

Recent records of vulture nests in Malawi's Southern Region.

Olivia Sievert^{1*}, John Adendorff², Shaibu Kadewere^{3,4}, Craig Reid² and André Botha⁵

¹Lilongwe Wildlife Trust, Lilongwe, Malawi

²African Parks, Bryanston, South Africa

³Department of National Parks and Wildlife, Malawi

⁴Natural Resources Collage, Lilongwe University of Agriculture and Natural Resources, Lilongwe, Malawi

⁵Endangered Wildlife Trust, Glen Austin, Midrand, South Africa

*Corresponding author: olivia.sievert@gmail.com

<http://dx.doi.org/10.4314/vulnew.v8i1i.1>

Vulture populations across Africa have experienced large declines due to habitat conversion, poisoning, loss of food resources, and interaction with energy infrastructure (Botha *et al.* 2017). Currently, four of Africa's 11 vulture species are listed as Critically Endangered (IUCN 2021). In Malawi, the extent of vulture declines is unknown due to a lack of historical information. However, four vulture species (White-backed Vulture *Gyps africanus*, Hooded Vulture *Necrosyrtes monachus*, Lappet-faced Vulture *Torgos tracheliotus* and, White-headed Vulture *Trigonoceps occipitalis*) were reported as extirpated from several protected areas in the 1990s due to intentional poisoning by poachers and a reduction in food availability following the decline in wild ungulate populations (Roxburgh & McDougall 2012).

In the last 4 years, Liwonde National Park saw a recurrence of these four vulture species following an increase in law enforcement and the reintroduction of Cheetah (*Acinonyx jubatus*) and Lion (*Panthera leo*) (Sievert *et al.* 2018). Nevertheless, reporting rates for all vulture species in Malawi remain low (Roxburgh & McDougall 2012, Galanou 2016, Sievert *et al.* 2018, Sievert *et al.* 2020), especially regarding breeding sites for the four species listed as breeding residents: White-backed Vulture, Hooded Vulture, Lappet-faced Vulture and White-headed Vulture (Botha *et al.*

2017). Consequently, Malawi represents a considerable knowledge gap for southern and East African vulture populations in the Convention on the Conservation of Migratory Species' Vulture Multi-Species Action Plan (Botha *et al.* 2017).

Malawi is a relatively small (118,484 km²) landlocked country with a high human population density (186 persons/km²; National Statistics Office 2019). While 22% of land area is protected, few protected areas have buffer zones, and a large proportion of the population is dependent on protected areas for resources (Munthali 1993). As such, Malawi is experiencing some of the highest rates of deforestation and environmental degradation in Africa (Stevens & Madani 2016). In 2004 it was reported that 20% of gazetted Forest Reserve habitat had been lost to human encroachment (Malawi Government 2010). Therefore, it is critical that vulture breeding sites are identified and subsequently monitored to inform and direct conservation action.

In 2020 and 2021 through discussions with rangers, guides and park managers, Lilongwe Wildlife Trust began to opportunistically identify and collate reports of vulture nests in three foraging sites in Malawi's Southern Region (Figure 1), the findings of which are reported below. Coordinates of nests are not provided due to the protected status of these species.

