







LIFE14 NAT/IT/000484

LIFE UNDER GRIFFON WINGS Implementation of best practices to rescue Griffon vultures in Sardinia

With the contribution of the LIFE financial instrument of the European Community













LIFE14 NAT/IT000484 Life Under Griffon Wings

Duratation: 5 years (1 of September 2015 - 31 of August 2020)

Budget: 1.730.385,00 euros.

Life Programme Contribution: 1.039.985,00 euros.

Project Area:

- 1) SCI ITB011155 Lago di Baratz Porto Ferro
- 2) SCI ITB010042 Capo Caccia (Isole Foradada e Piana) e Punta Giglio
- 3) SPA ITB013044 Capo Caccia
- 4) SCI SCI ITB020041 Entroterra e zona costiera tra Bosa, Capo Marrargiu e Porto Tangone
- 5) SCI ITB020040 Valle del Temo
- 6) SPA ITB023037 Costa e Entroterra di Bosa, Suni e Montresta
- 7) SPA ITB023050 Piana di Semestene, Bonorva, Macomer e Bortigali
- 8) SCI ITB211101 Altopiano di Campeda



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Associated Veneficiaries: Agenzia Regionale Forestas, Corpo Forestale e di Vigilanza Ambientale (CFVA), Comune di Bosa

In collaboration with: Assessorati regionali alla Difesa dell'Ambiente e alla Sanità, Vulture Conservation Foundation (VCF), Parco naturale regionale di Porto Conte, Istituto Zooprofilattico Sperimentale della Sardegna, Servizi veterinari delle ASL di Sassari, Oristano e Nuoro.

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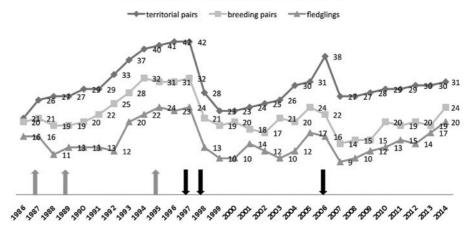
The Griffon Vulture (Gyps fulvus) is a typical scavenger, feeding exclusively on carcasses of medium- and large-sized animals. Avian scavengers are part of the detrital food web of ecosystems and they provide the important ecological service of recycling carrion biomass, thereby contributing to waste removal, disease regulation, nutrient cycling. Replacing some of these services has not only conservation costs but also unnecessary environmental and economic costs associated with carcass transport and processing.

The population in Europe is significantly increasing, and it is estimated at 32,400-34,400 pairs, with Spain alone accounting for an estimated 25,000

pairs (BirdLifeInternational 2018). Its range has also expanded thanks to reintroduction projects in France, the Italian peninsula and the Balkans.

However, in Italy the Griffon Vulture is still included in the Red List as critically endangered (Rondinini et al. 2013), with the last natural population persisting on the island of Sardinia. Distributed over the whole island up to the late 1940s with an estimated population of 800 - 1200 individuals, the population of Griffon Vultures in Sardinia dropped very rapidly after the second half of 20th century, mainly due to the use of poisoned baits. In central-eastern Sardinia the Griffon Vulture was present up to the 1980s, after which the population survived only in the north-western part of the island. By 2015 the number of territorial pairs was estimated at only 34, and the population was distributed in the territories of Alghero and Bosa. Moreover, the other large vulture species present on the island (Aegypius monachus, Gypaetus barbatus) had become extinct by the second half of the last century. The long-term conservation of the Sardi-

Griffon vulture population dynamic



grey arrods indicate restocking actions black arrods indicate poisoning events

Average years 1986 - 2014 Productivity: 0.51 \pm 0.09 Reproductive success: 0.67 \pm 0.1

nian population of Griffon Vultures is therefore pivotal not only to preserve its role in the ecosystem but also to allow the development of a wider conservation plan to restore the vulture guild on the island.

GRIFFON VULTURE IN SARDINIA

The Sardinian population of Griffon Vultures has been closely monitored since 1986, and a relatively large data set on breeding records (30 years, 861 records) is available. The population was managed by restocking and food supplementing between 1987-1995. However, poisoning episodes in 1997, 1998 and 2006 hampered the conservation actions implemented.





