

An overview of the first international symposium on the Rüppell's Vulture in the Mediterranean region, 24th March 2021

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Introduction

Global climate change is transforming habitats and affecting ecological processes in many parts of the world, with associated medium- and long-term impacts on the distribution, migration and phenology of many bird species (Howard et al. 2018). Knowing how climate change is affecting the distribution of threatened species and what the possible future scenarios are is essential to ensure effective conservation measures both in the short and long term. In the Northern Hemisphere there is evidence that a northwards expansion of the distribution range of some species is taking place, presenting new challenges for the conservation of some populations already threatened by other factors (Triviño, Kujala, Araújo, & Cabeza 2018). An example of a species that seems to be already showing changes in its distribution is the Rüppell's Vulture (*Gyps rueppelli*), listed as 'Critically Endangered' at the global level in the IUCN Red List of Threatened Species (BirdLife International 2017).

The historical range of the Rüppell's Vulture extends throughout the Sahel region of Africa and south through the savannah regions of East Africa (BirdLife International 2017). While it is increasingly rare in its historic breeding areas, in recent times it has become a regular visitor to the Mediterranean region, which could indicate an expansion of its distribution range. The species was

previously considered to be a scarce visitor or vagrant in North Africa and Spain, but in the last 15 years it has been recorded more frequently far away from its breeding colonies, reaching the Iberian Peninsula through Morocco and the Strait of Gibraltar, often travelling with migrating Griffon Vultures *Gyps fulvus* (Botha et al. 2017), and there are now signs that it is breeding in Algeria (Garrido et al. in press). Recently, some individuals have been observed as showing breeding behaviour in Griffon Vulture colonies in Andalusia, southern Spain (Elorriaga et al. 2020), where the species was recently added to the list of resident species (CAGPDS 2019), making it Europe's fifth vulture species. Immature individuals are now regularly recorded travelling with migrating Griffon Vultures through Morocco and Algeria (Botha et al. 2017).

It has been proposed that the potential range expansion of the species may represent the beginning of a colonisation process towards more suitable habitats and as a response to climate change and other factors in its original breeding areas, such as habitat degradation or declining local breeding populations (Onrubia et al. 2020). If this is the case, the implications of the process are of great relevance and worthy of discussion since the Mediterranean Basin and surrounding states could become a refuge and provide additional areas for the conservation of this globally threatened species.

To discuss these issues, the *First International Symposium on the Rüppell's Vulture in the Mediterranean Region* (24th March 2021) was organised as an online webinar event by the IUCN Centre for Mediterranean Cooperation, with the support of the MAVA Foundation and the Autonomous Government of Andalusia (Junta de Andalucía), and brought together leading international experts and authorities involved in the conservation of vultures and other wildlife.

The main objectives of the event were to compile and document existing information on the status of the Rüppell's Vulture in the Mediterranean region; to assess the role that the region could play for the conservation of the species; to establish common management and conservation strategies; and to create links among relevant African, European and international institutions and organizations. The presentations and discussions from the symposium are summarized below.

Presentation 1: The Global Status of the Rüppell's Vulture (Gyps rueppelli). Presenter: André Botha (Endangered Wildlife Trust, CMS Vulture MsAP & IUCN Species Survival Commission - Vulture Specialist Group).

The Rüppell's Vulture is mainly distributed in the Sahel and further south in East Africa. The species has suffered a significant population and geographical decline since 1992, with extremely rapid population declines of ca. 97 % over the last 30 years (Ogada *et al.* 2016), especially in West Africa, mainly due to poisoning, persecution and electrocution and collision with power lines. Other important threats, such as habitat reduction, disturbance at nesting sites and reduced food availability are difficult to identify and quantify. Thus, Rüppell's Vultures are scarce in southern Africa but they are increasingly seen outside their distribution range, to the south (South Africa, Mozambique or Malawi), and to the north (Spain or Israel).

