

Report 2020 of the ‘Vulture Conservation Project’ of the NABU International Foundation for Nature in Côte d’Ivoire

Comoé National Park – increasing threats in a key site for the conservation of critically endangered vultures in West Africa.



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Title page, large: nest of a White-backed Vulture in a Kapok tree; small, left to right:
White-backed Vulture, Hooded Vulture, White-headed Vulture.

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Contents

- Summary 1**
- 1 Introduction..... 2**
- 2 Methods..... 3**
 - 2.1 Vulture-search-tracks 3
 - 2.2 Capture attempts 5
- 3 Results..... 6**
 - 3.1 Search for vultures 6
 - 3.2 Vulture nests 7
 - 3.3 Capture attempts..... 11
- 4 Discussion 11**
- 5 Perspective 13**
- 6 Acknowledgements 15**
- 7 References 16**

Summary

Vulture populations have been declining throughout Africa in recent decades, and especially in West Africa vultures are now mostly restricted to protected areas such as Comoé National Park (CNP) in north-eastern Côte d'Ivoire. In 2017 the NABU International Foundation for Nature started a vulture conservation project in the park with the aims to:

- (1) assess the state of the species of vulture in the park; and
- (2) to study their movement ecology to assess the size of a reserve needed to host viable vulture populations.

The final goal of the project is to raise awareness of the importance of CNP for the conservation of critically endangered vulture species in West Africa, and to provide arguments for the implementation of a "Vulture Safe Zone" within the park and the surrounding areas according to the concept outlined in the recent Multi-species Action Plan to Conserve African-Eurasian Vultures.

In December 2019 and January/February 2020, 364 km were walked in the south-west of the park in search for vultures. In total there were 44

observations of White-backed Vultures *Gyps africanus*, eight observations of White-headed Vultures *Trigonoceps occipitalis* and seven observations of a Hooded Vulture *Necrosyrtes monachus*. These three species are listed as 'Critically Endangered' by the IUCN. Twenty-four active nests of White-backed Vulture, two nests of White-headed Vulture and three nests of Hooded Vulture were found.

The results indicate the important role that CNP plays as a refuge for vultures in West Africa. There are, however, indications that numbers of vultures have decreased in the study areas in recent years and that this is paralleled by an increase of poaching.

The project will be continued to monitor abundance, distribution and breeding success of the vulture species in the park. Additionally, a project to study the role of vultures in society is planned to assess the threats that vultures face outside the park, to evaluate the potential for awareness campaigns, and to guide further conservation actions in the surrounding area.

1 Introduction

Comoé National Park (hereafter CNP) is, at about 11,500 km², one of the largest national parks in West Africa. It is situated in north-eastern Côte d'Ivoire between about 8.33°N and 9.50°N and about 3.25°W and 4.50°W. Especially in the south-west, the park consists of a savannah-forest mosaic with gallery forest along the main rivers (Comoé, Iringou, Kongo) (Fig. 1). Alluvial plains, characterised by the lack of trees and bushes, are often found alongside the gallery forest of the Comoé River (Porembski 1991).

CNP hosts five species of vultures: Palm-nut Vulture *Gypohierax angolensis* (frequent), Hooded Vulture *Necrosyrtes monachus* (frequent), White-backed Vulture *Gyps africanus* (common), Lappet-faced Vulture *Torgos tracheliotus* (uncommon) and White-headed Vulture *Trigonoceps occipitalis* (frequent) (Salewski 2000).

Between 1994 and 2000, the author spent in total about 24 months in CNP, mostly in the south-west, with regular visits to the north-west in 1998/99. The author revisited the south-west again for two visits of about two weeks each in January/February 2015 and 2016. During the recent visits it was apparent that large

antelopes (roan antelope *Hippotragus equinus*, hartebeest *Alcelaphus buselaphus*) were more frequent in the south-west compared to the 1990s and that the numbers of vultures (mainly White-backed Vultures, but also Palm-nut Vultures, Hooded Vultures and White-headed Vultures) were surprisingly high. Further, a high proportion of immature birds indicated good breeding success in recent years. These observations ran counter to the trend described for Africa in general and West Africa in particular (Thiollay 2006, Ogada et al. 2016) and led to the initiation of the Vulture Conservation Project of the NABU International Foundation for Nature (hereafter NABU).

