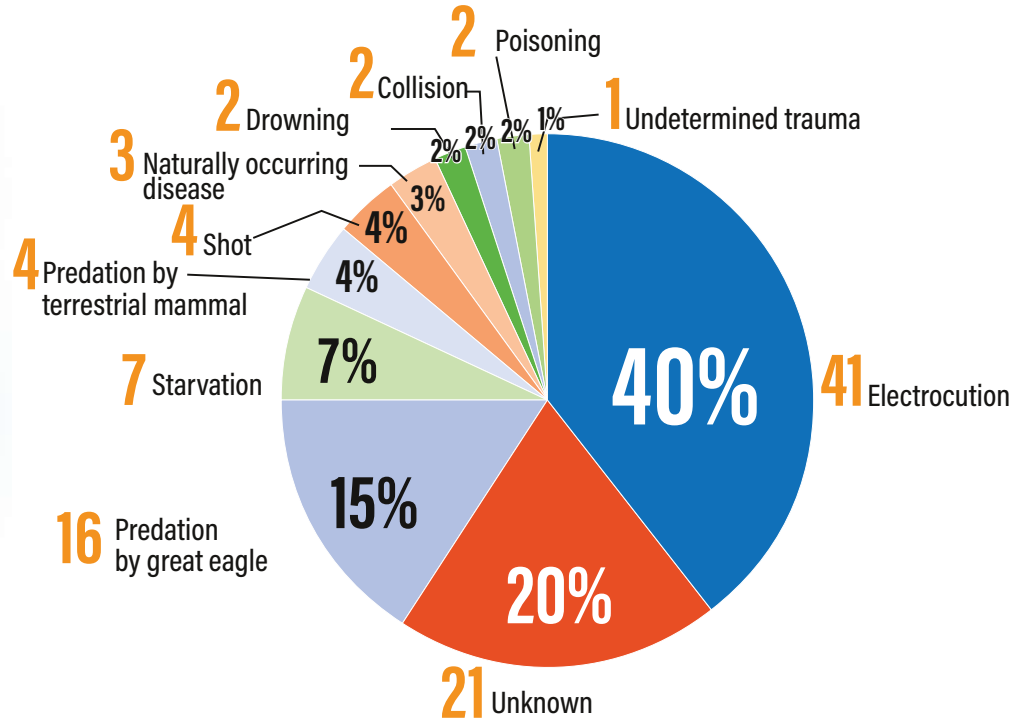
© GREFA/AQUILA a-LIFE.

**Electrocution is the main cause of non-natural mortality of the Bonelli's eagle, being responsible for between 40% and 60% of the deaths of this specie.**



By carrying GPS location transmitters, AQUILA a-LIFE project partners have been able to detect Bonelli's eagles killed by electrocution, as in this case in the Community of Madrid. Photo: Juan José Iglesias /GREFA.

**Causes of mortality of the 103 Bonelli's eagles that have died under monitoring of the AQUILA a-LIFE project (2017-2022).**



Partner	AQUILA	Complementary	Total
GREFA	208	±10,000	10,208
FNP	—	266	266
GAN	33	±4,000	4.033
DFA-AFA	17	729	746
ISPRA	—	144	144
<b>TOTAL</b>	<b>258</b>	<b>15,139</b>	<b>15,397</b>

Retrofitted supports in the areas of each partner, financed with AQUILA a-LIFE funds or complementary (financed by electricity companies or owners) and total.

**In the past five years, anti-electrocution measures have been applied to no less than fifteen thousand dangerous power lines, where Bonelli's eagles no longer die, but also many other species of birds of prey.**



The retrofitting of power lines has proven to be a very effective measure to minimise the impact of electrocution. The selection of the supports to be corrected is one of the keys. Photo: Ana Palacios. Government of Navarre.

In addition, the AQUILA a-LIFE project has launched other very promising lines of work, such as an experiment carried out by Alava Provincial Council to induce Bonelli's eagles to reject power lines, with encouraging initial results. Meanwhile, simulations have been carried out with several species of birds of prey at the GREFA wildlife recovery centre in Majadahonda to test different technical solutions to electrocutions, especially in the design of extension poles and insulators for electricity pylons, with the collaboration of the energy distribution companies i-DE and Naturgy (UDF).

## **i** Teaching eagles not to perch on power lines is possible

Alava Provincial Council, together with the electricity company I- DE Redes Eléctricas Inteligentes S.A.U. (Iberdrola Group), have carried out spectacular work to achieve, by means of an 'aversive imprinting that the released Bonelli's eagle chicks reject the use of pylons in the first phases of juvenile dispersal, reducing their mortality by electrocution. The results are compelling.

