

Parc Natural de Sant Llorenç del Munt i l'Obac

Monitoring, research and conservation related to *Neophron percnopterus* in Catalonia



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Xarxa de Parcs Naturals

Federparchi –
Europarc Italia

Life Egyptian
Vulture

Matera (Italia)
18-21/09/2023



Parc Natural de Sant Llorenç
del Munt i l'Obac

<https://parcs.diba.cat/web/santllorenç>



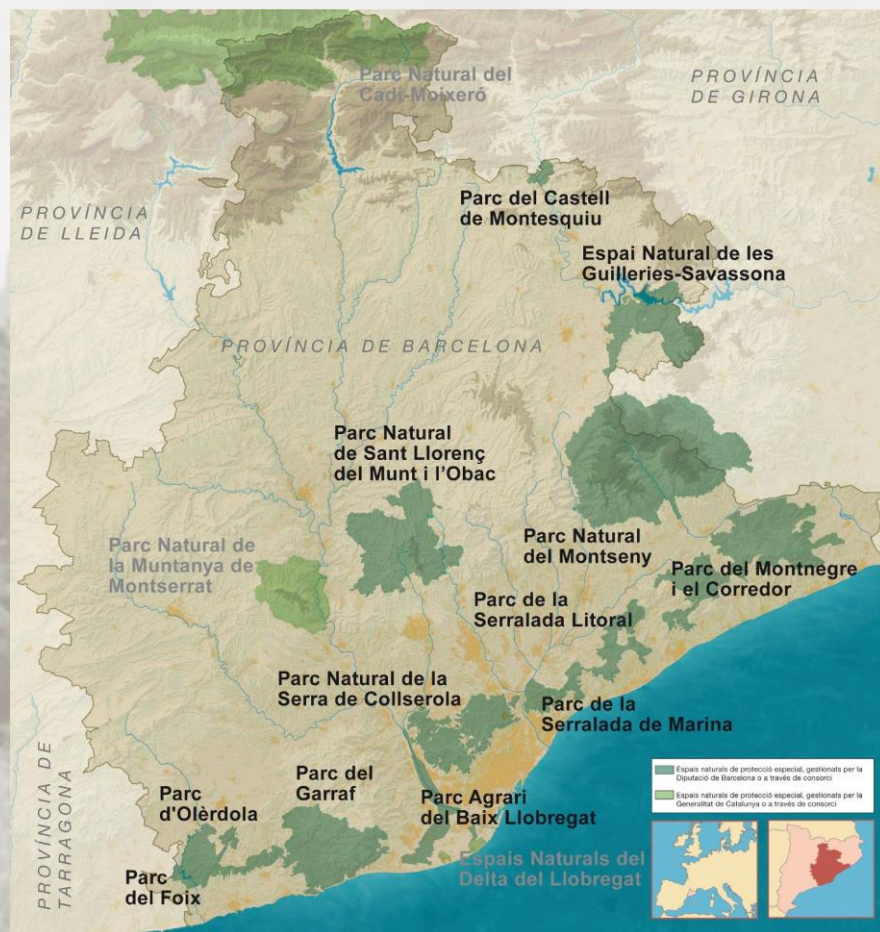
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UNIVERSITAT DE
BARCELONA

Monitoring, research and conservation of *Neophron percnopterus* in Catalonia

Geographical scope



Parc Natural Sant Llorenç del Munt i l'Obac	13.693 ha
Parc Natural del Montseny	30.120 ha
Parc del Garraf	12.376 ha
Parc del Castell de Montesquiú	546 ha
Parc del Montnegre i el Corredor	15.010 ha
Parc d'Olèrdola	608 ha
Parc de la Serralada Litoral	4.056 ha
Parc de la Serralada de Marina	3.034 ha
Parc del Foix	2.900 ha
Espai Natural de les Guilleries - Savassona	8.300 ha
Parc Agrari del Baix Llobregat	3.505 ha
Parc de Collserola	8.000 ha
Espai Rural de Gallecs	525 ha
Sant Miquel del Fai – Cingles de Bertí	70,5 ha
	102.744,5 ha

