

Nestling White-backed Vulture (*Gyps africanus*) eaten by a Verreaux's Eagle (*Aquila verreauxii*) at a nest occupied for a record 21 years.

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Abstract

An adult Verreaux's Eagle (*Aquila verreauxii*) was observed eating a White-backed Vulture (*Gyps africanus*) nestling at a nest at Sango in the Savé Valley Conservancy, south-eastern Zimbabwe on 13 October 2017. This nest has been regularly occupied for 21 successive breeding seasons. To our knowledge, this observation represents a previously unrecorded species in the diet of Verreaux's Eagle, and it is also apparently the longest known continually-occupied White-backed Vulture nest.

Introduction

Sango is a 60,000 ha property within the Savé Valley Conservancy, which is located in the south-eastern Lowveld of Zimbabwe. There are several critically endangered White-backed Vultures (BirdLife International 2016b) nesting at Sango, and their nests are found predominantly in tall trees in riverine vegetation, or on top of Red-billed Buffalo Weaver (*Bubalornis niger*) nests in Baobabs (*Adansonia digitata*).

There are two Verreaux's Eagle nesting sites at Sango, located 13 km apart in granite hills where there are good numbers of Rock Hyrax (*Procavia capensis*) and Bush Hyrax (*Heterohyrax brucei*), which make up most of these eagles' diet in Zimbabwe (Chiweshe 2007). One of these nests is at Vuma Hills and the other is on a hill near Mafushwa, south of Sango Lodge. In 2017, both pairs of eagles successfully fledged a chick (pers. obs.).

The observation took place on 13th October 2017, at a White-backed Vulture nest that is 8

km from the closest Verreaux's Eagle nest. This particular White-backed Vulture nest is in a Baobab, and is well-monitored because it is situated along a road that is regularly used. This nest has been occupied every year since D.G. began working at Sango on 1 Dec 1997, which means that it has been continually occupied for at least 21 breeding seasons; from the austral winter of 1998 to that of 2018, inclusive (pers. obs.). The Verreaux's Eagle (currently classified as Least Concern on the IUCN Red List, BirdLife International 2016a) was first noticed on the White-backed Vulture nest at 06h00 by L.C., who photographed the eagle on the nest (Fig 1). L.C. reported the sighting and B.C and D.G. arrived at the site at 07:55 am. By then, the eagle had a full crop, and had moved off the nest but was still perched close to it. A drone (model: Mavic[®], DJI, Shenzhen, China) was used to inspect the nest, to determine what had happened to the vulture chick. The images taken by the drone revealed that the eagle had consumed the majority of the nearly full-grown

vulture chick (Fig 2). The eagle appeared unconcerned by the drone, and eventually flew away at 08:25 am.

Discussion

Here we present two new observations for White-backed Vultures: (i) a potential new nest predator, and (ii) a new record for the longest period during which a nest has been continually occupied over successive breeding seasons.

The diet of Verreaux's Eagles generally comprises Rock Hyrax (*Procavia capensis*) and Bush Hyrax (*Heterohyrax brucei*) as the predominant prey species (Gargett 1990; Barry and Barry 1996; Chiweshe 2007), but in certain

areas the diet of these eagles may be more catholic (e.g. Murgatroyd *et al.* 2016). At least 47 species of mammal, 43 species of bird, 10 species of reptile and some fish (Brown *et al.* 1982; Boshoff *et al.* 1991; Davies 1999; Chiweshe 2007; Scholte 2010; Armstrong and Avery 2014) have been recorded in their diet (Table 1), but this is the first record of a Verreaux's Eagle eating a White-backed Vulture. Verreaux's Eagles have been recorded preying on Cape Vulture (*G. coprotheres*) pulli (Steyn 1982), and also a White-headed Vulture (*Trigonoceps occipitalis*) pullus (Mundy *et al.* 1986). They have also been recorded attacking a fully-grown juvenile Rüppell's Vulture (*G. rueppellii*) (Thomsett and Aldred 2015).



Figure 1: An adult Verreaux's Eagle feeding on the White-backed Vulture pullus.



Figure 2: The adult Verreaux's Eagle and the remains of the White-backed Vulture pullus.

We cannot be certain whether the nestling White-backed Vulture was killed by the eagle or already dead when the eagle found it, however the carcass was still very fresh when the eagle was photographed feeding on it (Fig 2). In either case, Verreaux's Eagle can thus be added to the list of species that have been recorded preying or eating White-backed Vulture eggs or nestlings: these include the Honey Badger (*Meliorax canorus*), Pied Crow (*Corvus albus*), Serval (*Leptailurus serval*) and Leopard (*Panthera pardus*) (Kemp and Kemp 1975; Steyn 1982; Marlow 1983; Mundy *et al.* 1992, Johnson & Murn, *in press.*).