The method consists of placing pylons of various dangerous types, not connected to the electricity grid, but equipped with an electric fence (supplied by solar energy) on the top, so that the birds, when perching, receive a small aversive, but not lethal, shock.

Chicks exposed to the pilot experience have not used electric pylons for more than one year, while the "non-imprinted chicks took an average of 31.5 days (between 3 and 91 days) to use them during the same period.

.This practice could be used in similar reintroduction projects, but also close to raptor concentration areas, such as roosts, rubbish dumps or middens.

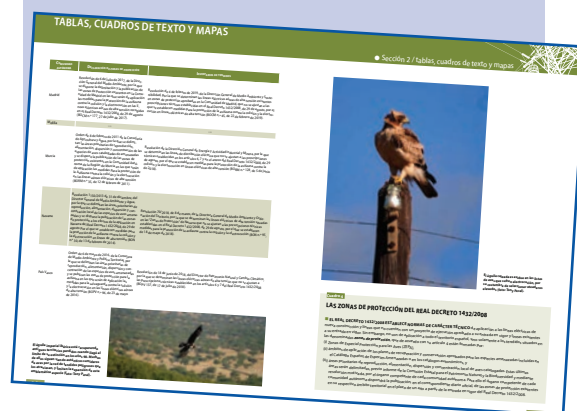


Pylons of the pilot experience of the 'aversive imprinting' in Alava, installed in the chick release area in the Rioja Alavesa. Photo: Provincial Council of Alava.

## WHITE PAPER ON THE ELECTROCUTION OF BIRDS IN SPAIN

The most complete and up-to-date diagnosis of one of the most serious conservation problems suffered by a large number of birds in Spain, many of the species affected being protected and even endangered, is the result of the AQUILA a-LIFE project.

Since its launch two years ago, the 100-page White Paper on electrocution in Spain has become a reference on the subject. In that time, more than ten thousand copies have been downloaded in PDF format or delivered in their paper version to professionals in the electricity sector, forestry and environmental agents, Seprona and representatives of bodies and entities with competence or an interest in this matter. Available for download at <https://bit.ly/3dkz8Kh>



## **i** White paper as a reference

The Ministry of Ecological Transition and Demographic Challenge has taken the White Paper on Electrocutation in Spain as a reference to reactivate the Working Group on power lines of the Flora and Fauna Committee, and to promote the creation of a national strategy to combat this scourge with the participation of all sectors involved.



Another experience of great value for its potential as a reference for replication in other projects and places has been the creation by GREFA of the Tendidos Team, a group of volunteers aware of the problem of the impact of power lines. In its transects, this team has reviewed more than eleven thousand pylons in the Community of Madrid and neighbouring provinces to assess the danger they pose to birds and promote their correction. Incidentally, during these transects they have found more than 1,100 corpses or remains of birds that died from electrocution.

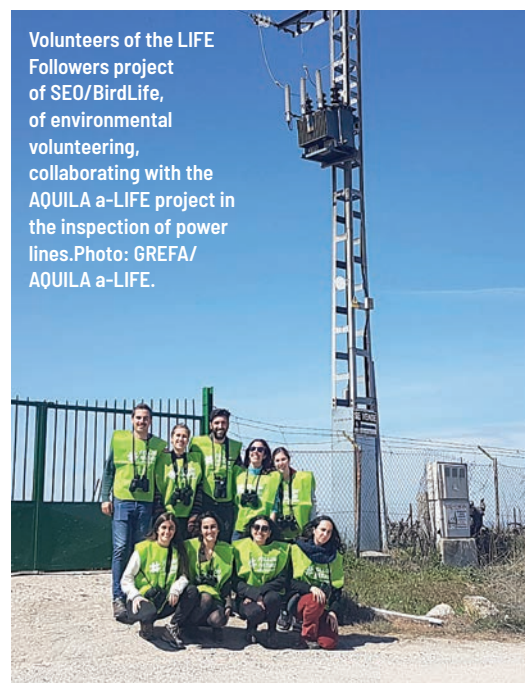
## OTHER CAUSES OF MORTALITY WE HAVE WORKED WITH

Electrocution has not been the only line of action of the project to reduce the causes of mortality of the species: in Majorca and Navarre, action has been taken to minimise drowning in irrigation ponds and in Alava work has been carried out with wineries to prevent collisions with trellis wires.

45 floating platforms have been installed in various pools in Majorca to try to prevent birds and other fauna from drowning. An informative leaflet has been produced and several campaigns have been launched throughout the project in collaboration with the Balearic Islands Ministry of the Environment.



