

Proposal for a Master's thesis in partnership with Rewilding Portugal and CIBIO

Topic: Analysis of the spatial and feeding behaviour of griffon vultures and cinereous vultures in a border area

Scavenger birds are the most endangered group of birds (73% of all species) (Hawkwatch International), they provide ecosystem services such as consuming animal carcasses from the environment, decreasing the likelihood of disease development and transmission to other animals such as humans (Den Heever et al., 2021). In addition to this, they provide an economic benefit by consuming huge percentages of the organic material produced by humans, especially in less developed countries (Gangoso et al., 2012) and also contribute to nature tourism (García-Jiménez, Morales-Reyes, Pérez-García & Margalida, 2021).

In the early 1980s of the last century, the first cases of bovine transmissible spongiform encephalopathy (TSE) (colloquially known as mad cow disease) were detected. The spread of this disease throughout Europe led to a change in cattle management practices. The dumping of carcasses in the field was banned with changes in legislation and the availability of naturally occurring food for scavenging birds decreased dramatically (Tella, 2001; Margalida et al., 2010). Farm animals could only be used to feed scavenger birds in community feeding grounds that concentrate much higher numbers of individuals than normal and favor more dominant species, such as griffon vultures (*Gyps fulvus*) (Cortés-Avizanda et al., 2016).

Recently, changes in the law have again made it possible to deposit animal carcasses in the field (with many restrictions and in a more restricted way than in the pre-EET era). These deposits are made by livestock producers, making the temporal and spatial predictability of food availability is very low, favouring species such as the Cinereous Vulture (*Aegypius monachus*) and the Black Vulture (*Neophron percnopterus*). In Portugal the application of this new law is practically inexistent and at Rewilding Portugal we are trying to help local producers to join this practice.

In theory, the provision of natural food should generally benefit all guilds of scavenger birds. There is a lack of studies on the feeding behaviour of scavenger bird populations in Portugal, so it is important to understand which conservation measures on the ground will be more efficient to promote a more complete and functional food chain, where scavengers can play their role.

Rewilding Portugal, in collaboration with CIBIO, is studying the movements and feeding ecology of scavenger birds using spatial data from griffon vultures and cinereous vultures tagged with GPS-GSM transmitters. The student will develop a methodology to automate the identification and categorization of feeding behaviours, resting points, colonies and other points of high use by the animals. The main goal is to define which factors influence the feeding behaviour of nesting scavenger birds in the Côa and Douro International Valley and which are the preferred habitats and food sources.

This is an exciting opportunity for final-year MSc students with interest on scavenger bird ecology and knowledge on geographical information systems and statistics (GIS, R-studio). The student will have the opportunity to support fieldwork involving verification of feeding points

and monitoring of scavenger birds. Rewilding Portugal provides accommodation but the student should have autonomy in traveling to and from Guarda, Portugal.

Practical information:

Period: 2023-2024, adjustable to academic calendar

Expected results: Master's dissertation with applicable results in the project.

Supervisors: Ana Teresa Marques (CIBIO) and Sara Aliácar (Rewilding Portugal).

Interested applicants should send their CV and a motivation letter of up to 300 words to

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References:

Cortés-Avizanda, A., Blanco, G., DeVault, T., Markandya, A., Virani, M., Brandt, J., & Donázar, J. (2016). Supplementary feeding and endangered avian scavengers: benefits, caveats, and controversies. *Frontiers In Ecology And The Environment*, 14(4), 191-199. doi: 10.1002/fee.1257

Den Heever, L., Thompson, L., Bowerman, W., Smit-Robinson, H., Shaffer, L., Harrell, R., & Ottinger, M. (2021). Reviewing the Role of Vultures at the Human-Wildlife-Livestock Disease Interface: An African Perspective. *Journal Of Raptor Research*, 55(3). doi: 10.3356/jrr-20-22

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García-Jiménez, R., Morales-Reyes, Z., Pérez-García, J., & Margalida, A. (2021). Economic valuation of non-material contributions to people provided by avian scavengers: Harmonizing conservation and wildlife-based tourism. Retrieved 28 December 2021, from

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