The project was born from the analysis of the main causes that prevent the growth of the Griffon Vulture population in Sardinia.For each threat highlighted, a corresponding action has been built that aims at increasing the population growth rates and the consequent improvement of the conservation status of the Griffon vulture in Sardinia.





RESTOCKING

HIGH **MORTALITY RATES**



EDING STATION

MAIN GOAL

POISONING



ANTI-POISON DOG UNIT

LOW **REPRODUCTIVE SUCCES**



MITIGATION OF HUMAN DISTURBANCE

INCREASE POPULATION GROWTH RATES AND THE CONSERVATION STATUS OF THE **GRIFFON VULTURE IN SARDINIA**





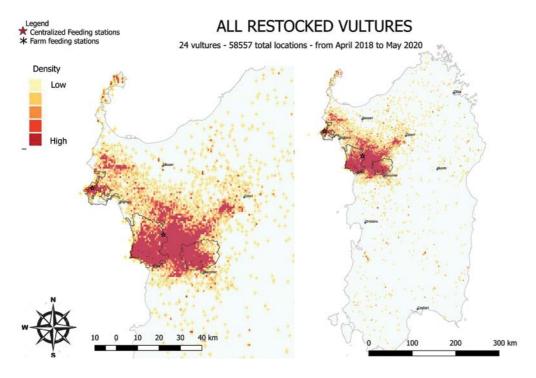
Within the restocking program, a total of 63 Griffon vultures coming from recovery centres located in Spain (n.58; Hospital de Fauna salvaje de AMUS, Centro de Recuperación de Fauna y Educación Ambiental "Los Hornos" - Extremadura) and from the captive breeding programme carried out by ARTIS Amsterdam Royal Zoo (n.5) have been released.

The provisioning and transport of the Griffon vultures has been carried out by the **Vulture Conservation Foundation**.

The housing and release of the vultures were carried on by the **Forestas Agency:** the Bonassai Wildlife Rescue and Breeding Centre housed the vultures for the quarantine period, while the acclimatization period was carried on in two different aviaries, in Porto Conte and Monte Minerva.

The **Centre of Bonassai** also provided the food supply to the vultures with the collaboration of a network of livestock breeders and of the public veterinary service.

The **University of Sassari** monitored the survival rates and the dispersal of the restocked vultures. These are the heat maps of the locations obtained by GPS/GSM transmitters displayed on 24 Griffon Vultures:



The Bonassai Wildlife Rescue Centre (Agenzia Forestas), which among other things specialises in the care of the Griffon Vulture, has been reinforced. The survival rate of individuals released after hospitalization in the Centre is 80% after 6 months.





Food supplementation is a key part of vulture conservation projects in areas where sanitary regulations related to carcass disposal largely limit the access of vultures to livestock carcasses, and its positive effect in reducing mortality rates and increasing reproductive success is well known. However, when food supplementation is managed with a limited number of heavily provisioned feeding stations, it has several negative ecological effects, such as reduced dispersal of immature individuals and reduced reproductive success due to increased population density.

Therefore, food supplementation should be managed through a network of light feeding stations distributed throughout the territory and supplied in a way that is unpredictable in space and time.

For these reasons, the increase in food availability has been guaranteed in Sardinia through the activation of two feeding stations managed by the Fo.Re.S.T.A.S. Agency in Porto Conte and Monte Minerva. These were associated to a network of farm feeding stations directly managed by livestock breeders to ensure the maintenance of vulture feeding ecology, which is strictly dependent on extensive pastoralism.

FEEDING STATIONS MANAGED BY THE AGENCY FO.RE.S.T.A.S.

The centralized feeding stations ensure the provisioning of biomass to Griffon vultures in case of insufficient provisioning of the farm feeding stations. The historical feeding station of Porto Conte has been restored and a feeding station has been created in Monte Minerva. A total of 17100 kilos of biomass have been provisioned in the centralized feeding station thanks to the collaboration of the livestock breeders and of the **public veterinary services**.

An unexpected result: the arrival and nesting of the Egyptian Vulture in Sardinia

In 2019 a couple of Egyptian Vultures (Neophron percnopterus) - an extremely rare vulture in Italy - settled and nested in Punta Cristallo (Alghero). The juvenile was named "Primo", being the first Egyptian Vulture born in Sardinia. The couple also nested successfully in 2020 and a second juvenile fledged. The Egyptian Vulture is the most threatened species among the nesting birds in our country, having an estimated population of just 10-13 pairs located in a few areas of Sicily, Calabria and Basilicata.