With respect to CNP in Côte d'Ivoire the aims of the project are:

1. To recognize the importance of CNP for the conservation of critically endangered vulture species in West Africa, and to collect data to argue for the implementation of CNP as a 'Vulture Safe Zone' – a concept outlined in Botha et al. (2017).
2. To study movements of different age cohorts of several species of vultures to investigate the potential of CNP to host large viable vulture populations.

These aims are to be implemented by:

- an intensive search for vultures and vulture nests to assess the occurrence, density and the status of the different species in the park; and
- the fitting of White-headed Vultures and White-backed Vultures with GPS-tags to investigate their movement ecology especially with respect to questions about their home range and use of areas outside the park.

After a first project-related visit to CNP in January/February 2017 (Salewski 2017), field work was continued in 2018, 2019 and 2020. The aim of this report is to present the results of field work in CNP from late December 2019 to early February 2020 in which the focus was on continuing to monitor vulture nests.

2 Methods

2.1 Vulture-search-tracks

The base of the field work was the Ecological Research Station of the University of Würzburg, Germany, which is situated in the south-west of CNP at the eastern bank of the Comoé River (8.76969°N, 3.78933°W; Fig. 1). Between 30 December 2019 and 2 February 2020 vulture-search-tracks were walked on 25 days during which about 364 km were

covered (Fig. 1). The tracks either started at the research station or after driving to the starting point with a car. On three occasions, camping trips lasted for three to four days with the bases about 8, 23 and 26 km north of the research station.

On vulture-search-tracks all raptors observed within a distance of about 500 m were identified with the aid of binoculars (Leica 10×42) and the positions of the observer recorded with a GPS (Garmin GPSmap 62s). This does not, however, include the dozens of Yellow-billed Kites *Milvus migrans parasitus*, Black Kites *M. m. migrans* and Grasshopper Buzzards *Butastur rufipennis* attracted by bush-fires. In CNP, vultures breed almost exclusively in Kapok trees *Ceiba pentandra* (Fig. 2; Salewski 2017) in forests. Therefore, the search was concentrated on gallery forests and forest islands that are scattered in the bush-tree-savannah. When a nest of a vulture was found, species and the coordinates were recorded. With the exception of one remote forest island, all nest sites discovered between 2017 and 2019 were revisited in 2020, but the search-tracks in 2020 were only partially similar to the ones in the previous years. After completing field work, all data were

incorporated into a GIS (ArcMap 10.4.1). More detailed data are available from the author upon request.

White-backed Vultures tend to nest in clusters (Mundy et al. 1992) and previous observations indicated that this is also the case in CNP (Salewski 2017). A cluster was initially defined as a group of nests in which the most distant nests were less

than 1000 m from another. In one group of nests, however, the most distant nest was 1017 m away, but this group was still defined as being a ‘cluster’ (Salewski in prep.). In January/February 2020 all ‘clusters’ known from previous years were revisited to compare the numbers of nests.