In terms of nests occupied continuously for many years, Brown *et al.* (1982) documented a White-backed Vulture nest that had been continually occupied over nine successive years, while nests at Yankari Game Reserve (Nigeria) and Dronfield Ranch (South Africa) have been continually occupied for 12 and 14

years respectively (Mundy *et al.* 1992, Angus Anthony, pers. comm.). Here we report on a nest at Sango that has been repeatedly occupied for even longer: 21 years (pers. obs.), which is to our knowledge the longest recorded period during which a White-backed Vulture nest has been continually occupied over successive breeding seasons.

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Table 1: Species recorded in the diet of Verreaux's Eagles (*Aquila verreauxii*).

no.	Mammals	References
1	Hamadryas Baboon (<i>Papio hamadryas</i>)	f, h
2	Chacma Baboon (<i>Papio ursinus</i>)	b
3	Vervet Monkey (<i>Chlorocebus pygerythrus</i>)	b, d
4	Bushbuck (<i>Tragelaphus scriptus</i>)	b
5	Mountain Reedbuck (<i>Redunca fulvorufula</i>)	b
6	Grey Rhebok (<i>Pelea capreolus</i>)	b
7	Cape Grysbok (<i>Raphicerus melanotis</i>)	b
8	Springbok (<i>Antidorcas marsupialis</i>)	b
9	Impala (<i>Aepyceros melampus</i>)	h
10	Common Duiker (<i>Sylvicapra grimmia</i>)	b
11	Klipspringer (<i>Oreotragus oreotragus</i>)	b
12	Steenbok (<i>Raphicerus campestris</i>)	b, d
13	Dik-dik (<i>Madoqua sp.</i>)	c
14	Blue Duiker (<i>Philantomba monticola</i>)	b
15	Black-backed Jackal (<i>Canis mesomelas</i>)	h
16	Bat-eared Fox (<i>Otocyon megalotis</i>)	b
17	Cape Fox (<i>Vulpes chama</i>)	b
18	Domestic Cat or Southern African Wild Cat (<i>Felis catus</i> or <i>F. lybica cafra</i>)	b
19	Common Genet (<i>Genetta genetta</i>)	b
20	Domestic Sheep (<i>Ovis aries</i>)	e
21	Domestic Goat (<i>Capra hircus</i>)	d
22	Domestic Dog (<i>Canis lupus familiaris</i>)	h
23	Cape Hare (<i>Lepus capensis</i>)	a, b
24	Jameson's Red Rock Hare (<i>Pronolagus randensis</i>)	d
25	Scrub Hare (<i>Lepus saxatilis</i>)	a, b, h
26	Natal Red Rock Hare (<i>Pronolagus cf. crassicaudatus</i>)	b
27	Smith's Red Rock Hare (<i>Pronolagus rupestris</i>)	b
28	Rock Hyrax (<i>Procavia capensis</i>)	a, b, d
29	Bush Hyrax (<i>Heterohyrax brucei</i>)	d
30	Cape Grey Mongoose (<i>Galerella pulverulenta</i>)	b
31	Large Grey Mongoose (<i>Herpestes ichneumon</i>)	a
32	Common Slender Mongoose (<i>Herpestes sanguineus</i>)	i
33	Water Mongoose (<i>Atilax paludinosus</i>)	b
34	White-tailed Mongoose (<i>Ichneumia albicauda</i>)	d
35	Yellow Mongoose (<i>Cynictis penicillata</i>)	b, h
36	Banded Mongoose (<i>Mungos mungo</i>)	i
37	Striped Polecat (<i>Ictonyx striatus</i>)	b
38	Cape Porcupine (<i>Hystrix africae australis</i>)	b
39	Springhare (<i>Pedetes capensis</i>)	b
40	South African Ground Squirrel (<i>Xerus inauris</i>)	b
41	Suricate (<i>Suricata suricatta</i>)	b, h
42	Bushbaby (<i>Galago sp./Otolemur sp.</i>)	i
43	Lesser Cane Rat (<i>Thryonomys gregorianus</i>)	i
44	Cape Dune Mole Rat (<i>Bathyergus suillus</i>)	a, b

Table 1 cont...