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Egyptian vulture in the Natural Parks Network of Barcelona's' Provincial Council

- **2 pairs nesting, one at Sant Llorenç del Munt i l'Obac Natural Park (SLMONP) and the other at Guillerics – Savassona Area of Natural Interest**
- Regulation of climbing, resource forest use, flying, power lines maintenance.
- Collaboration with Endesa (ENEL) and REE in order to improve monitoring and conservation.
- Developing a network of field cameras to observe the nests of different species: *Falco peregrinus*, *Boneilli's eagle*, *Neophron percnopterus*. Double purpose, monitoring and environmental education.
- In SLMONP breeding success. 2012 – 2023. Breeding success was quite good, with 2 young fledgling per nest. In 2020 both died because of rodenticides. Risk of feeding on dead rats from waste disposal sites.



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Monitoring

- ◆ **Since 2010**
- ◆ Involving forest rangers and biodiversity conservation technician
- ◆ Focused on nesting ground and season – breeding success, habitat conservation and management, conservation and sustainable use of biodiversity.
- ◆ Materials and methods: binoculars (field glasses), telescope, standardised observation form (agreed with university researchers), GIS analysis.



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Research

- ◆ **Since 2011**
- ◆ Involving Biology of Conservation Team scientists (IRBio – University of Barcelona) and Mountain Support Group (Rural Agents)
- ◆ Support of forest rangers and biodiversity conservation technician
- ◆ Focused on nesting ground and season – breeding success, ecology (population biology), diet, bioaccumulation and health impacts, biocides, habitat conservation and management
- ◆ Materials and methods: binoculars (field glasses), telescope and standardised observation form (agreed with university researchers), bird capture, handling and banding, biometric parameters, diet, blood and feathers samples



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Scientific articles (published)

- ✓ **Identifying key demographic parameters for the viability of a growing population of the endangered Egyptian Vulture *Neophron percnopterus*.** Helena Tauler, Joan Real, Antonio Hernández-Matías, Pere Aymerich, Jordi Baucells, Carles Martorell and Joan Santandreu (2015). *Bird Conservation International*, 25, pp 426-439 doi:10.1017/S0959270914000392.
- ✓ *“The best-supported models suggest that adult survival in this population may be higher than in other Iberian populations and that furthermore, there is a continuous influx of immigrants.”*
- ✓ *Based on the most likely scenarios, Population Viability Analysis predicts that the population will continue to increase. Sensitivity analysis indicates that the adult survival rate has the greatest influence on population dynamics so conservation efforts will be more effective if concentrated on improving this rate.”*



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Scientific articles (published)

- ✓ **Assessing the applicability of stable isotope analysis to determine the contribution of landfills to vultures' diet.** Tauler-Ametller H, Hernández-Matías A, Parés F, Pretus JL., Real J (2018) PLoS ONE 13(5): e0196044.
<https://doi.org/10.1371/journal.pone.0196044>
- ✓ *“In our study case, feeding on landfills in addition to the reduced mortality of individuals from our study area could have prompted the Egyptian Vulture population increase that has taken place over the last 30 years in Catalonia.*
- ✓ *This is a paradoxical situation in which an endangered species has been favored by human waste when, typically, modern human activities are in fact detrimental to biodiversity.*
- ✓ *In our case, pairs that feed most on landfills could obtain nearly a 50% of their diet from these sources, but those pairs that consume most livestock this resources represents less than 25% of their whole diet”*



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Scientific articles (published)

- ✓ **Landfills determine the distribution of an expanding breeding population of the endangered Egyptian Vulture *Neophron percnopterus*** Helena Tauler-Ametller, Antonio Hernandez-Matias, Joan Ll. Pretus & Joan Real. (2017) International journal of avian science.
- ✓ *“Human activities provide food resources for animals that are predictable in space and/or time. These resources, sometimes referred to as predictable anthropogenic food subsidies (PAFS), can be either the result of human-generated waste or provided intentionally, sometimes as a conservation measure. increase that has taken place over the last 30 years in Catalonia.*
- ✓ *The distance from PAFS played an important role in the probability of territory occupancy by Egyptian Vultures, in addition to other environmental variables such as surface areas of rocky south-facing slopes, human settlement and the proximity of conspecifics.”*