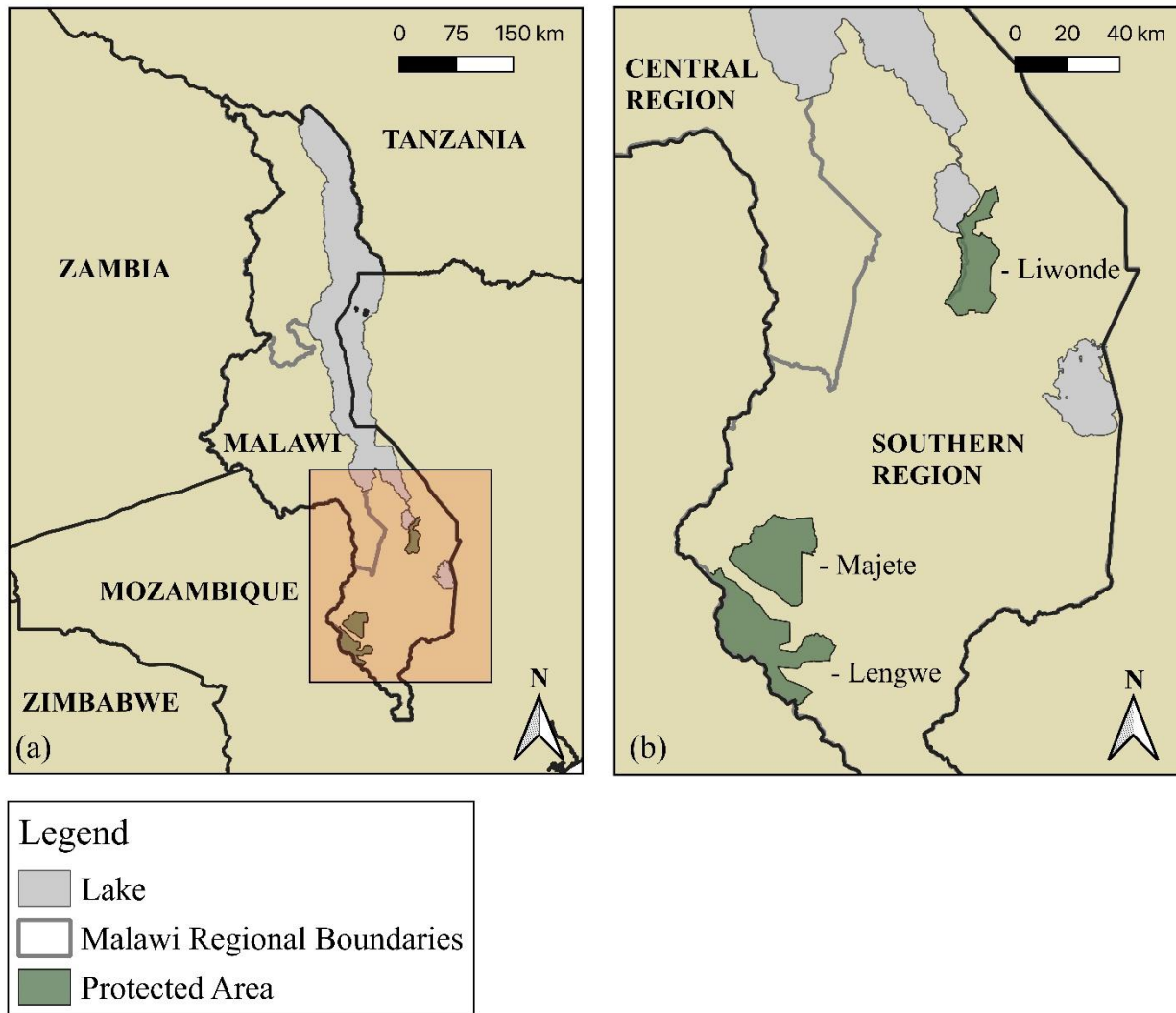


Figure 1: Map of (a) Malawi depicting the regional boundaries and the locations of (b) Liwonde National Park, Lengwe National Park and Majete Wildlife Reserve (UNEP-WCMC 2021).

Liwonde National Park (548km²; 14°50'31.5"S, 35°20'59.9"E):

Three White-backed Vulture nests were identified opportunistically by park management during aerial work in 2020 from both an Aeroprakt A-22 Foxbat and Bell 206 Jet-Ranger. The first nest was recorded on 13 May 2020 and by 26 July 2020 an additional two nests were identified. All three nests were in *Borassus Palms Borassus aethiopum*. Unfortunately, due to financial constraints and the remote location of each nest, consistent monitoring

was not possible, and so breeding success was not determined. However, the nest identified on 13 May 2020 was found to contain a chick on 26 July 2020. Based on photographs of the chick it was estimated to be 30-35 days old due to its size and the absence of feather quills (Figure 2).

Lengwe National Park (887km²; 16°17'02.6"S, 34°44'38.7"E):

Since the reporting of a White-backed Vulture nest in 2012 (WESM 2012), there have been no public

records of vulture nests in Lengwe National Park despite intermittent vulture monitoring by the Wildlife and Environmental Society of Malawi. However, in 2021, three White-backed Vulture nests were located during ranger patrols. Two nests

were reported as active on 11 May 2021 and the third on 22 May 2021. All three nests were located in Baobabs *Adansonia digitata* and had at least one adult present when recorded. (Figure 3).



Figure 2: White-backed Vulture nest with chick (estimated 30-35 days old) in Liwonde National Park, July 2020. Photograph: CR.

Majete Wildlife Reserve (700km²; 15°51'10.0"S, 34°42'20.7"E):

Four White-headed Vulture nests were recorded on 6 and 7 October 2020 during the bi-annual aerial wildlife survey. All four nests were located in Baobabs and had at least one adult present when first observed. Due to the remote location of the nests, and minimal aerial support, consistent monitoring was not possible. However, initial observations in October confirmed one chick had hatched and survived until at least 3 months of age (Figure 4). On 13 December 2020 aerial photographs of empty nests were taken, and it was observed that one had a large amount of whitewash, suggesting it was active for a prolonged period.

However, no successful fledging of chicks could be confirmed.

Recommendations

Identifying vulture breeding sites is essential for species monitoring and to inform conservation management of Malawi's recovering vulture populations. Here, two White-backed Vulture and one White-headed Vulture breeding sites were identified. To our knowledge, this is the first published account of White-headed Vultures breeding in Malawi's Southern Region since the 1990s.

Given the high levels of deforestation in Malawi, it is critical that these areas are effectively protected

to ensure breeding trees remain available and disturbance is minimised. This protection of nesting areas is especially important during the breeding season, which appears to begin in April. The threat of deforestation is particularly prevalent

in Lengwe National Park. In 2017 Lengwe National Park was the location of Malawi's largest illegal logging case where approximately 2.3% (20km²) of the park was deforested in one year (Lilongwe Wildlife Trust 2017).