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Placement of bird floats in irrigation ponds in Majorca, to prevent the drowning of Bonelli's eagles and other birds of prey. Photo: FNP.

One of the three Supplementary Feeding Points built by GAN in Navarre, specially designed to be accessible to Bonelli's eagle and not for other competitor raptors. Photo: GAN-Gobierno de Navarra.



In Alava, measures have been tested to avoid the collision of Bonelli's eagles and other birds in trellised vineyards, an action in which six wineries have collaborated. The Trellis Project focuses on the management of the wire of trellised vineyards. This practice helps to reduce collisions of a great diversity of bird species without increasing the cost of vineyard management.

Three Supplementary Feeding Points have been built, specially designed to be accessible to Bonelli's eagle, but not to the golden eagle. The aim is to favour the territorial settlement of the Bonelli's eagle over the golden eagle.

 Free *online* course  
**POWER LINES AND BIRDS**

One action that has exceeded expectations is the free online course "Power lines and birds" [<http://cursos.aquila-a-life.org/>]. Since its launch in January 2019, almost 4,000 people have enrolled in this course, in one of its three modalities (basic, electrical and environmental). Of those enrolled, 1,900 have already obtained their diploma certifying that they have passed the course.



Some of the courses included field trips to see *in situ* the dangerous lines and the best techniques for their retrofitting. Photo: Francisco Márquez.





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## CONTACT NETWORK AND TRAINING COURSES AGAINST ELECTROCUTION

The same intention has driven each of the AQUILA a-LIFE partners to convene a large number of classroom courses, in different autonomous communities and with various levels of specialisation, most of them with the idea of finding solutions to the threat of electrocution to the Bonelli's eagle and other species. More than 3,000 participants have attended these courses, from environmental and Seprona agents, to technicians from administrations, the electricity sector (electricity companies, subcontractors, engineers), veterinarians, conservation associations, students and interested members of the general public.

**More than 3,000 participants have attended these courses, from environmental and Seprona agents, to technicians from administrations, the electricity sector, veterinarians, conservation associations, students and interested members of the general public.**



The courses on power lines and birds have been one of the most important actions of the AQUILA a-LIFE project, such as this one carried out by the Fundació Natura Parc in Mallorca. Photo: FNP/AQUILA a-LIFE.

**If one had to choose a milestone of the project, perhaps it would be the dynamic of collaborative work that has been created with the electricity sector to seek solutions to the problem "from within".**

But if there has been one sector that AQUILA a-LIFE has been particularly interested in connecting with, it has been the electricity sector: more than thirty companies have been contacted, from large companies in the sector to subcontractors and manufacturers of insulators. The support from the outset from industrial engineers, through the General Council of Industrial Technical Engineering of Spain (COGITI), has made it possible to spread the project's messages to thousands of members. The same can be said of the Plataforma SOS Tendidos Eléctricos, an alliance of conservation organisations created in 2016 that has collaborated with AQUILA a-LIFE since the project began.

If one had to choose a milestone of the project, perhaps it would be the dynamic of collaborative work that has been created with the electricity sector to seek solutions to the problem "from within", taking some very promising first steps that hopefully in the future will lead to greater advances, such as a future state strategy against electrocutions and collisions of birds on power lines.

AQUILA a-LIFE has also sought to reach agreements with hunters, landowners, municipal councils and other local administrations in the territories where the project works, convincing them that the Bonelli's eagle is in fact an ally. In fact, this species exercises its biological control over fauna considered harmful by sectors such as hunting and agriculture. The land stewardship agreements signed in Navarre and the collaboration with hunters' associations on the islands of Mallorca (25 associations) and Sardinia are good examples of this line of action



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**i Pilot experiments to test new anti-electrocution materials at GREFA's facilities.**

During the spring-summer of 2020 and 2021, experiments were carried out on roosting areas on insulators and other anti-electrocution materials at Grefa's facilities with different groups of birds of prey. All tests were conducted without voltage but served to evaluate the incorporation of new devices to reduce costs and ensure the safety of the birds. These studies were financed by I-DE (Iberdrola) and Naturgy.



© GREFA/AQUILA a-LIFE.

Collaboration between the project partners and electric companies has intensified, leading to previously unthinkable results, such as the experimentation of new materials in bird aviaries.



One of the multi-sectoral workshops organised by AQUILA a-LIFE, in this case jointly with the Ministry of Ecological Transition and Demographic Challenge, on technical requirements for the correction of power lines. Photo: GREFA/AQUILA a-LIFE.