45	Africa Mole Rat (<i>Cryptomys hottentotus</i>)	b
46	Vlei Rat (<i>Otomys irroratus</i>)	b
47	Cape Gerbil (<i>Gerbilliscus afra</i>)	b

no.	Reptiles	References
1	Giant Plated Lizard (<i>Matobosaurus validus</i>)	d
2	Rock Monitor (<i>Varanus albigularis</i>)	b, i
3	Tree Monitor (<i>Varanus</i> sp.)	g
4	Greater Padloper (<i>Homopus femoralis</i>)	b
5	Angulate Tortoise (<i>Chersina angulata</i>)	a, b
6	Leopard Tortoise (<i>Stigmochelys pardalis</i>)	b, d
7	Parrot-beaked Dwarf Tortoise (<i>Homopus areolatus</i>)	b
8	Speckled Dwarf Tortoise (<i>Homopus signatus</i>)	b
9	Tent Tortoise (<i>Psammobates tentorius</i>)	b
10	Puffadder (<i>Bitis arietans</i>)	i

no.	Birds	References
1	Egyptian Goose (<i>Alopochen aegyptiaca</i>)	b
2	South African Shelduck (<i>Tadorna cana</i>)	b
3	Cape Shoveler (<i>Spatula smithii</i>)	b
4	African Black Duck (<i>Anas sparsa</i>)	b
5	Yellow-billed Duck (<i>Anas undulata</i>)	b
6	Helmeted Guineafowl (<i>Numida meleagris</i>)	a, b, d
7	Wild Turkey (<i>Meleagris gallaparvo</i>)	b
8	Coqui Francolin (<i>Peliperdix coqui</i>)	i
9	Grey-winged Francolin (<i>Scleroptila afra</i>)	b
10	Red-winged Francolin (<i>Scleroptila levaillantii</i>)	g
11	Cape Spurfowl (<i>Pternistis capensi</i>)	b
12	Natal Spurfowl (<i>Pternistis natalensis</i>)	d
13	Red-necked Spurfowl (<i>Pternistis afer</i>)	b
14	Swainson's Spurfowl (<i>Pternistis swainsonii</i>)	d
15	Domestic Fowl (<i>Gallus gallus domesticus</i>)	b
16	African Penguin (<i>Spheniscus demersus</i>)	b
17	Lesser Flamingo (<i>Phoeniconaias minor</i>)	b
18	Black Stork (<i>Ciconia nigra</i>)	b
19	White Stork (<i>Ciconia ciconia</i>)	b
20	Hadedda Ibis (<i>Bostrychia hagedash</i>)	b
21	African Spoonbill (<i>Platalea alba</i>)	b
22	Western Cattle Egret (<i>Bubulcus ibis</i>)	g
23	Black-headed Heron (<i>Ardea melanocephala</i>)	b
24	White-breasted Cormorant (<i>Phalacrocorax lucidus</i>)	b
25	Cape Cormorant (<i>Phalacrocorax capensis</i>)	b
26	White-backed Vulture (<i>Gyps africanus</i>)	k
27	White-headed Vulture (<i>Trigonoceps occipitalis</i>)	j
28	Black Sparrowhawk (<i>Accipiter melanoleucus</i>)	g

Table 1 cont...

29	Ludwig's Bustard (<i>Neotis ludwigii</i>)	b
30	Denham's Bustard (<i>Neotis denhami</i>)	b
31	White-bellied Bustard (<i>Eupodotis cf. senegalensis</i>)	b
32	Karoo Korhaan (<i>Eupodotis vigorsii</i>)	b
33	Southern Black Korhaan (<i>Afrotis afra</i>)	b
34	Red-knobbed Coot (<i>Fulica cristata</i>)	b
35	Spotted Thick-knee (<i>Burhinus capensis</i>)	b
36	Kelp Gull (<i>Larus dominicanus</i>)	b
37	Rock Dove (<i>Columba livia</i>)	g
38	Speckled Pigeon (<i>Columba guinea</i>)	d
39	Spotted Eagle-Owl (<i>Bubo africanus</i>)	a
40	Alpine Swift (<i>Tachymarptis melba</i>)	a
41	Southern Red-billed Hornbill (<i>Tockus rufirostris</i>)	d
42	White-necked Raven (<i>Corvus albicollis</i>)	b, d
43	Red-winged Starling (<i>Onychognathus morio</i>)	a

Verreaux's Eagles may feed on carrion and they may kleptoparasitise other raptors, and while we have tried to exclude such records from this table, the remains found at nests may include animals that were scavenged as well as those that were killed (Steyn 1982). References: a = Armstrong and Avery (2014), b = Boshoff *et al.* (1991), c = Brown *et al.* (1982), d = Chiweshe (2007), e = Davies (1999), f = Scholte (2010), g = Steyn (1982), h = Baker (2013), i = Gargett (1990), j = Mundy *et al.* (1986), and k = *this study*. We used the most current common and binomial names according to the IUCN Red List of Threatened Species (IUCN 2017) for mammals and reptiles, and the IOC World Bird List, version 7.3 (Gill and Donsker 2017) for birds.

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