Presentation 2: The status of the Rüppell's Vulture in southern Europe (The fifth vulture species for Andalusia and Europe). Presenter: Iñigo Fajardo (Vulture Conservation Programme & Head of the Anti-poison Programme - Junta de Andalucía, Spain).

The species has been recorded increasingly frequently in Andalusia since 1990 and has become a regular visitor travelling with the Griffon Vultures returning to Spain from Sahel wintering areas. To date, there have been more than 1668 records, mainly in Andalusia, where adult and young birds are present throughout the region and throughout the year. Furthermore, there have been several breeding attempts, two of them with Griffon Vultures. The species has been recently included in the Andalusian Vulture Conservation Programme as an additional native species (August 2019).

Presentation 3: The conservation status of Rüppell's Vulture in North Africa. Presenter: José Rafael Garrido (Junta de Andalucía, Spain & IUCN Species Survival Commission – Bird Specialist Group).

Until recently, the species was considered a visitor or a vagrant in North Africa, but this has recently changed. Regular non-breeding populations in Morocco, mainly near the Strait of Gibraltar, and observations of breeding activity at Griffon Vulture colonies have been recorded in Algeria since 2006. Immature individuals also migrate with Griffon Vultures through Morocco and Algeria. Given that the expansion to Algeria could be the beginning of a colonisation process caused by global climate change, habitat degradation and other threats in breeding areas south of the Sahel, the species is listed as Critically Endangered under criterion D in the North Africa breeding raptors Red List. Further research should be

conducted to estimate the breeding numbers and population trends more accurately, and to assess the importance of the North African population for the global conservation of the species.

Presentation 4: Rüppell's Vulture in the Sahel. Presenter: Violeta Barrios (Sahara Conservation Fund). The Rüppell's Vulture is the most abundant breeding vulture in the Sahel, breeding in protected and non-protected areas. They usually nest on cliffs but in the Sahel they have been observed nesting in trees in countries such as Niger and Chad, interacting with the Lappet-faced Vulture. This behaviour makes individuals more vulnerable to threats such as poaching. The main threats are drought, nest destruction, poaching for belief-based use and illegal trade. The scale and importance of other threats such as poisoning, electrocution and changes in livestock management remain unknown. The main knowledge gaps are linked to their tree nesting behaviour, their interaction with Lappet-faced Vultures and their seasonal movements.

Presentation 5: The status and scientific monitoring of the Rüppell's Vulture in Morocco. Presenters: Rachid El Khamlichi (GREPOM/BirdLife Maroc) and Karim Rousselon (Association Marocaine pour la Protection des Rapaces (AMPR) & International Association for Falconry (IAF)).

The Rüppell's Vulture was first observed in Morocco in June 2002 close to the southern shore of the Strait of Gibraltar. The observations have been increasing since then, from one individual in 2002 to 55 in 2020, corresponding with the increasing number of migrant European Griffon Vultures returning from sub-Saharan Africa in spring. A scientific monitoring programme for the species was launched in June 2020 by the Department of Water and Forests and GREPOM/BirdLife, in collaboration with AMPR and the Emirates Center For Wildlife Propagation (ECWP). This programme has succeeded in the capture and tagging with patagial tags of 26 immature individuals, 12 of which were also equipped with GPS and Argos satellite transmitters. Monitoring of these individuals has shown routes to sub-Saharan Africa through Morocco, Mauritania, southwest Algeria, Mali, Senegal, Gambia and Burkina Faso. Of the 12 GPS-tagged vultures, only one is still active in The Gambia. Several died and almost all stopped transmitting after a few months, of which nine were found dead in the Sahara and Sahel region due to electrocution, illegal taking and other undefined causes. Recently two individuals were rehabilitated and released after being recovered in northern and central Morocco.

Presentation 6: Latest data on Rüppell's Vulture in Algeria. Presenters: Amina Fellous-Djardini (Mouvement Écologique Algérien) and Lahouari Djardini (Direction Générale des Forêts, Algeria).

