

Attempted Verreaux's Eagle predation on Rüppell's Vulture and breeding observations at Lake Kwenia colony, Kenya

Simon Thomsett^{1*} and James Aldred

¹Ornithology Section, Dept of Zoology, National Museums of Kenya, Nairobi, Kenya

*Corresponding author: sthomsett@gmail.com

Summary

A Verreaux's Eagle (*Aquila verreauxii*) was observed to attack in mid-air a fully grown juvenile Rüppell's Vulture (*Gyps rueppellii*). This event including observations on the breeding of these vultures at Kwenia are presented. Other notes are given for the nesting of Rüppell's Vultures at this site.

Introduction

The predation of Cape Vulture (*Gyps coprotheres*) pulli by Verreaux's Eagle is well-known in South Africa (Mundy *et al.* 1992, Gargett 1993). These Verreaux's Eagle individuals or pairs patrol the Cape Vulture breeding cliffs looking for unfledged chicks and even eggs (although unsuccessfully) on ledges. The Cape Vultures are recorded as having a "distinctive and hoarse call" when Verreaux's Eagles patrol in such a manner and that "the uproar of these griffons has to be heard to be believed". This is accompanied by aggressive gesturing, and Mundy *et*

al. (1992) question if this behaviour is recorded in Rüppell's Vulture (*Gyps rueppellii*).

Despite observations of behaviour between Verreaux's Eagles and nesting Rüppell's Vultures in Kenya, Tanzania and Ethiopia for some 30 years by one of the authors (ST), the vocal intensity described above was not recorded despite hundreds of observed interactions between the two species. In contrast, Rüppell's Vultures paid little or no attention to Verreaux's Eagles even if they flew within 10-20 metres of their young. Rarely, the eagles did appear to have the intent to predate chicks by looking directly

at exposed chicks and banking round to re-inspect the possibilities. Parent Rüppell's Vultures have been seen to react by opening wings and stretching out their heads (but with minimal vocalisation) to very close-flying Verreaux's Eagles, but these events are characterised by their rarity and lack of intensity despite ample opportunity. The "distinctive" call and anti-predator behaviour shown by the Cape Vulture is therefore not a distinct part of the behavioural repertoire of Rüppell's Vulture. Another aspect possibly influencing behavioural differences is the close proximity of nests and synchronous breeding of Cape Vultures, as opposed to the generally more widely-spaced nesting and asynchronous breeding of the equatorial nesting Rüppell's Vulture (Virani *et al* 2012). A group uproar would be impossible with widely spaced nests.

The Kwenia colony

Between 22/1/13 and 15/2/13, a BBC film crew was camped on top of Kwenia, the largest Rüppell's Vulture colony in southern Kenya, filming a documentary on vultures. The Kwenia colony numbers some 150-200 Rüppell's Vultures, contains approximately 64 nests and has been

part of a long-term study site (Virani *et al.* 2012), although in 2013 the colony is threatened by intensive agriculture and land developers directly below the cliffs. Some of the filming required nest-ledge camera positions to film chicks and a crude bird-hide was built halfway down the cliff. From these vantage points we were able to see into two nest ledges with chicks and had a clear view of nearly all roosting and nesting ledges running 2km north and 2km south. In over 10 years no attempted predation by Verreaux's Eagles has been witnessed at Kwenia (ST, personal observation) nor cited in publications on this species (Mundy *et al.* 1992, Virani *et al.* 2012).

During the 15 day intensive observation, an adult pair of Verreaux's Eagles known to nest 4km south west of the colony would visit the cliffs and were seen on at least four occasions flying very close to the nests. On 22/1/13, three vultures were seen to react with alarm at the very close proximity of the eagle pair circling within 4m of an occupied ledge. On 3/2/13 the pair circled a ledge 20m directly below, flying within 1-2m of adult Rüppell's Vultures with young. Although the intent of the pair seemed focussed on the ledge, no vocalisations were heard. A juvenile

1.5-2 year old female Verreaux's Eagle spent much time on these cliffs, perched and flying near the ledges throughout the 15 day period. It appeared to be sufficiently far from the adult pair's nest but on at least four occasions the eagle was escorted away by the adult vulture pair using a low intensity aggressive pursuit. The sub-adult often sat like a sentinel on outcrops overlooking nesting ledges or made sorties to circle and craned its neck at vulture chicks in the nest with obvious intent and interest in unattended vulture chicks.

