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Short Communication

Egyptian Vulture *Neophron percnopterus* (Linnaeus, 1758) in Gebel Elba and Wadi El-Allagi National Parks, Egypt

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Abstract: The Egyptian Vulture *Neophron percnopterus* is a small-sized vulture species currently listed as endangered on a global scale. Its populations have declined significantly in Africa leading to range contractions and the extinction of particular sedentary populations. Little or no contemporary information on Egyptian vulture's numbers and distribution is available from Egypt. Here, we aimed to fill this gap in the knowledge for Gebel Elba and Wadi El-Allagi National Parks, southeastern Egypt. We monitored the Egyptian Vulture numbers in both study sites between 2013 and 2022. We counted 7±2.7 Egyptian Vultures (range 0–47 individuals) at Gebel Elba National Park and 0.86±0.5 (range 0–10) vultures at Wadi El-Allagi National Park. More intensive and larger scale studies are needed at a national level to uncover the Egyptian Vulture's population size, range and status in Egypt and to assess major threats in detail.

Key words: scavenger, Africa, Sahel, range, population numbers, breeding status

Introduction

The Egyptian Vulture *Neophron percnopterus* (Linnaeus, 1758) is a small-sized vulture species of Palaearctic, Afrotropical and Western Indomalayan distribution (Ferguson-lees et al. 2001). Currently, it is listed as Endangered on a global scale (BirdLife International 2023). The Egyptian vulture is a long-lived migratory raptor, which has suffered a steep population decline throughout most of its global range due to various threats in breeding grounds, along the flyways and in wintering areas (Nikolov et al. 2016, Oppel et al. 2021, BirdLife International 2023). Its populations are mostly migratory; however, resident populations occur in the Sahel, East Africa, southern parts of the Middle East, the Indian Subcontinent and some islands (Cramp & Simmons 1980). In Africa, the Egyptian vulture range is generally restricted along the Sahel but the species occurs also in Northern Africa and towards Kenya and Tanzania to the south (Clark & Davies 2018, Arkumarev et al. 2019). Species populations have declined significantly on a continental level leading to range contractions and the extinction of particular sedentary populations (Ogada et al. 2016, Arkumarev et al. 2019). The Egyptian Vulture's former abundance in Egypt was well documented and thousands of vultures were breeding in the country at the end of the 19th century (Heuglin 1869, Arkumarev et al. 2019). The species (called also "Pharaoh Chicken") was considered sacred by the ancient Egyptians and was symbolised in the pyramids, where it was also breeding in the 19th century (Heuglin 1869). Later, breeding has been documented at Gebel Elba, Gebel Abrag, Gebel Abu Hareigal and Wadi El-Allagi (Goodman & Meininger 1989). Nowadays, the Egyptian Vulture is a rare breeding and resident species in most parts of Egypt, except for the extreme southeastern corner where it is considered common (Arkumarev et al. 2019). The species has been also recorded at a few sites in the northeastern corner and the Red Sea

Fig. 1. Study area. Green circles show the location of the studied sites in 2013–2022 and where Egyptian vultures were counted at congregation sites

coastal areas (White et al. 2008, Arkumarev et al. 2019). Despite this, the last available estimate of the resident population in Egypt dates back from the late 1980s when it was estimated at 10–100 pairs (Meyburg & Meyburg 1987). More recently, over one thousand individuals have been counted in spring migration at the northern Red Sea coast of Egypt, which is a well-known migration bottleneck for Western Palearctic birds (Noby et al. 2022).

In this study, we examine the species population numbers in southeastern Egypt. We aimed to estimate the population numbers in this part of the country and record some major threats. Hence, we carried out counts at feeding and water-drinking sites to register the number of Egyptian Vultures at these congregation sites.

Materials and Methods

Study area

The study was carried out in the Red Sea and Aswan Governorates, southeastern Egypt (Fig. 1). Red Sea Governorate has the longest sea-coast, extending from El Zafrana in the north to Halib in the south, at a distance of 1050 km. Aswan Governorate is the southernmost governorate in Upper Egypt, covering the area of Lake Nasser. The area is characterized by desert and semi-arid climates with annual average temperatures over 25^{0}C and an average relative humidity of only 26% (Weather Information for Asswan 2023). The vegetation is scarce with landscapes predominated by sand and stone deserts and mountains up to 1910 m a. s. l.