### **i** Land stewardship for the Bonelli's eagle in Navarre

Thanks to the project, 3 land stewardship agreements have been signed with local councils and hunters' associations and collaboration agreements have been reached with 8 entities (companies, individuals). The joint work has considerably increased the impact of the project's actions, especially in terms of habitat improvement and dissemination of the project, with a highlight being the clearing of more than 100 ha of scrubland.



Attendees at the information meeting for local sectors by GAN- Government of Navarre, April 2021 in Echarren de Guirguillano (Navarra), with a poster of the AQUILA a-LIFE project. Photo: GAN/ AQUILA a-LIFE.



# THE SOCIAL DIMENSION OF THE PROJECT

## WE WILL ALL BENEFIT

We are convinced that everything that favours the Bonelli's eagle, as well as the rest of the great eagles of our continent's avifauna, is positive for nature and also for people: being a predator at the top of the food chain, it contributes to the maintenance and restoration of the complexity of ecosystems, something that translates into the activation of multiple environmental services from which we will all end up benefiting. The ecosystem services that have favoured most from the project are those related to birds of prey with the maintenance of complete and balanced ecosystems, the biological control of pests (rats, voles, insects...) and their contribution to scientific knowledge and dissemination. It is therefore our collective responsibility to continue to care for and concern ourselves with our beloved Bonelli's eagle.

## DIFFERENT PATHS TO THE SAME GOAL

An important part of AQUILA a-LIFE has been the work carried out in the field of information and awareness-raising. Some achievements along this line have been the following:

**THE WEBSITE AND THE SOCIAL NETWORKS ASSOCIATED WITH THE PROJECT HAVE BEEN THE BEST SHOWCASE FOR THE ACTIONS CARRIED OUT:**

**MORE THAN 300 NEWS ITEMS DISSEMINATED.**

**WEBSITE: 145,000 PAGES VISITED AND MORE THAN 60,000 USERS.**

**FACEBOOK: 3,400 FOLLOWERS.**

**TWITTER: 1,200 FOLLOWERS.**



Communication is key in any project, but even more so if it deals with the recovery of a superpredator such as the Bonelli's eagle. Photo: GREFA/AQUILA a-LIFE.



Children's workshops during the celebration of Eagle Day at the headquarters of the Fundació Natura Parc, in Mallorca. Photo: FNP/ AQUILA a-LIFE.

**THE EAGLE DAY CELEBRATIONS IN THE AREAS WHERE THE PROJECT IS ACTIVE ARE NOW A CLASSIC EVENT, IDEAL FOR RAISING PUBLIC AWARENESS OF THE BONELLI'S EAGLE AND WHAT AQUILA A-LIFE IS DOING FOR THIS SPECIE.**

**FRANCISCO MÁRQUEZ**, one of Spain's most prestigious nature photographers and filmmakers, directed a series of mini-documentaries aimed at raising awareness of the work carried out by AQUILA a-LIFE. With the same objective in mind, an animated video commissioned by **ALAVA PROVINCIAL COUNCIL** was presented, with a young audience in mind.



Image from one of the documentaries filmed by Francisco Márquez, using a drone to record the correction of power lines.



The Provincial Council of Alava has produced an animated video about the Bonelli's eagle, also available in Basque. This video was replicated by the LIFE Imperial project in Portugal.





**Illustrator BELETTE LE PINK created the story AQUILA: when eagles make history, a project supported by**

**RH Corporative International. Thanks to the initiative of AQUILA a-LIFE's Italian partner ISPRA, the comic book Bentornata Aquila di Bonelli / Benénnidu Abilastrum was published, with illustrations by STEFANO MAUGERI.**



GREFA's Environmental Education Department organised three editions of the exhibition of drawings and artwork of the Bonelli's eagle, especially aimed at primary and secondary school pupils, and Alava Provincial Council organised a micro-story competition for young people about the Bonelli's eagle.

Some 27,000 schoolchildren have learned about the Bonelli's eagle project in Mallorca, thanks to the Fundació Natura Parc.

Schools and summer camps in Sardinia have been introduced to the Bonelli's eagle through a series of activities. A game with the children consisted of putting on replica wings to make them feel like birds of prey and experience the power of the wind. The story of the return of the Bonelli's eagle (*abilastru*, in Sardinian) was told in the parks of the island's towns through a travelling Japanese 'kamishibai' theatre, and the birds released during the project were presented through photographs.