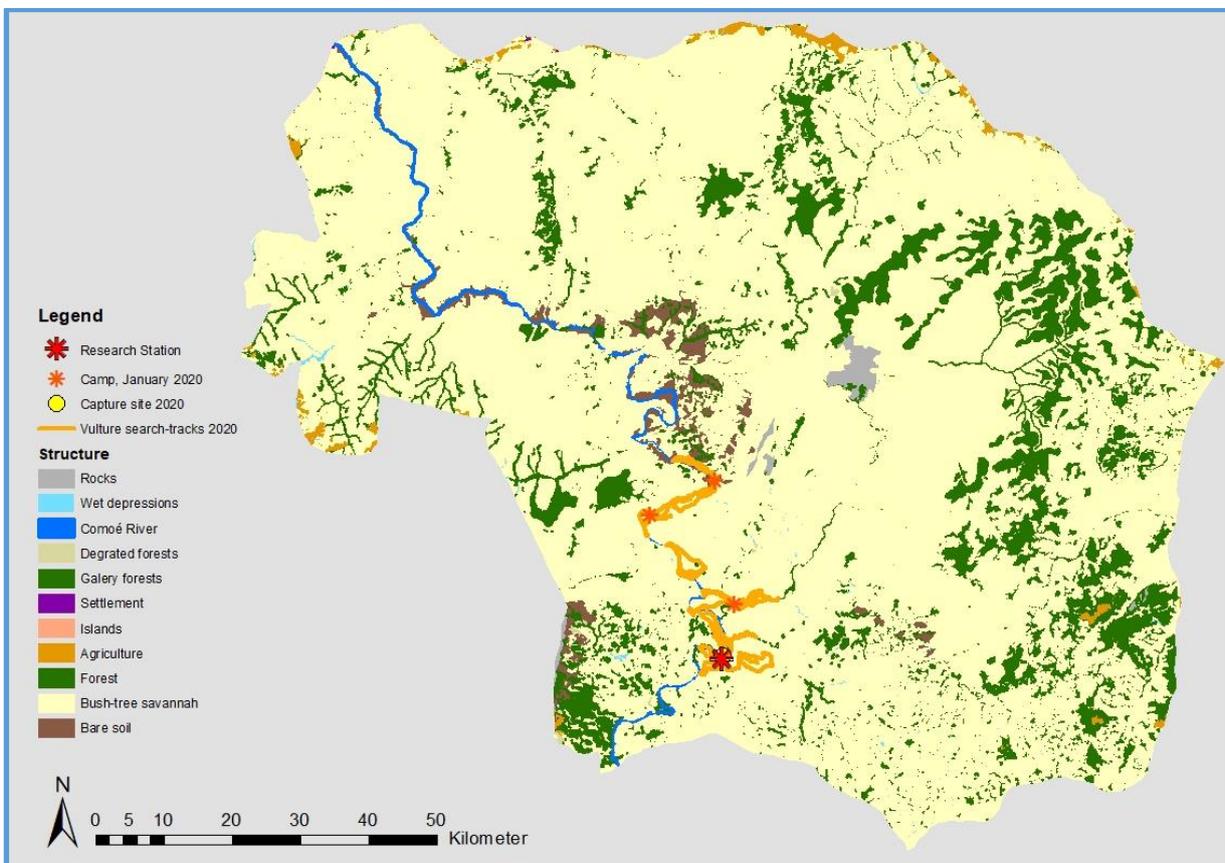


Fig. 1: Vulture-search-tracks in CNP, Côte d'Ivoire, walked in December 2019 and in January/February 2020.



Fig. 2: White-backed Vulture nest in a Kapok tree. CNP, 13 January 2020.

2.2 Capture attempts

In contrast to previous years, there were no systematic attempts to capture vultures and no GPS-tags were available. In the evening of the 26th January, a dead Waterbuck *Kobus ellipsiprymnus* was

discovered at the edge of the Comoé River 300 m from the research station. A bownet (Fig. 3) was installed next to the cadaver on the same evening and capture attempts took place on the next two days.



Fig. 3: Bownet next to a dead Waterbuck, 26 January 2020.

3 Results

3.1 Search for vultures

On the vulture-search-tracks individuals of three species of vultures (excluding Palm-nut Vulture) and 16 species of other raptors (including Palm-nut Vulture) were encountered (Fig. 4). There was no clear pattern in the distribution of vultures as in the previous years (Salewski 2017, 2018). This was attributed to the fact that hardly any search-tracks were performed south of the research station where few or no vultures were observed in previous years. Vultures and other raptors were more

frequently observed in the southern and northern parts of the area covered by the tracks and less in the central parts.

In general, there were fewer observations of vultures compared to previous years and especially between the research station and the Kongo River observations were scarce when compared with the numbers of observations in previous years (e.g. Salewski 2019). White-backed Vultures were encountered most frequently and on 44 occasions (Fig. 4). Between one to nine individuals were observed per

encounter. The latter was in a tree with four active nests. Not included is an aggregation at a carcass of a Waterbuck (Fig. 3). For the first time since 2015, there was no aggregation of vultures near the mouth of the Kongo River into the Comoé River at a site where the birds used to bathe and drink in a mostly dry riverbed (Salewski 2019).

