

Ecology of the Hooded Vulture in the Kruger-to-Canyons Biosphere Reserve



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Breeding biology of Hooded Vultures *Necrosyrtes monachus* in South Africa

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Introduction

In the midst of the current African Vulture Crisis (Ogada *et al.* 2015), we need to avoid the environmental and economic costs associated with the dramatic decline of Asian vulture populations during the Asian Vulture Crisis of the late 1990s (Markandya *et al.* 2008).

Across its range (Fig 1), the critically endangered Hooded Vulture faces threats such as the illegal trade in body parts for traditional medicine, the bushmeat trade, and intentional/unintentional poisoning.

Of the 11 species of African Vultures that are obligate scavengers, relatively little is known about Hooded Vultures.

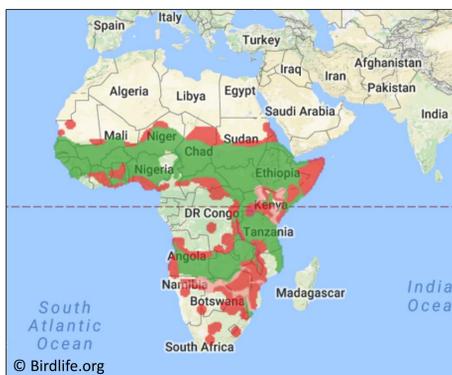


Fig. 1. Hooded Vulture distribution, where red = extirpated/extinct, and green = current range.

Objectives

To investigate breeding success in the critically endangered Hooded Vulture *Necrosyrtes monachus*, in the Kruger-to-Canyons Biosphere Reserve, South Africa (Fig. 2). Also, to determine which other species (nest usurpers and potential nest predators) visit Hooded Vulture nests.

We hypothesised that breeding parameters for Hooded Vultures in South Africa would be similar to those reported for conspecifics in other southern African countries.

Methods

11 cameras with infra-red flash were installed at Hooded Vulture nests throughout the 2.6 ha million Kruger-to-Canyons Biosphere Reserve in 2015 and 2016 (Fig. 2).

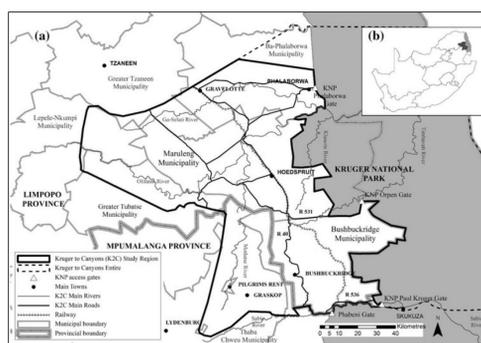


Fig. 2. Study area in South Africa. From: Coetzer *et al.* 2013

Nest cameras (Fig. 3) were left in place year-round. Cameras took 1 picture every 5 min., continually, during the breeding season. During the non-breeding season, or after a failed breeding attempt, cameras were set to be motion-activated, with a 3 min. delay between pictures.



Fig. 3. Camera at Hooded Vulture nest.

Results

61 Hooded Vulture nests were located in 2015-2016, all in tall trees with densely-foliated canopies, close to flowing rivers. All active nests were lined to varying extents with green nesting material (most often *Diospyros mespiliformis* leaves, Fig. 4).



Fig. 4. Adult Hooded Vulture bringing green nesting material to nest.

Eggs were laid from 13 July to 1 Sept ($n = 3$). Of 25 nests that were closely monitored in 2015, 24 (96%) were active (freshly lined, or with egg/chick). Of these 24 nests, the outcome for 13 nests was known: 3 nests (23%) fledged chicks and 10 nests (77%) failed. 40% of nests active in 2015 were reused in 2016.

Nest failure was attributed to: abandonment (20%), egg predation (30%), chick predation (20%), and unknown causes (30%). Chicks of all ages showed predator avoidance behaviour by 'playing dead' (Fig. 5b). Confirmed egg predators included a Baboon ($n = 1$), while predators of chicks included a subadult Martial Eagle ($n = 1$, Fig. 5a).

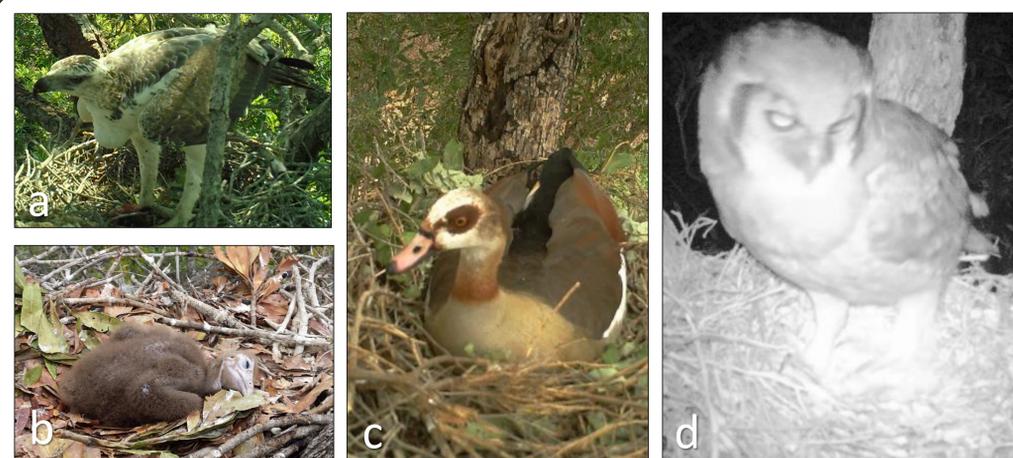


Fig. 5a-d. Nest predators and potential nest usurpers at Hooded Vulture nests. Martial Eagle preying 5-day old Hooded Vulture nestling (5a), Hooded Vulture nestling 'playing dead' (5b), Egyptian Goose (5c) and Verreaux's Eagle-owl (5d).

Conclusions

Hooded Vultures in the Kruger-to-Canyons Biosphere Reserve have low breeding success, and their eggs and chicks may fall victim to various primate and avian predators.

We encourage urgent action to address the anthropogenic causes for vulture population decline (Ogada *et al.* 2015), however our results show that these birds also suffer from nest predation which may be reducing breeding success.

Furthermore, the presence of potential nest usurpers, including Egyptian Geese (Fig. 5c), at Hooded Vulture nests, is of concern, particularly since numbers of Egyptian Geese are increasing steadily in the study area.



Fig. 6. Adult Hooded Vulture and 5 day old nestling.

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