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# **A Study on Parental Care and Post-Fledgling Development of Egyptian Vultures in the Churu District, Rajasthan**

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**ABSTRACT:** Parental care and post-fledgling development are critical components of avian life history, directly influencing the survival of young in the population. This study examines the parental care strategies and post-fledgling behavior of the Egyptian Vulture (*Neophron percnopterus*) in the Churu district of Rajasthan, India.

**KEYWORDS:** Egyptian, vulture, development, juvenile.

## **I. INTRODUCTION**

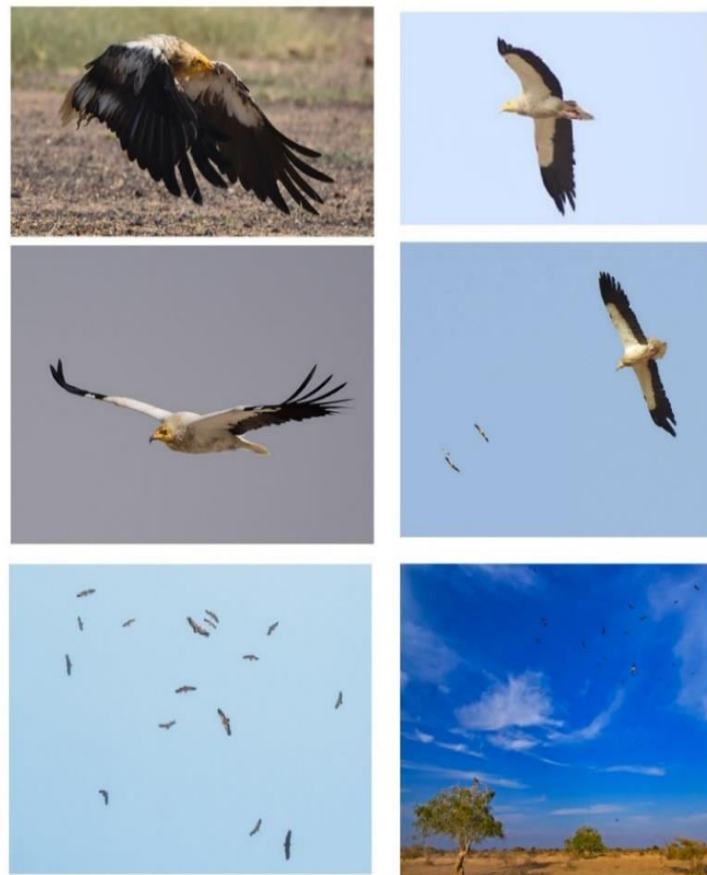
The adult Egyptian vulture typically has a length of 85 cm from the beak to the tail and a wingspan of approx. 1 meter. Its weight is approximately 2.1 kg. The mature bird's plumage is predominantly white, with a scattering of black feathers in the wings and tail. Because it stalks about carcasses on typically dusty ground, the plumage of the bird dulls rapidly, causing birds before molting to appear beige instead of pristine white. Furthermore, individuals occasionally adorn themselves with sand containing iron oxide, similar to how Lammergeiers do, resulting in a pinkish buff coloration of their plumage. This is why they are referred to as 'Schmutzgeier', which translates to "dirt vulture" in German. The facial skin of this organism is yellow, but it changes to orange during nesting seasons. Additionally, it lacks any leathery texture. The tail possesses a diamond form, rendering it easily discernible from other vultures when in flight. The white feathers of the bird stand out in stark contrast to its black wing tips. The juvenile birds display a dark brown plumage which progressively lightens until they attain maturity around the age of 5 years.

Egyptian vultures have a broad geographical range and can be found in Southern Europe, Northern Africa, Western and Southern Asia. The little vulture inhabits elevated regions characterized by precipitous cliffs that provide appropriate hollows for nesting. Nevertheless, it actively pursues and nourishes itself in unobstructed regions. The adult individuals reside in pairs, maintaining a considerable distance from one another because of their limited sociability. At dusk, Egyptian vultures congregate in roosts located on either coastal or interior cliffs. Several dozen birds, including both young and mature animals, may congregate at these roosts. They exhibit partial migration, with their migration patterns influenced by the prevailing local climate conditions. Unless the Egyptian vulture is unable to tolerate the winter conditions in its habitat, it often remains in the same location and does not migrate. The species is ill-suited to cold weather conditions due to its very little size. Egyptian vultures are scavengers that mostly consume carcasses, garbage, and various other items. Their diet includes frogs, small reptiles, insects, eggs, fruits, and feces left by cattle on pastures. Because of its comparatively diminutive size, it must wait until other scavengers have completed their meal before it can commence feasting. Upon encountering a carcass, the Egyptian vulture will initially yield the location to the ravens, who consume the more tender portions. Subsequently, it proceeds. It ruptures the abdomen in order to consume the internal organs. Also, the Egyptian Vulture (*Neophron percnopterus*) demonstrates remarkable breeding and parental behaviors that are essential for the survival of this endangered species. Therefore, this study provides critical insights into the parental care and post-fledgling development of *N. percnopterus*, emphasizing the importance of preserving nesting habitats and mitigating human-induced threats.