White-headed Vultures were observed on eight occasions only. These were at active nests and on a few occasions along the Comoé River (Fig. 4). White-headed Vultures were seen as single individuals only. Hooded Vultures were seen on seven occasions near active nests and along the Comoé River (Fig. 4).

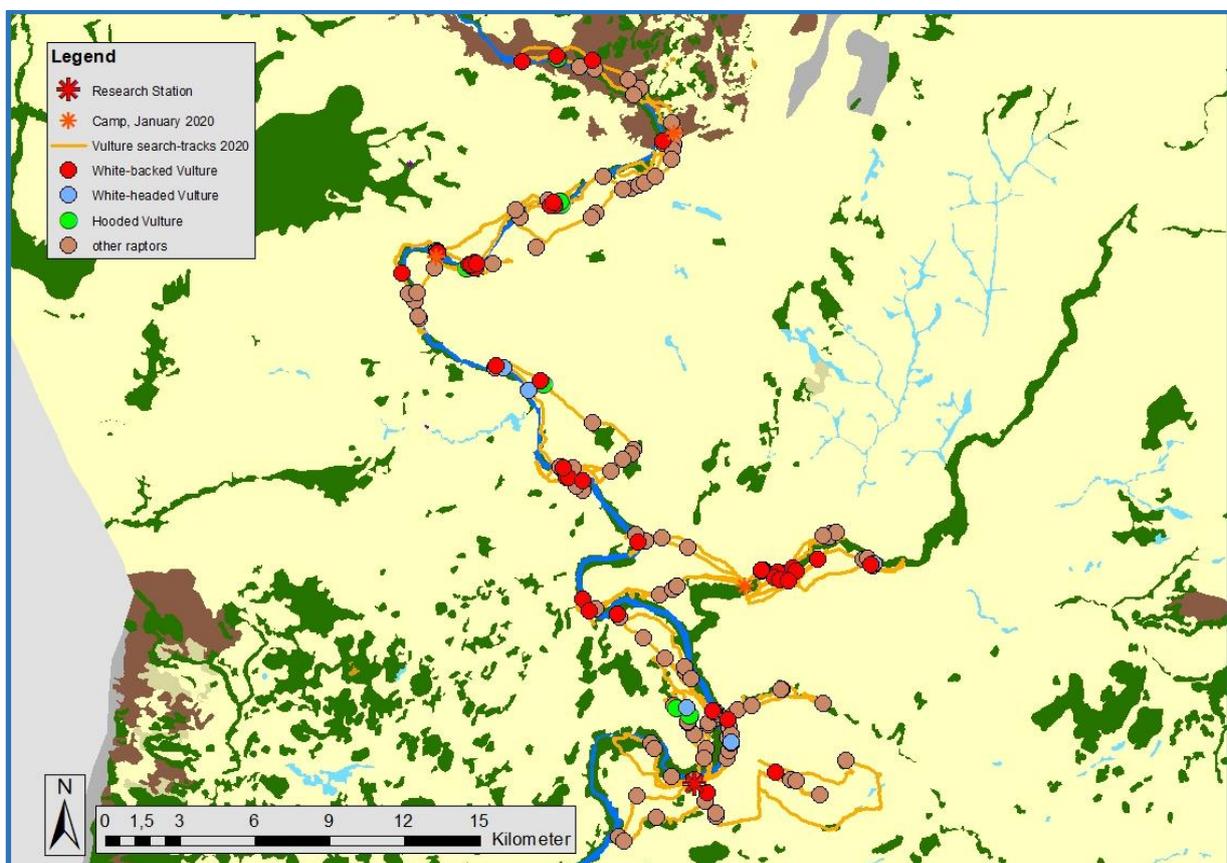


Fig. 4: Observations in Comoé National Park, Côte d'Ivoire, December 2019 – February 2020. Shown are the observations of White-backed Vultures, White-headed Vultures, Hooded Vultures and other raptors including Palm-nut Vultures as well as the vulture search tracks walked in 2019/20.