It is also classified as endangered in the IUCN red list, due to the strong decline that most populations in Europe, Africa and Asia have experienced. The presence of Egyptian Vultures within the protected



area of Porto Conte shows how the conservation measures adopted under the LIFE project are having a positive impact on the entire community of necrophagous birds. It is likely that the reduction of disturbances and the increase of food resources through the creation of the feeding station have played a fundamental role in attracting individuals in the dispersal or erratic phase.

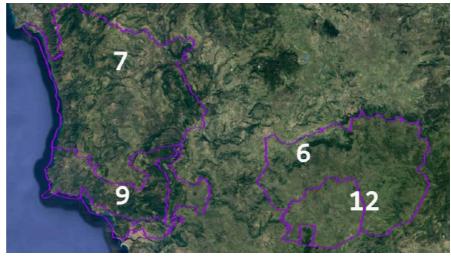




THE FARM FEEDING STATIONS

Sardinia was the first, and currently the only, region in Italy to have implemented the farm feeding stations, which are directly managed by livestock breeders through the provisioning of the carcasses generated in their herd.

The approval process was initiated by the **Department of the Environment** with Determination No 422 of 13/05/2014, which identifies the feeding area of the Griffon vulture (Natura 2000 areas of the Bosa and the Campeda areas). Subsequently, with the approval of Determination no. 1199 of 19/10/2016 by the **Department of Health**, the authorization procedure for the farm feeding stations was outlined.



THE LOCATION OF FARM FEEDING STATIONS

At the moment there are 34 authorized farm feeding stations in Sardinia. Thanks to their implementation, it was possible to restore and enhance the ecosystem services that Griffon Vultures provide in terms of nutrient recycling and carcass disposal. Moreover, this practice has also economic benefits by generating savings in carcass disposal costs and by taking advantage of the eco-touristic valorisation of the farms. This action has been carried out by the **University of Sassari**, with the collaboration of the **public veterinary services** of Sassari, Nuoro and Oristano for the authorization procedures and of the NGOs for the monitoring of the functioning of the feeding stations. As part of this action, a Business Plan of the farm feeding station setting out rules, protocols, procedures, costs and opportunities for this tool has been drawn up.



ricette e, allegate, le fatture di acquisto dei farmaci



il pasto dei grifoni (ossa), nell'area apposita individuata



Sottopone a prelievo per le TSE i capi secondo quanto previsto dalle

vigenti disposizioni Archivia i documenti relativi a ciascun carnaio in un'apposita cartella

individuale



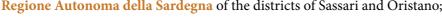




Poisoning is considered the main threat to the conservation of vultures not only in southern Europe but also worldwide. In Sardinia, in the last 20 years, poisoning has caused the death of at least 40 Griffon vultures and caused the halt of the Bearded Vulture reintroduction project in 2008. To mitigate this threat, an Anti-poison Dog Unit has been activated with the aim of preventing and repressing the illegal use of poisons to kill animals. The reports on poisoning cases ascertained by the Experimental Zooprophylactic Institute of Sardinia and the use of GPS to monitor vultures, have allowed to constantly update the dispersion of animals in the territory and the risk map.

The Nucleus is composed of

- agents of the Corpo Forestale e di Vigilanza Ambientale della Regione Autonoma della Sardegna of the districts of Sassari and Oristano;



- 4 dogs trained by the Department of Veterinary Medicine of the University of Sassari;
- 1 dog trainer of the Department of Veterinary Medicine of the University of Sassari;
- 3 dog handlers of Croce Gialla of Ploaghe.

The Nucleus has prepared protocols and investigative techniques with the collaboration of the Consejeria de Medio Ambiente Y Ordenación of the Territory of the Junta de Andalucia.

Dog training was supervised by the Spanish trainers Julio Redondo Montalban and Raul Molina.

The Unit operates in the project area - Bosa, Campeda and Alghero - and, upon request of the Public Prosecutor's Office, on the whole regional territory (n. 41 times). Two investigations have led to the indictment of two breeders, accused of having poisoned dogs and other animals. In the course of the Unit's activities, poisonings have been found in the municipalities of Laerru, Samugheo, Sassari (Fraz. Tottubella), Macomer, Birori, Tuili and Alghero. In 7 cases useful elements of investigation and formulation of hypothesis of crime resulting from the illegal use of poison have been collected.