At that time there was a low occupancy of nests with six young ranging from 50-100 days and one pair incubating. Significantly, these chicks were not visible from the ground even with the best optical and photographic equipment and were only detected after days of intense observation from the hide placed halfway down the cliff or by climbing to nesting ledges. Methods previously employed to survey this cliff by the authors and colleagues (Virani. *et al* 2012), could easily have overlooked these nests from the ground survey. For absolute accuracy this emphasises the need for intense observation methods coupled with close cliff ledge access and/or distant multiday behavioural

observations if all nests are to be enumerated. It is plausible that optimum sites (well-shadowed and discreet) are competed for and used first, and that secondary sites get occupied later when there is less choice. This may explain the difficulty in detecting active nests when only a small number of birds are nesting.

Description of the attempted predation

At 12PM on 14/2/13, JA was filming halfway down the cliff and heard a loud rushing and flapping sound above. Upon turning three large birds were seen tumbling to the ground some 150m out from the cliff face. Two hit the very steep scree some 110m below, followed immediately by an adult Rüppell's Vulture.

What followed was videoed some five seconds after impact and is here described. The dense tangle of *commifera* made the video unusable for the documentary, but it shows that on impact with the ground the eagle disengaged from the juvenile vulture, which was seen on its back and was 3m down a steep slope. 2m away up slope was an adult Rüppell's Vulture, possibly the parent. Immediately the eagle had three Rock Hyrax (*Procapra*

johnstoni) running away from it. After four seconds the eagle turned toward the juvenile vulture and jumped onto it with both feet taking it by the head. This rotated the vulture onto its chest. A few seconds later the adult vulture, itself threatened by an attack, turned and flew away, presumably accepting the futility of its ability to protect the young vulture. The eagle was on its tibio-tarsal pads, wings partly spread for balance with the vulture head down out of sight under the sprawled body, convulsively gripping the head with its feet. For some 15 seconds the vulture lay motionless except for when the eagle made occasional kneading clutches. The vulture was apparently being suffocated, and had only moments to live, when three large Rock Hyrax appeared and bounded toward the eagle. The eagle was alarmed and left the vulture, moving 4m down slope; it stayed for five seconds before flying away. The eagle may also have been wary of the cameraman immediately above it on the cliff. The vulture recovered somewhat and after a minute tried to move but rolled helplessly on its back down slope, a broken wing hindering its ability to right itself. After five minutes the Verreaux's Eagle flew back overhead, mobbed by a pair of Fork-tailed Drongos

(seen riding on its nape!). The eagle perched on a tree immediately above the vulture, where it was persistently attacked by the Drongos. The eagle was aware of the cameraman above and this, plus the Drongos and the defensive hyrax, combined to make it fly away. The eagle remained patrolling above. After some 30 minutes a troop of Olive Baboons (*Padio anubis*) were seen moving towards the scene in a deliberate and curious manner.

A decision was made to rescue the vulture as a stalemate had occurred in which our presence was influencing the outcome with an increased probability of it being found by baboons and killed. Given that the species is Endangered, and we could rescue it easily, a co-ordinated effort was made by local Masai community members radioed below, and by abseiling to the ground. The vulture was found to have a shattered humerus either from impact by the eagle in the sky or when it hit the ground. It had blood coming out of the mouth and a small but deep hole in the top of the skull.

The bird showed no downy tufts on its flight or contour feathers. Its worn tail tips with protruding unfeathered 2.5cm spines and the presence of some abraded tips on secondaries indicated that it had

fledged at least a month or more previously. The down on the head was full and uniform indicating it had not fed at carcasses. The bird was taken for surgery by Sarah Higgins to Dr Sangay Gautama's surgery in Nairobi to pin the left humerus. It later developed poor co-ordination in the right leg that worsened. After two months it regained mobility in the leg and has near complete function of the wing. The partial paralysis and recovery suggests a central nervous injury (perhaps the puncture in the skull). It began a contour moult in mid-2013 only five months later, with secondaries moulted in August, suggesting it may have been 4-5 months old when attacked and not a very recently fledged bird.

References

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The Verreaux's Eagle continued to survey the cliffs and if it indeed specialised in taking chicks on ledges or flying young vultures, its impact would be very significant. It was not seen to attempt any attack on the numerous Rock Hyrax, Helmeted Guineafowl (*Numida meleagris*) or Kirk's Dik Dik (*Madoqua kirkii*). It could be able to entirely predate that seasons' young on the colony in a matter of weeks. Perhaps in these cases the trapping and translocation of "problem eagles" is supported.

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