3.2 Vulture nests

In total 29 nests of three species of vultures were found in 2020 along the vulture-search-tracks (Tab. 1). Twenty-eight nests were situated in Kapok trees,

but for the first time since 2017, a nest was discovered in another tree species, a Hooded Vulture in an African Birch *Anogeissus leiocarpus* (Fig. 5).

Nests of White-backed Vultures (Fig. 6A) were most frequent; 24 nests were discovered. These were exclusively in the gallery forest of the Comoé and Iringou Rivers. There was mostly only one nest per tree, but one tree contained four active nests. In 2018, active nests of African Fish eagle *Haliaeetus vocifer* and of Woolly-necked Stork *Ciconia episcopus* were found on one occasion each in the same tree as an active nest of White-backed Vultures (Salewski 2018). Both trees were visited in 2020 again, but although the eagles and the storks were still breeding in the respective trees, no vulture nests were found.

Between 2017 and 2019, 39 nests (plus three discovered by J. Lapuente but not visited in 2020) of White-backed Vultures were discovered. In 2020, 15 of these nests were still active and ten additional nests were discovered in their vicinity. One nest of the latter was rather hidden and may have been overlooked in previous years. Some of the breeding pairs may have changed the nest location between 2017 and 2019, but there is nevertheless a hint that the number of occupied nests is decreasing.

An analysis of the search data for 2018 with additions from 2019 revealed eight such clusters with two to seven nests each and five additional single nests. These clusters and four of the five nests were revisited in 2020. The total numbers of nests have declined from 31 in 2018/19 (excluding the single nest not revisited) to 24 in 2020 (Tab. 2) indicating an overall decline.



Fig. 5: Nest of a Hooded Vulture (red arrow) in an African Birch *Anogeissus leiocarpus*. CNP, 22 January 2020.

Tab. 1: Nests of White-backed Vultures found in CNP between 2017 and 2020. 1: nest occupied, 0: nest not occupied/not present, -: site not visited.

Nest number	2017	2018	2019	2020
1	1	0	1	1
2	1	0	0	0
3	1	1	-	1
4	1	1	0	0
5	1	1	-	0
6	1	0	0	0
7	1	1	1	0
8	1	0	0	0
9	1	1	0	0
10	1	1	1	1
11	1	1	1	1
12	1	1	1	0
13	0	1	1	1
14	0	1	1	0
15	0	1	1	1
16	-	1	1	1
17	-	1	-	0
18	-	1	-	1
19	-	1	-	0
20	-	1	0	0
21	0	1	-	1
22	-	1	-	0
23	-	1	-	0
24	-	1	-	0
25	-	1	-	0
26	-	1	-	1
27	-	1	-	0
28	-	1	-	-
29	-	1	-	-
30	-	1	1	-
31	-	1	1	0
32	-	-	1	1
33	-	-	1	1
34	0	0	1	1
35	0	0	1	0
36	0	0	1	0
37	-	-	1	1
38	0	0	1	0
39	0	-	1	0
40	0	-	1	0
41	-	-	1	0
42	0	0	0	1
43	0	0	0	1
44	0	0	0	1
45	-	-	1	1
46	-	-	-	1
47	-	-	0	1
48	-	-	0	1
49	0	0	0	1
50	-	0	-	1
51	-	0	-	1
52	-	0	-	1

Tab. 2: Nests of White-backed Vultures by clusters.

Cluster*	2018/19	2020
1	7	9
2	3	0
3	2	2
4	3	1
5	5	3
6	2	5
7	2	1
8	3	1
Single nests	4**	2
Sum	31	24

* see Salewski (in prep) for details.