**EVERYTHING THAT FAVOURS THE BONELLI'S EAGLE, AS WELL AS THE REST OF THE GREAT EAGLES OF THE AVIFAUNA OF OUR CONTINENT, IS POSITIVE FOR NATURE AND ALSO FOR PEOPLE.**

Activities with schoolchildren in the project areas ensure that these initiatives are embedded in the society where they are carried out. Photos: ISPRA and GAN /AQUILA a-LIFE.





## A SUPPORT NETWORK, WITHOUT WHICH NONE OF THIS WOULD HAVE BEEN POSSIBLE

From the very beginning, back in 2010, we started to weave a support network that has been expanding and becoming more and more robust.

In addition, contact has been maintained with various LIFE projects dedicated to the recovery of birds of prey and/or the fight against electrocution, including LIFE Bonelli EastMed and LIFE ConRaSi, but also others such as LIFE Gypconnect, LIFE Followers, LIFE Bird on Power Lines, LIFE Energy, LIFE PannonEagle, RaptorsPrey LIFE LIFE Safe for Vultures and LIFE Egyptian Vulture.

## IT IS A LUXURY FOR ALL AQUILA A-LIFE PARTNERS TO HAVE BEEN ABLE TO COUNT ON THIS PANEL OF LOCAL PARTNERS.

### MADRID

#### GREFA

#### Collaborators:

#### Public Administrations and Companies:

- Ministerio para la Transición Ecológica y el Reto Demográfico
- Fundación Biodiversidad
- Junta de Andalucía
- Gobierno de Castilla-La Mancha
- Comunidad de Madrid
- Generalitat Valenciana
- Generalitat de Catalunya
- Agencia de Medio Ambiente y Agua de Andalucía (AMAYA)

#### Electrical energy distribution companies:

- I-DE
- UFD-Naturgy
- ENEL
- EDP-r

#### Electricity sector companies:

- RH Corporative International
- ENVERTEC S.L.
- CONECTORES Y SISTEMAS
- GYSEN PLUS S.A.
- Grupo Jesús Bárcenas

#### Municipal Councils:

- Ayto. de Valdemaqueda
- Ayto. de Santa María de la Alameda
- Ayto. de Hoyo de Manzanares
- Ayto. de Colmenar Viejo
- Ayto. de San Martín de Valdeiglesias

#### Forestry and Environmental Agents:

- Agentes Forestales de la Comunidad de Madrid
- GIAM de la Comunidad de Madrid
- Agentes Medioambientales de Castilla-La Mancha
- Agentes de Medio Ambiente de Andalucía
- Unidad Vertical de Conservación Ambiental de Andalucía (UVCA)
- Agentes de Medio Ambiente de Castilla y León

#### Fauna Recovery Centres:

- CREAS Andalucía
- CRF La Granja de El Saler (Valencia)
- COFIB (Mallorca)
- Centro de Fauna de Vallcaient (Lleida)
- Centro de Recuperación e Investigación de Animales Salvajes - RIAS (Algarve, Portugal)

#### Estates collaborating with the correction of power lines:

- Bohadilla
- La Maraños
- Cotos de Monterrey Pingarrón

- Coto de San Benito
- La Encinilla
- Taller Rodríguez C.B.
- La Sima
- Dehesa de Balsamaña
- Navalcarnero
- La Pavona
- Los Serones
- Los Laureles
- CIE El Jarama
- Dehesa del Rincón
- El Lanchar
- Calaña
- Las Yegüas
- Arancar
- El Anzuelo
- La Pedriza
- La Barranca
- Bujazadan
- Gobernador
- Villa Cristina
- AGRINSA

#### Private estates and entities:

- Finca Suerte Ampanera (Rafael González)
- Finca La Ladera y Picazos (Ignacio Morando)
- Alberto Álvarez
- Soul Natura
- Wilder South
- Grupo JORGE S.L.

### VENDÉE

#### CENTRE UFCS-LPO VENDÉE

#### Collaborators:

- UFCS
- Fondation Prince Albert II de Monaco
- ECO-MED
- Fondation Nature & Découvertes

### ALAVA

#### ARABAKO FORU ALDUNDIA ALAVA PROVINCIAL COUNCIL (APC)

#### Collaborators:

- Cuadrilla de la Montaña Alavesa
- Ayuntamiento de Campezo
- Junta Administrativa de Oteo
- Junta Administrativa de Antoñana
- Ayuntamiento de Maestu
- Cuadrilla de Laguardia - Rioja Alavesa
- Ayuntamiento de Laguardia
- Antigua Hermandad del Monte de Laguardia
- Junta Administrativa de Bachicabo

#### Public centres (APC):

- Museo de la Hoya
- Casa del Vino

#### Hunters' Associations:

- Arabacaza
- Artio

#### Wineries:

- Casa Primitiva
- Masaveu (Murua)