As part of the awareness actions, the #VELENO event was promoted to raise awareness among schools and institutions. The event was held in Sassari on 30 November 2018 and in Bosa on 10 May 2019.





The Griffon is a cliff-nesting vulture, which often nests in colonies that can comprise several pairs. Raptors are often sensitive to human activities around their nesting areas, which can cause nest abandonment and chick loss. To mitigate this threat, the project has:

- Created of a 4.5 km trail around the feeding stations of Porto Conte and Monte Minerva, culminating in two birdwatching stations at a safe distance from the Griffon vultures' feeding area.





- Promoted the Ethical Codes of Naturalistic Photography and Hiking. The documents, drawn up with the collaboration of AFNI - Associazione Fotografi Naturalisti Italiani (Association of Italian Naturalist Photographers), are the result of a participatory process involving photographers and experts. The Code of Photography has been adopted by the Regional Parks of Porto Conte and Molentargius, while the Management Plan of the SCI ITB020041 "Inland and coastal area between Bosa, Capo Marrargiu and Porto Tangone" has provided that recreational activities are regulated following the prescriptions of the Ethical Code.

At the same time, social communication campaigns were launched to invite the local population to stay at safe distances from the nests.









The LIFE Programme foresees that communication plays a central role in achieving conservation goals: it is not just a matter of "informing" or "advertising" but of using communication as a tool to achieve that awareness and behavioural change without which it is impossible to safeguard endangered species or restore degraded habitats. The main purpose of the communication processes was therefore to make the community the protagonist of the intervention and not just an informed observer. The coordination of this part was carried out by the **University of Sassari**, with the collaboration of **Forestas Agency** and the **Municipality of Bosa**, which activated the Infopoints of Porto Conte and Bosa.

The main results of the communication actions are:

- the creation of the **project logo** with a contest launched among the students
- 51,555 visits to the Infopoints
- 33 Events organized by the Project;
- 20 Events in which the Project participated with stands, reports and promotional material
- 201 News reports on the project, also on Tg1, Tg3, Rai News24, GEO (3 times), Linea Verde, Ocean Treks with Jeff Corwin (American ABC), Il Venerdì di Repubblica (2 times);
- 5,500 Facebook page followers
- Almost 1 million total hits on the project website in 2019 alone.





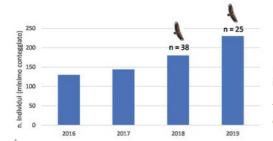








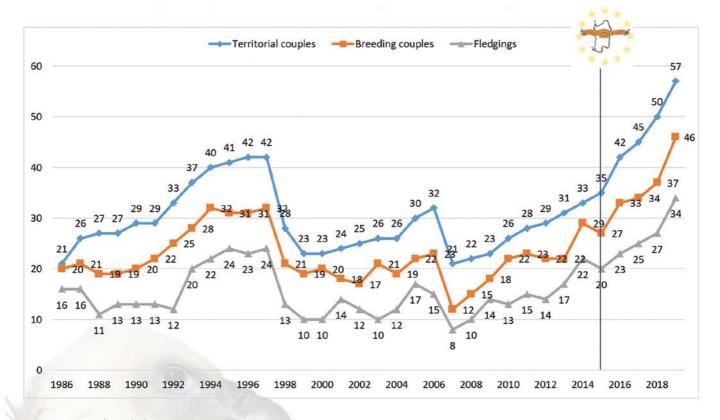
Thanks to the concrete conservation actions carried on, the Griffon vulture population size in Sardinia was estimated at 230 - 250 (population estimated at project start: 100-120 individuals).



Population size (minimum counted) of the Griffon Vulture population in Sardinia during the implementation of the LIFE Under Griffon Wings project (2016-2019).

The Griffon Vultures indicate the number of individuals released during the restocking programme

The increase in population was matched by an increase in productivity and reproductive success of the autochthonous colony. The territorial pairs increased from 35 in 2015 to 57 in 2019.



Productivity: 0.6

Reproductive success: 0.74 Anno 2019











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