** excluding one nest in a tree not visited in 2020.

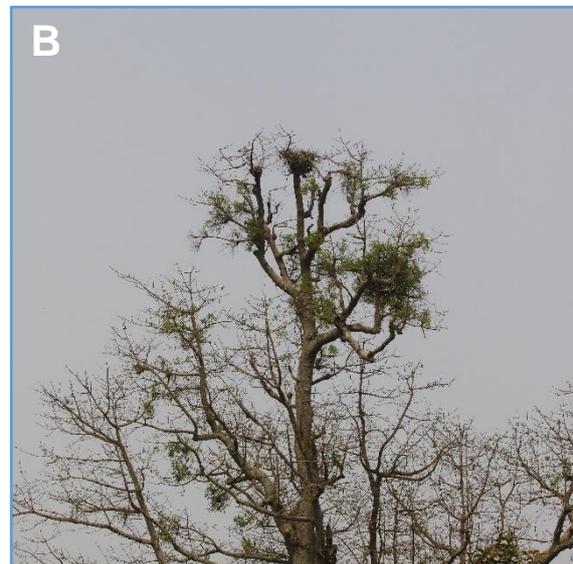


Fig. 6: Nests of White-backed Vulture (A), White-headed Vulture (B) and Hooded Vulture (C) in CNP in 2020.

An active nest of White-headed Vulture (Fig. 6B) was recorded in a forest island and in gallery forest, respectively in 2020. The nest in the forest island was new but next to a tree that hosted a nest from 2017 to 2019. The nest in gallery forest was already discovered in the previous season. Three nests of Hooded Vultures found in 2020 (Fig. 6C) were not previously known. One of these was in a forest island and two in the gallery forest of the Comoé River. Two nest sites discovered in 2017 and 2018, respectively, were revisited but were not occupied. Another site in a forest island where there was an active nest in 2018 and 2019 was not visited in 2020.

3.3 Capture attempts

After a bownet had been set up near the carcass of a waterbuck, an immature White-headed Vulture was captured within a few hours (Fig. 7). The bird was ringed and released. At least 15 White-backed Vultures and at least two Hooded Vultures had been foraging on the carcass before the capture, but the carcass was not approached by any vulture during this and the next day after the capture.



Fig. 7: Ringed White-headed Vulture in a bownet. Comoé NP, 27 January 2020.

4 Discussion

CNP is one of the key areas for vulture conservation in West African savannah biomes, as shown by the number of records in recent years of White-backed Vultures (52 nests), White-headed Vultures (3 nests) and Hooded Vulture (6 nests). There are, however, signs that vulture numbers have decreased in recent years.

Vulture populations have experienced rapid declines across Africa in recent decades (Ogada et al. 2016) and several species are now listed as Critically Endangered (IUCN 2016). In West Africa, vulture populations collapsed between 1969-1973 and 2003-2004 and species such as White-headed Vulture and White-backed Vulture are now virtually extinct

over large regions and almost exclusively restricted to protected areas (Thiollay 2006). For the whole of West Africa, Murn et al. (2016) estimated that there are only about 150 nests of White-headed Vulture. Therefore, reserves such as CNP are of utmost importance for the conservation of these species. However, compared to the mid-1990s at least, White-backed Vultures are apparently less abundant in the southern parts of the park covered by our surveys (Salewski 2019).

A number of threats are responsible for the decline of African vulture populations (Ogada et al. 2016, Botha et al. 2017). These include intentional and unintentional poisoning, habitat destruction and fragmentation, decline of food availability as well as electrocution on and collision with power infrastructure.

Many of these threats are not relevant to vultures within the border of CNP. There is no traffic or power infrastructure within the park. There is no logging and therefore a high availability of suitable nesting trees. Food availability appears to be sufficient and the difficulty of attracting vultures to baits (Salewski 2018, 2019) may indicate that there is no lack of carcasses. Further, the high frequency of immature birds including assemblages of up to 47 individuals (Salewski 2019) indicate relatively good breeding success

in recent years which would not have been possible without sufficient habitat and food availability.

In West Africa intentional poisoning for belief-based use is highlighted as the main threat for vultures (Botha et al. 2017) as a number of species are traded in markets on a large scale (Buij et al. 2016).

Poaching was widespread in the park in the 1990s (Fischer & Linsenmair 2001, pers. obs.) and in the 2000s (Henschel et al. 2010), but there were much fewer signs of poaching between 2015 and 2018 (pers. obs.). Speculatively, low rates of poaching activities may have been linked to the outbreak of Ebola in neighbouring countries and the resultant ban on bush-meat in Côte d'Ivoire in 2012. This probably led to a collapse of the trade and decrease in poaching pressure on vultures. The bush-meat ban was lifted in 2016 and bush meat is again available, e.g. in the market in Bouaké (pers. obs.), the second largest town in the country.