- Eguren Ugarte
- Luis Cañas
- Martínez-Zabala
- Baigorri

#### Magazines:

- MendiAldea
- Berberana
- Naturaren ahotsa - La voz de la naturaleza

#### Electricity sector companies:

- I+DE Redes Eléctricas Inteligentes S.A.U

### NAVARRRE

#### ENVIRONMENTAL MANAGEMENT OF NAVARRRE NAFARROAKO INGURUMEN KUDEAKETA

#### Collaborators:

- Listado de empresas y entidades colaboradoras (a través de Acuerdos de Custodia o Acuerdos de colaboración) con el proyecto AQUILA a LIFE en Navarra:

#### Hunters' Associations:

- Sociedad de Cazadores Deportivos de Cáseda (acuerdo custodia)
- Sociedad de Cazadores San Zoilo de Gallipienzo (acuerdo custodia)
- Sociedad Local de Cazadores Valdemañeru (acuerdo custodia)

#### Municipal Councils:

- Ayuntamiento de Cáseda (acuerdo custodia)
- Ayuntamiento de Gallipienzo (acuerdo custodia)
- Ayuntamiento de Guirguillano (acuerdo custodia)

#### Private companies and owners:

- Explotación agrícola-ganadera SAT LA LANDA (acuerdo colaboración)
- MAKROBIOS S.L. "Pan de Arguiñán - Arguiñarizko Ogia" (acuerdo de patrocinio)
- Cantera CALERAS DE LIXKAR S.A (acuerdo de colaboración)
- VISCOFAN (Viscofán es un grupo español y líder mundial en fabricación y comercialización de envolturas para productos cárnicos, con presencia comercial en más de 100 países de todo el mundo) (acuerdo de colaboración)
- Parque de Naturaleza SENDAVIVA (acuerdo de colaboración)
- DAVID SUESCUN ABRIL propietario de la explotación de cría y control de palomas (Núcleo Zoológico ES310530000115 / 053NA115)

- en Berbinzana (acuerdo de colaboración)
- MANUEL IBÁÑEZ DE LA CRUZ propietario de la explotación de cría y control de palomas (Núcleo Zoológico ES312160000137 / 216NA137) en Sangüesa (acuerdo de colaboración)
- JESÚS MARÍA AZPAREN propietario de granja de perdices dedicada a mejora genética (acuerdo de colaboración)

#### Other collaborators:

- Conocer Navarra

### MAJORCA

#### FUNDACIÓ NATURA PARC

#### Collaborators:

#### Public administrations and companies:

- Servicio de Protección de Especies - Govern de les Illes Balears
- IBANAT
- COFIB
- Agents de Medi Ambient Illes Balears
- SEPRONA
- Consell de Mallorca-Servei de Caça
- MITECO
- IMEDEA
- Fundación Biodiversidad

#### Protected Natural

#### Sites:

- Parc Natural de Llevant
- Parc Natural de Mondragó
- Parc Natural de sa Dragonera
- Parc Natural de s'Albufera de Mallorca
- Parc Nacional Marítime-terrestre de l'arxipèlag de Cabrera
- Paratge Natural de la Serra de Tramuntana

#### Electricity sector companies:

- ENDESA
- Red Eléctrica de España
- Vall de Sóller Energia-Grupo el Gas

#### Associations and NGOs:

- GOB Mallorca
- SEO/BirdLife
- GORA
- Associació d'Amics de l'Arxiduc
- Societat d'Història Natural de les Illes Balears
- Fundació Vida Silvestre Mediterrània
- Federació Balear de Caça
- Club Mallorquin de Cetreria
- Associació de Falconeria de les Balears
- Associació Balear d'Agroturisme i Turisme d'Interior

- Federació Balear de Muntanyisme i Escalada

#### Private estates and entities:

- Finca Santiani Vell
- Finca Son Moragues
- Finca s'Avall
- Finca Ternelles
- Finca Son Puig
- Finca Sa Bastida
- Finca Solleric
- Finca Es Fangar
- Finca Son Cocó
- Finca Son Medivil
- Finca Son Marrano
- Finca Bàltx de dalt
- Finca de S'Alqueria d'Andratx
- Àguiles de Mallorca
- Vinyes Mortitx
- La Reserva Puig de Galatzó
- Parque zoológico Natura Parc
- TIRME