Field studies

The study was conducted with varying monitoring effort annually between April 2013 and August 2022 at two sites – Gebel Elba National Park (35 600 km^2) in Red Sea Governorate and Wadi El-Allagi National Park (7 450 km^2) in Aswan Governorate (Fig. 1). We conducted the survey between February and August to cover the species' breeding season in this part of its range (Mundy et al. 1992, Ferguson-Lees et al. 2001). Areas were searched by car and by walking at different routes to find Egyptian vulture aggregations at dead animals and water drinking reservoirs without spreading efforts to survey species breeding population. We carried out 23 visits (138 observation hours) at Gebel Elba National Park and we did the same survey effort at Wadi El-Allagi National Park, with at least two visits per study site each year. In total, we spent 46 monitoring days in the study area. Thereby, we aimed to assess the Egyptian Vulture numbers at both of the surveyed sites. All counts at congregation sites were done solely to the specific site so that we avoided double counting of individuals (Anderson 2007, Steenhof & Newton 2007). Egyptian vultures at congregation sites were individually aged based on Clark & Schmidtt (1998). Means are presented ± Standard Error (SE).

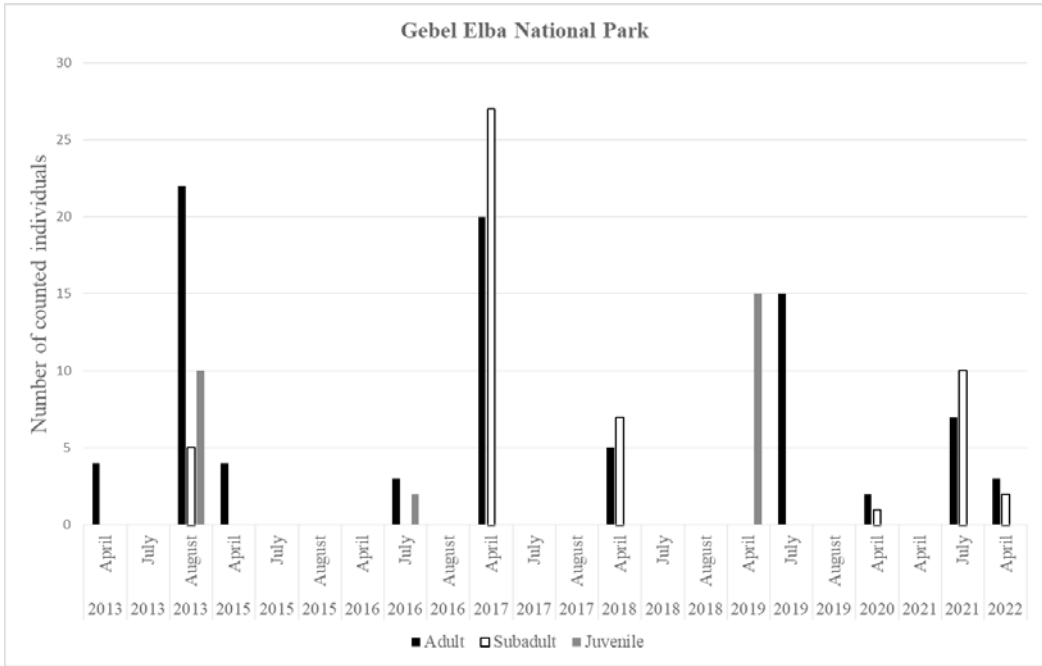

Fig.2. The number of the registered Egyptian Vulture individuals during the counts in Gebel Elba National Park as per age category, year and month in 2013–2022.