An increase in signs of poaching was observed in 2018 and 2019 (Salewski 2019). In 2020, the frequency of these observations was greater again: fishing nets were seen in the Comoé River, recently used camps were found on several occasions, twice a boat with two

people in it was encountered (Fig. 8), and once four boats with nine people travelling together were observed on the Comoé River. Additionally, a freshly shot bushbuck was found, and one night a shot was fired in the immediate vicinity of the research station. To collect more systematic data about poachers travelling on the Comoé River, a camera was placed next to a narrow stretch of the river near the research station. The camera was operating for eleven nights. It recorded boat traffic heading both up- and down-stream on six nights, with a total of 12 boats and at least 35 different persons involved.



Fig. 8: Illegal fishermen in CNP, 8 January 2020.

Linked to belief-based use, vultures are much valued on West African markets (Nikolaus 2011, Buij et al. 2016). This is likely to be the main threat to vultures within CNP. The increase in poaching

activities within the park in recent years may therefore represent an increase in poaching of vultures too. This could explain the observed declines.

The raptor species most frequently observed in previous years were the Bateleur *Terathopius ecaudatus* (resident), and Grasshopper Buzzard *Butastur rufipennis* (migrant from the Sahel). The frequency of observations of these species has also declined substantially in 2020 (pers. obs.). Research is needed to investigate whether the apparent decrease is real and due to poaching, or only temporary and linked to odd weather conditions in early 2020. After prolonged heavy rains in November 2019, the dry season started late. In early 2020 the savannah was unusually moist with mostly green grass in January, water in many places in the savannah, and bush fires were late and infrequent (unpubl. data, pers. obs.).

5 Perspective

NABU plans to continue its project in the future. With respect to the work in CNP, this could be problematic due to the recent violence in the region (<https://www.france24.com/en/20200611-ivory-coast-soldiers-killed-in-attack-at-border-post-near-burkina-faso>) that has

led to a temporary closure of the scientific research station to non-Ivorian visitors.

When possible, monitoring of vultures and their nests will be continued. This is in accordance with the suite of essential actions supporting vulture conservation in the Multi-species Action Plan to Conserve African-Eurasian Vultures (Botha et al. 2017). The aims of this monitoring in CNP should be to obtain reliable data on population sizes and distribution of vulture species in order to identify trends in these parameters.

Issues that should especially be addressed are:

- how far White-backed Vultures breed from gallery forest;
- how widespread the White-headed Vulture is in the park; and
- whether the observed decreasing gradient in vulture observations towards the south of the study area is a latitudinal gradient or indicative that vultures become rarer towards the edges of the park (reflecting increasing threats closer to inhabited regions).

The programme will also consider studying movement ecology of the vultures in the park using GPS tags although attempts to capture vultures have failed so far. Scant success

capturing vultures suggests that different methods are needed to capture and tag them.

In cooperation with the University of Nangui Abrogoua, Abidjan, a project is planned to monitor breeding success of vulture species in the park to shed light on their population dynamics. A second project will address the importance that vultures have in society in order to understand the background to threats. This will include a survey of vultures in markets and interviews with people dealing with, using, or hunting them. As a preliminary step, A. Asso and the author visited market stalls in Abidjan in February 2020 (Fig. 9). No vultures parts were discovered but a stall owner offered to take an order for them.

The goal of the project is to establish CNP as a zone in which vulture populations thrive and reproduce, and from which vultures can spread. A necessary precursor to spread will be the establishment of awareness and education programmes about the role of vultures in the conservation of biodiversity and the ecosystem services they provide. These programmes will aim to transform large areas outside protected areas into a 'vulture-friendly-landscape' in which people and vultures live together without conflict, the "Vulture Safe Zones" of Botha

et al. (2017). The creation of a Vulture Safe Zone in and around CNP is the final goal of the NABU's vulture project in Côte d'Ivoire.



Fig. 9: The author at a stall selling items for use in traditional medicine. Abidjan, 7 February 2020. Photo: A. Asso.

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