#### Municipal councils:

- Ajuntament de Felanitx
- Ajuntament de Manacor
- Ajuntament de Porreres
- Ajuntament de Llucmajor
- Ajuntament de Ses Salines
- Ajuntament d'Andratx
- Ajuntament de Deià
- Ajuntament de Sóller
- Ajuntament de Lloseta
- Ajuntament d'Alaró
- Ajuntament d'Inca
- Ajuntament de Fornalutx
- Ajuntament de Calvià
- Ajuntament de Puigpunyent
- Ajuntament d'Escorca
- Ajuntament de Valldemossa
- Ajuntament de Santanyi

### SARDINIA

#### ISPRA

#### Collaborators:

- Gobierno regional de Cerdeña
- Forestas
- Corpo forestale e di Vigilanza Ambientale - Regione Sardegna
- S'Avanzada
- Associazione Nazionale Libera Caccia
- e-distribuzione
- Fondazione Segrè
- Parco Regionale di Tepilora
- Parco Naturale Regionale Molentargius Saline
- Parco Nazionale dell'Asinara
- Parco Nazionale della Maddalena
- Centro Escursioni Sardegna Nascosta
- Comune di Bitti
- Comune di Bosa
- Anthus
- Alea
- LIFE Safe for Vultures
- LIFE Egyptian Vulture
- LIFE ConRasi
- ElectroRevolution

## A SCIENTIFIC COMMITTEE FOR THE BONELLI'S EAGLE

The project had an advisory scientific committee that met on four occasions, and is made up of five members: one French (Olivier Duriez of the University of Montpellier), one Italian (Michelangelo Morganti from the Italian National Research Council) and three Spaniards (José Ignacio Aguirre from the Complutense University of Madrid, Antonio-Román Muñoz from the University of Málaga and Agustín Madero from the Andalusian Regional Government).

### THE SCIENTIFIC COMMITTEE AND OTHER SPANISH ACADEMIC ENTITIES HAVE PROMOTED AT LEAST 13 STUDIES ON THE BONELLI'S EAGLE, USING DATA FROM THE DIFFERENT LIFE PROJECTS ASSOCIATED WITH THE SCIENTIFIC MANIFESTO.

One of its most outstanding results is a Scientific Manifesto to promote scientific studies on the Bonelli's eagle and to provide scientific support to LIFE projects aimed at the conservation of this bird of prey. This manifesto is an open document that has so far identified eight priority study topics. In addition, the LIFE ConRaSi project, which works with Bonelli's eagle in Sicily, among other raptors, as well as the sister project LIFE Bonelli EastMed, aimed at the recovery of the species in Greece and Cyprus, have also joined our scientific manifesto. The manifesto can be downloaded here: [<https://www.aquila-a-life.org/index.php/es/aquila-a-life/objetivos/comite-cientifico/manifiesto-cientifico>].

It is also noteworthy that the Scientific Committee and other Spanish academic entities have promoted at least 13 studies on the Bonelli's eagle, using data from the different LIFE projects associated with the Scientific Manifesto. In this link you can view the articles published with this data: [<https://www.aquila-a-life.org/index.php/es/aquila-a-life/objetivos/comite-cientifico/investigaciones-relacionadas> ]

In this link the articles published with the data of the Bonelli's eagles marked by the project can be seen.



Meeting of the Scientific Committee in September 2022 in Majadahonda, Madrid. Photo: GREFA/AQUILA a-LIFE.

## AQUILA A-LIFE FINAL CONGRESS

Many scientists and researchers participated in our final project congress, which took place on 21-23 September 2022, at GREFA's Wildlife Hospital in Majadahonda (Madrid). It was an ideal occasion to talk about the current situation of the Bonelli's eagle and present the results of the project, and to bring together many of the necessary collaborators. 78 people participated in person and more than 200 by streaming in Spanish and English.

This event is available in Spanish on GREFA's Youtube channel and in English on AQUILA a-LIFE's Youtube channel.

### SPANISH

- Day 1: <https://youtu.be/neup2c3M0Vw>
- Day 2: [https://youtu.be/aOMY\\_bCiUH](https://youtu.be/aOMY_bCiUH)



Day 1



Day 2

### ENGLISH

- Day 1 (1st part): <https://youtu.be/eJPtHEgcyuE> (only the first minutes)
- Day 1 (2nd part): <https://youtu.be/u6yD0bnJ4bU>
- Day 2: <https://youtu.be/Y4pRWsigf8w>



