

Ruppell's vulture in the Mediterranean: a conservation dilemma

Abstract

The first successful breeding of Ruppell's vulture (*Gyps rueppelli*) within the Palearctic, occurring amidst a griffon vulture (*Gyps fulvus*) colony in southern Spain has been documented recently. This breeding event involved a mixed pairing, indicating a notable shift in distribution of the Ruppell's vulture towards North Africa and southern Iberia. The species faces a critical decline in its native range, attributed to climate change, deforestation, and persecution. The surge in the griffon vulture population in Spain and the wintering of an important fraction of the juvenile population in the Sahelian area appear to be the primary driver force of the Ruppell's vulture's population movement. However, the establishment of a stable, self-sustaining population in Mediterranean area remains uncertain, necessitating urgent conservation measures. Conservation strategies must include establishing breeding nuclei in Spain and North Africa, rehabilitation programs, and captive breeding initiatives. While the integration of Ruppell's vulture into the Mediterranean avifauna presents conservation challenges, it also offers an opportunity to provide additional sanctuaries for critically endangered species. Urgent action within the Mediterranean region is crucial for the survival of Ruppell's vulture, complementing efforts aimed at conserving breeding populations in their native Sahelian habitats.

Keywords: Ruppell's vulture, *Gyps rueppelli*, Mediterranean region, conservation

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Introduction

Ruppell's Vulture (*Gyps rueppelli*) is a large, cliff nesting species of Old World vulture which extends throughout the Sahel region of Africa and south through the savannah regions of East Africa,¹ but in the last 15 years, it seems to be colonising the Mediterranean basin in the area of North Africa and south of Spain.² A recent article reports the first successful breeding of Ruppell's vulture (*Gyps rueppelli*) recorded within the Palearctic, occurring amidst a colony of griffon vultures (*Gyps fulvus*) in South of Spain. This breeding event featured a mixed pairing involving a male Ruppell's vulture and a female griffon vulture, which effectively raised a chick in 2023. This event marks the premier successful breeding endeavour subsequent to several observed attempted over the last five years within colonies of griffon vultures in the area, consistently involving mixed pairs.^{3,4}

This development holds scientific interest as it substantiates a growing trend observed over recent years—the remarkable shift in distribution of this African vulture, originally confined to the Sahel, towards North Africa and southern Iberia.² The species is witnessing a decline in its traditional breeding grounds, with a staggering 90% reduction in populations recorded over merely three generations, leading to its global classification as “Critically Endangered”.¹ Concurrently, it has emerged as an increasingly frequent visitor to the western Mediterranean, now acknowledged as a regular resident species.⁵ Indeed, during the latest European Vulture Conference convened by the Vulture Conservation Foundation in Cáceres (Spain) last November, it was formally recognized as the fifth European vulture species, drawing considerable attention with several presentations focusing on its biology, including our own examination of its migratory patterns along the western route between Europe and West Africa.^{5,6}

In this context, within various conservation endeavours for the species coordinated by the IUCN Centre for Mediterranean Cooperation, we have spearheaded numerous initiatives in recent years, in collaboration with various entities and organizations. These

efforts have aimed to underscore the pivotal role that Spain and North Africa can play in the conservation of Ruppell's vulture. We have undertaken actions such as including the species in the red lists of breeding raptors in North Africa⁸ and the Mediterranean,⁹ conducting workshops with Mediterranean and global experts,² participating in marking and monitoring projects utilizing GPS transmitters on individuals of the species,¹⁰ presenting communications at international conferences,^{11–13} publishing articles in specialized journals^{2,10,14} and drafting a preliminary Action Plan for the Mediterranean region.¹⁵ These collective efforts underscore our steadfast commitment to this cause.

Why does this “colonisation” occur?