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Scientific articles (published)

- ✓ **Domestic waste disposal sites secure food availability but diminish plasma antioxidants in Egyptian vulture.** Helena Tauler-Ametller, Joan Ll. Pretus, Antonio Hernández-Matías, Manuel E. Ortiz-Santaliestra, Rafael Mateo, Joan Real (2018) Science of total environment.
- ✓ *“They studied how waste consumption affects health parameters of Egyptian Vulture.*
- ✓ *Physiological parameters are explained by diet from landfills.*
- ✓ *Waste consumption influences vitamin and carotenoid levels of nestlings.*
- ✓ *Landfills are an abundant source of food that allows animals to be better nourished.*
- ✓ *Knowledge of the effects of feeding on human waste is key for vultures’ conservation”.*



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Scientific articles (published)

- ✓ **Accumulation of pollutants in nestlings of an endangered avian scavenger related to territory urbanization and physiological biomarkers** Manuel E. Ortiz-Santaliestra, Helena Tauler-Ametller, Silvia Lacorte, Antonio Hernandez-Matías, Joan Real, Rafael Mateo . (2019) Environmental Pollution
- ✓ *“A proportion of urban surfaces as low as 6.56% within a radius of 8 km around the nest appears related to the accumulation of CB-180, the majority of analyzed PFAS and of PBDE congeners 99 and 209, and increased urbanization was also associated with decreased plasma levels of a-tocopherol and carotenoids.”*
- ✓ *“These associations suggest that changes in blood profiles of vitamins, carotenoids or other parameters, despite related to increased plasma levels of CB-180, would be consequence of exploitation of artificial food sources rather than of a direct effect of the pollutants.”*



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Scientific articles (published)

- ✓ **Resource predictability modulates spatial-use networks in an endangered scavenger species** Catuxa Cerecedo-Iglesias, Frederic Bartumeus, Ainara Cortés-Avizanda, Joan Ll. Pretus, Antonio Hernández-Matías and Joan Real (2023) *Movement Ecology*
- ✓ *“Our results show that foraging strategies in non-breeders and breeders differ significantly: non-breeders performed more dispersal movements than breeding birds across a spatial-use network. Non-breeding and breeding networks were found to be vulnerable to the removal of central foraging areas containing landfill sites, a highly predictable resource, while perturbation analysis showed dissimilar foraging responses to the gradual reduction of other predictable resources. Under a context of the non-availability of landfills for breeders and non-breeders, vultures will increase their use of extensive livestock as a trophic resource.”*



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- ✓ *“Future environmental policies should thus extend the areas used by scavengers in which livestock carcasses are allowed to remain in the wild, a strategy that will also mitigate the lack of food caused by any reduction in available waste if landfills close. In general, our results emphasize the capabilities of a spatial network approaches to address questions on movement ecology. They can be used to infer the behavioral response of animal species and, also demonstrate the importance of applying such approaches to endangered species conservation within a context of changing humanized scenarios.”*

<https://web.ub.edu/en/web/actualitat/w/new-technologies-reveal-the-impact-of-circular-economy-on-threatened-species-such-as-the-egyptian-vulture>

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Scientific articles (published)

- ✓ **Key Factors behind the Dynamic Stability of Pairs of Egyptian Vultures in Continental Spain** Catuxa Cerecedo-Iglesias, Joan Lluís Pretus, Antonio Hernández-Matías, Ainara Cortés-Avizanda and Joan Real (2023) *Animals* MDPI
- ✓ *“Through our analysis, we discovered that the regional stability in Egyptian vulture breeding pairs was positively associated with the abundance of griffon vultures (*Gyps fulvus*) and cattle. We also found that the presence of wind farms had a negative impact on the number of breeding pairs at the local level and that factors relating to food resources had a positive effect at both local and larger scales.”*
- ✓ *To effectively conserve the Egyptian vulture, management plans should adopt a hierarchical approach and address the factors influencing breeding populations at various spatiotemporal scales.”*



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***Thank you
very much!***



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