The species was first observed in Algeria in 2006, with at least two possible breeding pairs in Griffon Vulture breeding colonies in the Aures region. Wandering of immature birds has been observed in the Sahelian region, possibly as a result of joining migration flights with Griffon Vultures to new sites. There has been one recent observation of an adult bird in central Sahara. Hybridisation with Griffon Vultures has been observed both in captivity and in the wild and should be monitored closely. Additional studies and surveys of the species in Algeria are needed.

Presentation 7: Current status and information for 2004-2016 and 2020 of Rüppell's Vulture in Algeria. Presenter: Haféda Benmammar Hasnaoui (Parc national de Tlemcen, Communication, Education and

Public Awareness focal point at AEWA & Communication Commission for the national network of Algerian ornithologists).

Of the five vulture species mentioned in the literature in Algeria, the Rüppell's Vulture was not mentioned until 2004 and 2006 when it was recorded (and captured) in Tlemcen National Park. In 2020, one adult was captured in the Adrar region, in the south-west of the country, after becoming entangled in a farm reservoir. The bird is currently kept in captivity, under the supervision of the territorial services of the General Directorate of Forests and Wildlife Protection, with a view to its future release.

Presentation 8: Is the Griffon Vulture the proxy for the presence of Rüppell's Vulture in North Africa and Europe? Movements through the Strait of Gibraltar. Presenter: Alejandro Onrubia (Migres Foundation). The colonisation process of the Rüppell's Vulture in North Africa and Europe is linked to the increase of Griffon Vulture populations in Western Europe and of individuals migrating to Africa, and possibly to the decrease of Rüppell's Vulture populations in Africa. The return movements of Griffon Vultures from Africa to Europe occur at the end of the Sahelian dry season, when Rüppell's Vulture juveniles fledge and start to disperse. Both species fly northwards in mixed flocks, possibly due to the increasing frequency of droughts in the Sahel.

Presentation 9: Threats and current conservation actions on vultures in the Mediterranean Region. Presenter: José Tavares (Vulture Conservation Foundation).

The main threats to vultures in Europe are unintentional poisoning, electrocution on energy infrastructure and decline of food availability. Other secondary threats are collision with energy infrastructure, unintentional intoxication with NSAIDs and lead ammunition, and direct persecution by shooting. To minimise these threats European institutions and NGOs have developed national anti-poisoning working groups and strategies, programmes to reduce mortality on power lines and wind farms, and secured scavenger feeding zones. Thanks to these measures, vulture populations in Europe are increasing.

Presentation 10: Is the Mediterranean region key for the global conservation of the Rüppell's Vulture? Presenter: José Rafael Garrido (Junta de Andalucía, Spain & IUCN Species Survival Commission – Bird Specialist Group).

It is unclear whether Rüppell's Vultures are colonising the Mediterranean region or whether there is displacement of breeding populations from the Sahel towards the Mediterranean region due to its critical status in the Sahel. A key question to be determined is whether they are likely to be sustainable breeding populations or isolated individuals interbreeding with Griffon Vultures. The species has been listed as Critically Endangered in North Africa and included in the Vulture Conservation Programme of Andalusia, but it must be monitored to ascertain the real importance of the Mediterranean population for the global conservation of the species and the origin of the vultures in Iberia and North Africa. It is necessary to elaborate a conservation and management action plan to promote the establishment of the species in Andalusia, Morocco and Algeria.

Discussions arising

The global status of the Rüppell's Vulture and the population trends that are being observed in the Mediterranean Basin prompt us to assess whether this region could become a key area for the conservation of the species in the near future. In order to answer this question, it is essential to improve our knowledge about its current distribution and population trends in North Africa as well as our understanding of the colonisation process and the link between the individuals that reach the Mediterranean and the known Sahelian colonies, especially those from Chad, Mali and Niger. It is especially important to confirm the existence and status of breeding colonies in Algeria and to strength the existing monitoring and tracking initiatives.