Figure 3: Adult White-backed Vulture leaving a nest in Lengwe National Park, May 2021. Photograph: SK.



Figure 4: One adult female White-headed Vulture and a chick (estimated 90 days old) at a nest in Majete Wildlife Reserve, October 2020. Photograph: JA.

In 2021 satellite-tracked and wing-tagged White-backed Vultures revealed connectivity between these three protected areas with multiple movements between the parks and neighbouring countries recorded (OS, unpublished data.). The wide-ranging behaviour of many African vulture species exposes them to a wide range of threats and the gregarious feeding behaviour of the White-backed Vulture renders them particularly susceptible to poisoning (Murn & Botha 2018). Consequently, in-country and inter-country collaboration between stakeholders and engagement with local communities is critical to mitigate the threat of poisoning to these small breeding populations. We recommend that rangers and park management from all three areas undertake Wildlife Poisoning Response Training and develop standard operating procedures for rapid, safe, and comprehensive response to poisoning incidents (Murn & Botha 2018).

Going forward it is recommended that searches for nesting sites are undertaken, in the form of aerial surveys in all three protected areas, for a full evaluation of the breeding population. Once breeding sites are identified, the continued monitoring of nests is required to determine breeding success.

In 2020 engagement with park staff and vulture tagging was also initiated in the Northern Region of Malawi. This work is focused in Nyika National Park where breeding age individuals of three species have been observed foraging (OS, pers. obs.), and so breeding activity may be possible. However, nests in the Northern Region have not yet been identified in the past two years, and so it is recommended that engagement and monitoring work continues to ensure breeding sites are found and properly conserved across Malawi.

Acknowledgements and ethics statement

Lilongwe Wildlife Trust's vulture research is conducted with the relevant clearances from Malawi's Department of National Parks and Wildlife (permit no. DNPW 8/8/51). Aerial work in Liwonde National Park and Majete Wildlife Reserve was conducted by African Parks who have the required authorizations and mandate to undertake these activities. Vulture nests in Lengwe National Park were identified by officials from Malawi's Department of National Parks and Wildlife and reported to the corresponding author.

References

- Botha, A.J., Andevski, J., Bowden, C.G.R., Gudka, M., Safford, R.J., Tavares, J. & Williams, N.P. 2017. Multi-species Action Plan to Conserve African-Eurasian Vultures. CMS Raptors MOU Technical Publication No.4. CMS Technical Series No.33. Coordinating Unit of the CMS Raptors MOU, Abu Dhabi, United Arab Emirates.
- Galanou, E. 2016. Vulture ecosystem services report: the case study of Nyika National Park. Nyika Vwaza Trust Research Report. Nyika Vwaza Trust. Malawi.
- IUCN. 2021. The IUCN Red List of Threatened Species. Version 2021-2. [<https://www.iucnredlist.org>]. Accessed 03/08/2021

- Lilongwe Wildlife Trust. 2017. Lengwe loggers put behind bars. www.lilongwewildlife.org. Lilongwe Wildlife Trust, Lilongwe, Malawi. [<https://www.lilongwewildlife.org/2017/05/04/illegal-lengwe-loggers-put-behind-bars>] Accessed 01/06/2021
- Malawi Government. 2010. Malawi state of environment and outlook report: Environment for sustainable economic growth. Technical Report. Environmental Affairs Department. Lilongwe, Malawi.
- Munthali, S.M. 1993. Traditional and modern wildlife conservation in Malawi – the need for an integrated approach. *Oryx* 27 (3): 185-187.
- Murn, C. & Botha, A. 2018. A clear and present danger: Impacts of poisoning on a vulture population and the effect of poison response activities. *Oryx* 52(3): 552-558.
- National Statistics Office. 2019. 2018 Malawi population and housing census. Main Report. Government of Malawi. Lilongwe, Malawi.
- Roxburgh, L. & McDougall, R. 2012. Vulture poisoning incidents and the status of vultures in Zambia and Malawi. *Vulture News* 64: 33-3.
- Sievert, O., Reid, C. & Botha, A. 2018. The re-emergence of African White-backed Vultures (*Gyps africanus*), White-headed Vultures (*Trigonoceps occipitalis*) and Lappet-faced Vultures (*Torgos tracheliotos*) in Liwonde National Park, Malawi. *Vulture News* 74: 12-19.
- Sievert, O., Reid, C. & Botha, A. 2020. First confirmed records of Rüppell's Vultures (*Gyps rueppellii*) in Malawi. *Vulture News* 78: 31-36.
- Stevens, T. & Madani, K. 2016. Future climate impacts on maize farming and food security in Malawi. *Scientific Reports* 6: e36241.
- UNEP-WCMC. 2021. Protected Area Profile for Malawi from the World Database of Protected Areas. [www.protectedplanet.net]. Accessed 02/08/2021.
- WESM. 2012. WESM Lilongwe Branch Newsletter, 2012 June. Wildlife and Environmental Society of Malawi. Lilongwe, Malawi.