## II. PARENTAL CARE AND POST FLEDGLING BEHAVIOUR OF THE EGYPTIAN VULTURE

The study on parental care and post-fledgling behavior of the Egyptian vulture involves thorough observational techniques concentrating on flight behavior, eating patterns, and chick care. The flying and movement behavior of the adult vultures is thoroughly studied to learn how they navigate their territory and respond to environmental stimuli. This includes tracking flight patterns, the frequency of flights to establish whether the birds are seeking for food, defending territory, or fulfilling other parental chores. Continuous observations is also carried out to observe post-feeding behavior, notably how the parents engage with their chicks after returning from feeding outings. This involve observing how parents give sustenance and protection post-feeding. In addition, the study focus on parental feeding behavior, evaluating the frequency, duration, and timing of feeding visits to analyze how the male and female vultures divide responsibilities in supplying food for the chicks. The rate of parental feeding will be computed by recording the number of flights per day expressly made for feeding reasons, allowing insight into the amount of time and effort committed by the parents in acquiring food for their chicks. Together, these findings will offer a thorough picture of the parental care tactics and post-fledgling behavior of the Egyptian vulture, giving light on how both parents contribute to the survival and development of their offspring. This study found that throughout the entire post-fledging phase, the fledglings mostly dependent on their parents for nourishment. Of all the feedings seen, most of the objects were brought in the bill by adults, and other were regurgitations.

Fig 1: Adult Egyptian Vulture Taking Flights for Feeding Trips for Chicks



On the other hand, some chicks appeared to develop extremely early skills of theft shown on the visits they made to other Egyptian Vulture nests where they robbed food from the other fledgling. Two fledglings demonstrated this behaviour.

Fig 2: A Juvenile Egyptian Vulture



The home range of the fledglings generally expanded incrementally with maturity. The juveniles occasionally exhibited adult conduct. On one case, the elder fledgling of a double brood nourished other with a small morsel of food retrieved from the nest. Resident fledglings exhibited aggressive behavior towards intruding adult, immature, and fledgling Egyptian vultures. The attacks consistently occurred when the intruder was situated adjacent to the fledglings. The fledglings refrained from assaulting encroaching Egyptian vultures in flight, likely due to their inferior flying abilities compared to the intruders.

Early self-sufficiency in fledglings acquiring food is uncommon among birds of prey with complex hunting strategies, although it is very common when fledglings can access abundant carrion. Our most intriguing finding was the bond between young individuals and their parents on foraging excursions. Fledglings of other birds of prey follow hunting adults. This behavior typically appears to be adaptive for intercepting the adult delivering prey to the needy, allowing direct acquisition of the prey from the adult. This is not the case for Egyptian vultures, as all observed feedings occurred within the nest or its close surroundings. The correlation between fledglings and parents intensifies towards the conclusion of the post-fledging period, when the dissolution of established connections is nearly done and the fledglings attain self-sufficiency in foraging.

In the initial weeks of life, the nestlings were fed by the adult, receiving sustenance directly into their beaks. Alternatively, sometimes the adult regurgitated the food onto the nest base and the nestlings picked it up from there. The sole sustenance provided for a minimum of two weeks post-hatching consisted of regurgitated food. At 8 weeks of age, the nestlings were fed directly by the parents, frequently inducing regurgitation by pecking the adult's beak. This technique was accompanied by intense guttural sounds. Similarly, the nestlings were provided with water, while this occurrence was noted infrequently, consistently over the first month of their lives.

Other research indicate that the nestling is provided with digested food until it reaches a minimum age of 5 weeks, after which this is progressively substituted with food stored in the crop. The foraging rates of adult Egyptian Vulture, as assessed through incubation shifts and food supplies to chicks, were consistent with reported data for other large vultures. Table 1 shows the rate of parental feeding calculated as number of flights per day for feeding the chicks.

Table 1: Rate of Parental Feeding Calculated as Number of Flights Per Day for Feeding the Chicks

Parent	Parental Feeding Rate
Male	19.64
Female	16.06
Mean	17.85

The table 1 highlights that male Egyptian vultures have a higher feeding rate, with an average of 19.64 flights per day, compared to females, who average 16.06 flights per day. This indicates that males take on a slightly greater share of the food provisioning responsibility, which aligns with their observed role in foraging during the chick-rearing period. This division of labor ensures efficient chick nourishment and parental energy management, critical for chick survival and development.

### III. CONCLUSION

The study on parental care and post-fledgling development of the Egyptian Vulture in the Churu district sheds light on the parental care strategies and the challenges faced by fledglings in their journey toward independence. The findings emphasize the critical role of parental care, with both parents actively involved in feeding, nest defense and ensuring the survival of their young ones during the early fledgling stages. The gradual development of fledgling independence, including improvements in flight and foraging skills, highlights the importance of the post-fledgling period for their long-term survival and integration into the population.

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