The importance of a better understanding of the relationship between this species and the Griffon Vulture was also mentioned because it seems to be a factor associated with the colonisation process. The relationship should be studied not only in terms of behaviour in the areas where the two species coincide, but also in terms of the possible hybridisation processes that may occur (or have already occurred). To do so, it is necessary to develop and implement protocols and techniques for the detection and identification of hybrid individuals.

Likewise, it is necessary to improve knowledge about the threats that affect the species, both north and south of the Sahara, especially in the south, where illegal capture and trade for belief-based practices may be causing a significant impact, which has not yet been fully evaluated. Improved knowledge should provide key information to carry out coordinated action for the future conservation of the species.

From the data available in Andalusia on the mortality of the species, it could be suggested that the Rüppell's Vulture mortality rate may be

higher than that for Griffon Vultures, possibly because of exhaustion due to migration. Thanks to the monitoring programme in Morocco, we know that some vultures have attempted to cross the Strait of Gibraltar without success, which supports the hypothesis of Moroccan experts that the species shows a reluctance to cross the sea and that the attempts could be a highly energy-consuming activity.

One of the key points that emerged from the discussion was the need for information exchange among different organisations involved in the study, management and conservation of the species. The availability and exchange of information on the species biology, ecology, distribution and mortality, as well as good practices, existing gaps or management actions will be fundamental to ensure successful conservation actions.

Conclusions

The main discussion points and conclusions arising from the symposium were as follows:

- There have been population decreases and range contractions across the historical distribution of the Rüppell's Vulture, but increased occurrences in northern Africa and southern Spain.
- The northwards movements seem to be linked to increasing Griffon Vulture movements between Africa and Europe and possibly to deteriorating conditions in the southern Sahel.
- The true causes and contributing factors to these changes remain unknown.
- There are possible breeding cases between Rüppell's Vultures and Griffon Vultures in Spain

and North Africa, but very little is known about hybridisation.

- Occurrences in Morocco and Spain seem to be linked to the populations from West Africa; occurrences in Algeria seem to be linked to the populations from Sahel countries further east, probably Niger. Increasing research and monitoring efforts are needed.
- The movement, settlement and colonisation processes need to be further researched and understood in order to design effective conservation measures.

The Rüppell's Vulture is a species to be taken into account from now on in the Mediterranean according to the data provided during this symposium by the different experts. The path that management policies will take in the concerned countries will guide the future of the species in the region. It is crucial that these policies are supported by scientific data, but data are currently scarce, with many gaps and more questions than answers. As it has been pointed out throughout the discussions, efforts must be made to fill these gaps, but this should not be an impediment to taking action now, particularly when considering the critical status of the species. Cooperation among different countries

and concerned institutions is essential since any action at the local level will have a limited effect if populations continue to decrease in the core breeding range and threats remain in the migration and wintering areas.

The national authorities in the Mediterranean region where the species is present, as well as the different NGOs working in the region, are willing to make joint efforts through increased cooperation between both sides of the Mediterranean and between North Africa and the Sahel countries. Countries and organisations with more resources and experience should act as drivers of such cooperation, providing resources and sharing knowledge, and seeking possible sources of funding within the framework of existing sources for wildlife conservation. The critical situation of the species in the Sahel requires urgent and coordinated measures.

The importance and suitability of holding this symposium has been acknowledged by the speakers and participants, and is further demonstrated by the interesting discussions and exchanges that arose during and after the event. It is a first but important step towards increasing and sharing knowledge about Rüppell's Vultures, as well as defining the future of the species in the Mediterranean and assessing the role that the region could play for the conservation of the species.

Note from the editor: Although the symposium took place after the official publication date of this volume of Vulture News, it has been included due its topicality and likely level of interest to the vulture research and conservation community. Discussions on these topics should continue and we welcome the submission of any comments on the hypotheses, information, future plans, and suggestions presented above.

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