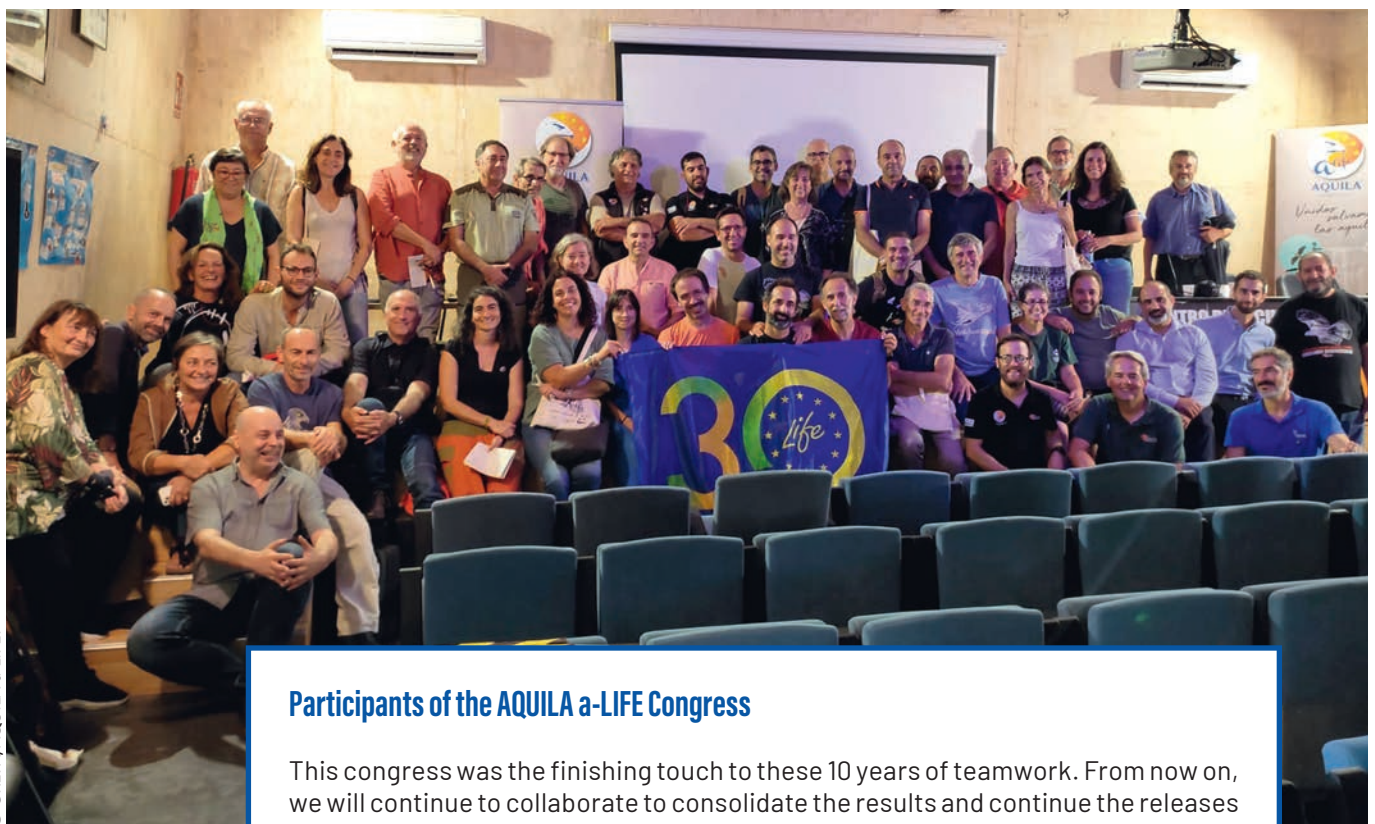
Day 1 (first minutes)



Day 1



Day 2



### Participants of the AQUILA a-LIFE Congress

This congress was the finishing touch to these 10 years of teamwork. From now on, we will continue to collaborate to consolidate the results and continue the releases in the areas where it is still necessary, but without the umbrella of the European LIFE programme that has given us so much life.

After ten years working for the Bonelli's eagle, the AQUILA a-LIFE project and its predecessor LIFE Bonelli have brought new breeding populations, more established breeding pairs and fewer lethal power lines. But the main achievement has been to put this emblem of Mediterranean ecosystems on the biodiversity policy agenda.



Participants:



araba **álava**  
foru aldundia diputación foral

Nafarroako  
Ingurumen  
Kudeaketa, S.A.



Gestión  
Ambiental de  
Navarra, S.A.

Nafarroako  
Gobernua

Gobierno  
de Navarra



ISPRA  
Istituto Superiore per la Protezione  
e la Ricerca Ambientale



Collaborators:

CONSELLERIA  
DE MEDI AMBIENT  
I TERRITORI