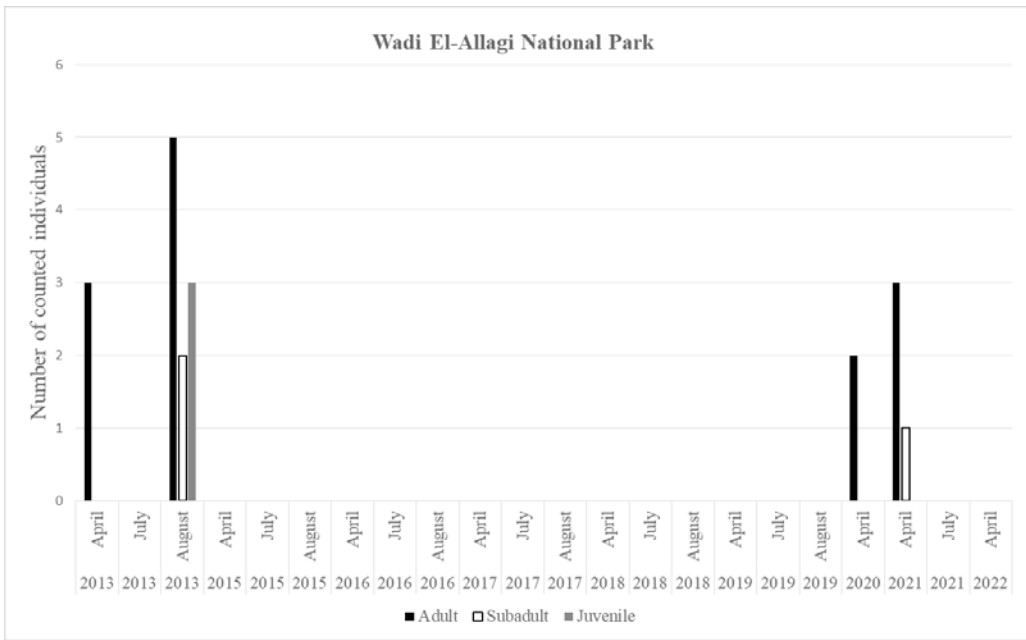

Fig. 3. The number of registered Egyptian vulture individuals during the counts in Wadi El-Allagi National Park as per age category, year and month in 2013–2022.

Spatial data were mapped using QGIS software v 3.28 (QGIS Development Team 2023).

Results

We counted 7±2.7 Egyptian vultures (range = 0–47 individuals). These included 4±1.39 adult birds per visit (n = 23 visits) at Gebel Elba National Park and 0.86±0.5 (range = 0–10) vultures of which 0.57±0.8 adult birds per visit at Wadi El-Allagi National Park (n = 23 visits).

We recorded the highest number of adult birds in August 2013 at Gebel Elba National Park (n = 22 individuals) and the lowest in April 2020 at the same site (n = 2 individuals) (Fig. 2). At Wadi El Allagi, we registered the highest number of adult birds in August 2013 (n = 5 individuals) (Fig. 3).

In April 2017, we recorded 47 birds (20 adults

and 27 subadults) in Gebel Elba National Park, which was the highest simultaneous count for our study. In April 2021, we registered four individuals (3 adults and 1 subadult) in Wadi El-Allagi National Park.

In Gebel Elba National Park, however, we recorded 10 fledged juveniles in August 2013 and 3 in Wadi El-Allagi National Park in the same year. After that year, we have not registered any fledged juveniles at the latter site.

In 2020, we did an exceptional count in December at both sites and counted 12 adult and 15 subadult Egyptian Vultures in Gebel Elba National Park, probably resident and wintering birds together.

We recorded two cases of shooting of two Egyptian vultures by Cypriot hunters in 2014 and 2016 at Lake Nasser. Another adult bird was trapped and consequently released by a falconer in 2016.

Discussion

Egyptian Vulture breeding distribution and population size at our site and in Egypt remain largely unknown. In our survey, we found that the Egyptian Vulture population in Gebel Elba National Park is likely larger than that of Wadi El-Allagi National Park. We can only speculate about the actual number of breeding pairs and the population trend in both sites because we have not found or searched for active territories in our survey. However, we have registered up to 47 individuals in Gebel Elba National Park and up to 10 in Wadi El-Allagi National Park. We can therefore speculate that the Egyptian vulture numbers in the surveyed territory equals to 0–47 individuals. However, based on our methodology, the current estimate might be under- or overestimated, since we cannot be certain what proportion of the true number of fledged juveniles were registered during our counts.

Furthermore, the current population size and trend is impossible to be measured using this method. However, we could register juvenile birds during some of the counts in our survey (Figs. 2 and 3). Hence, if a properly designed study is conducted, it will bring insight into Egyptian Vulture's breeding population, similarly to other studies in this geographical region (Angelov et al. 2013). In our study, we recorded the highest number of birds in April. This could be probably explained with the migration period of the species along the Eastern Mediterranean flyway (Phipps et al. 2019, Noby et al. 2022, Oppel et al. 2022). It should be noted that we could not distinguish between migrating and resident birds based on the applied methodology in our survey. Hence, purposeful study on the species breeding population is needed to uncover Egyptian Vulture breeding population size and trend, to define species breeding phenology and to distinguish between migrants and floaters. This will enable any conservation interventions. Major threats to the Egyptian Vulture in Egypt include electrocution/collision with energy infrastructure (Oppel et al. 2021). In our survey, we recorded shooting by Cypriot hunters at Lake Nasser and we assume that trapping is an important threat regionally. Therefore, the specific priority threats are uncovered in Egypt (Oppel et al. 2021) and more research in this direction is needed.

Much broader and more extensive research should be undertaken on many of the potential Egyptian Vulture breeding sites in Egypt in order to uncover the actual status of the species in the country.

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