Traditionally, species colonize new territories due to expanding breeding populations venturing into uncharted habitats. However, the present scenario presents a unique departure from this norm. Rather than an expansion of populations, it signifies a significant population shift amidst an overall decline in its native range.¹⁶ This northward expansion towards Europe could be construed as a response to escalating droughts in the Sahel attributed to climate change,⁴ rampant deforestation in West African nations,¹⁷ and direct persecution for trade, resulting in an upsurge in poisoning incidents.¹⁸

In this context, the prodigious surge in the griffon vulture population in Spain over recent decades, now numbering almost 100,000 individuals according to the latest censuses,¹⁹ emerges as the primary impetus behind the population movement of the Ruppell's vulture. Thousands of juvenile griffon vultures migrate annually to the Sahel during winter, mingling with local Ruppell's vultures and forming mixed-species congregations during this seasonal exodus. Upon their return to the Iberian Peninsula in spring, they bring along numerous young and immature Ruppell's vultures.^{16,20–22} Ongoing avian census and tagging initiatives initiated in North Africa by Moroccan organizations estimate that over a hundred individuals migrate to North Africa annually.²³ However, these efforts also reveal that a substantial proportion of these Ruppell's vultures arriving at the

Strait of Gibraltar from the south do not proceed to Europe but embark on solitary return journeys, with the majority (80-90%) succumbing to various adversities, primarily starvation and dehydration, while traversing the Sahara during summer.^{10,14} Similarly, it appears that Rüppell's vultures exhibit minimal return migration from the Iberian Peninsula to Africa, integrating themselves into the Iberian vulture community to varying degrees.³

An ecological trap or a new refuge?

Current data suggests that in Spain, despite their burgeoning presence, there is yet to emerge a stable, self-sustaining population, reliant on a variable yet consistent influx of juvenile/immature individuals from Africa; an influx that may prove unsustainable in the long term given the precarious trajectory of Sahelian populations.⁴ Despite this dependence, the continued presence of adults in certain areas (which would not be the case if they had migrated back) and recorded breeding attempts over the last five years, indicate that we may be witnessing an incipient process of establishing a breeding population of the species.⁴ Some scholars,³ posit that owing to the modest size of the Spanish population, this potential colonization may be imperilled by hybridization with the far more abundant griffon vultures.

Thus, the integration of Rüppell's vulture itself into the Mediterranean avifauna poses a compelling conservation quandary. We can opt to adopt a laissez-faire approach and allow natural processes to unfold amidst unrelenting anthropogenic pressures, likely witnessing a progressive decline in new arrivals and the gradual assimilation of the increasingly scarce Rüppell's vultures into our griffon vulture populations, eventually relegating them to the annals of natural history. However, we can also view this as an unparalleled opportunity to furnish critically endangered species with additional sanctuaries for conservation. The ideal scenario would entail concerted efforts directed at their native African habitats, but given the looming specter of global extinction confronting the species, we contend that urgent measures within the Mediterranean region are imperative.

In addition to their listing in threatened species inventories, the establishment of breeding nuclei in potentially suitable habitats in Spain and North Africa, including Algeria, where indications of breeding individuals have surfaced,⁸ and Morocco, where the griffon vulture breeding population is rebounding,²⁴ warrants serious consideration. To this end, individuals undergoing rehabilitation in the Iberian Peninsula and North Africa could be enlisted, or alternatively, captive breeding programs could be initiated, facilitating benign introductions or reinforcements in areas where established specimens already exist. This would ensure the presence of a viable adult cohort to mitigate the risk of hybridization, bolstering the presence of Rüppell's vultures in the Mediterranean and amplifying the prospects of their global survival. Evidently, these efforts must not eclipse endeavours aimed at conserving and rehabilitating breeding populations in the Sahel.¹⁶

Conclusion

The breeding of Rüppell's vulture in the Mediterranean region represents a notable endeavour towards establishing itself in a new area far from its native range in the Sahel, where it faces significant environmental challenges, including habitat degradation, climate fluctuations, and human persecution. Nevertheless, the establishment of a stable and self-sustaining population in this new area remains uncertain. Therefore, it is imperative to provide support through the creation and reinforcement of breeding nuclei in Spain and North Africa, including initiatives such as rehabilitation programs and captive breeding efforts. These efforts are essential to mitigate the

risks of hybridization with the griffon vulture and ensure the long-term viability of Rüppell's vulture populations, both within the Mediterranean and globally. While the integration of this vulture into the Mediterranean avifauna poses significant conservation challenges, it also presents an opportunity to create additional sanctuaries for critically endangered species and signifies a significant milestone in the conservation of this endangered species. Spain, undeniably, presently stands as the paramount bastion for Old World vultures. Herein, they benefit from robust legal protections and, in line with prevailing trends, are afforded ample expanses and sustenance to thrive. Perhaps enticed by this veritable utopia, this country and Morocco, the epicentre of Rüppell's vulture activity, proffer a lifeline that we must not squander.

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Conflicts of interest

The author declared that there are no conflicts of interest.

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