VulPro Monitoring Report 2019

Cape, African White-backed and Hooded Vulture Breeding Surveys

Kerri Wolter & Alexandra Howard
VulPro, Vulture Programme (www.vulpro.com)
kerri.wolter@gmail.com

Summary

A total of 2 402 active nests of Cape, African White-backed and Hooded Vultures were surveyed by VulPro throughout 2019 across twelve breeding sites of these endangered and critically endangered species.

VulPro monitors the majority of the northern node of the Cape Vulture population through annual breeding surveys of seven colonies of this endangered and endemic species. An increase in the number of breeding pairs was observed at three colonies while decreases were measured at four colonies in comparison to the 2018 census counts. All seven colonies had mid-season breeding success estimates of over 85% during 2019 based on the two monitoring surveys conducted at each colony. Another positive trend was found at the extinct Robert's Farm colony on the Magaliesberg mountains as vultures were observed returning to roost at the site after breeding ceased in 2012.

Annual tree nesting surveys of the critically endangered African White-backed Vultures and Hooded Vultures continued to be conducted on five sites with the addition of a new site at the Madikwe Farm in the North West Province of South Africa. Although an increase in the number of active nests was measured at four of the five tree-nesting clusters, the mid-season success rates were all estimated below 75% with the exception of the two nests at Curly Wee.

We continue to investigate the possible movements of breeding individuals between sites as the potential local extinction of the Moletjie Cape Vulture colony and the Curly Wee African White-backed Vulture cluster may be represented by the increase in the surrounding breeding sites.

Figure 1. Map of the African White-backed, Cape and Hooded Vulture breeding sites monitored by VulPro across southern Africa

Survey Overview and Methods

Cape Vulture colonies were visited two to three times with the first survey in May to June to record breeding pairs, the second visit from July to August for the total number of active nests and a third survey, when possible, from September to October to record the number of fledglings which estimates the year's breeding success. Breeding behaviours are observed from consistent locations using spotting scopes and following the monitoring protocol used since 2006 (for full protocol see Wolter et al. 2011). The table below lists the location details of each Cape Vulture colony surveyed in 2019.

African White-backed and Hooded Vulture surveys focused on five properties following standardized transects on foot in accordance with our "tree-nesting vulture survey protocol" (found at www.vulpro.com/publications/). Monitoring at these sites occurs directly below the nests or at an angled vantagepoint from the ground. Tree-nesting surveys were conducted on the properties listed in the table below.

Initial surveys were undertaken at the five existing sites during June and July, to determine the number of breeding pairs present with follow up surveys during September 2019 to determine the number of nests still active. The data gathered during the first and second surveys were compared in order to determine mid-season breeding success rates at each site.

Table 1. Summary details of the vulture nesting sites monitored by VulPro

Site	**Work**	**Province**	**Country**	**Land Ownership/use**	**Habitat**
Manutsa	Colony	Limpopo	South Africa	Private residential	Mountainous
Kransberg	Colony	Limpopo	South Africa	Protected government, Marakele National Park	Mountainous
Magliesberg (Skeerpoort, Nooitgedacht and Roberts Farm)	Colony	North West and Gauteng	South Africa	Private Biosphere Reserve	Highveld Afro-montane savanna
Moletjie	Colony	Limpopo	South Africa	Protected Limpopo provincial government	Mountainous
Mannyelong	Colony	Southern	Botswana	Protected game farm	Mountainous
Soutpansberg	Colony	Limpopo	South Africa	Community owned	Bushveld
Curly Wee	Tree- nesting	North West	South Africa	Private pig farm	Savannah
Olifants River Private Game Reserve (ORPGR)	Tree-nesting/capture site	Limpopo	South Africa	Protected private reserves	Savannah

Omega Farm	Tree-nesting/capture site	North West	South Africa	Private Game Reserve	Savannah
Boikarabelo	Tree- nesting	Limpopo	South Africa	Private Mining	Riparian Savannah
Khaya Ndlovu	Tree- nesting	Limpopo	South Africa	Private share- holder block	Savannah

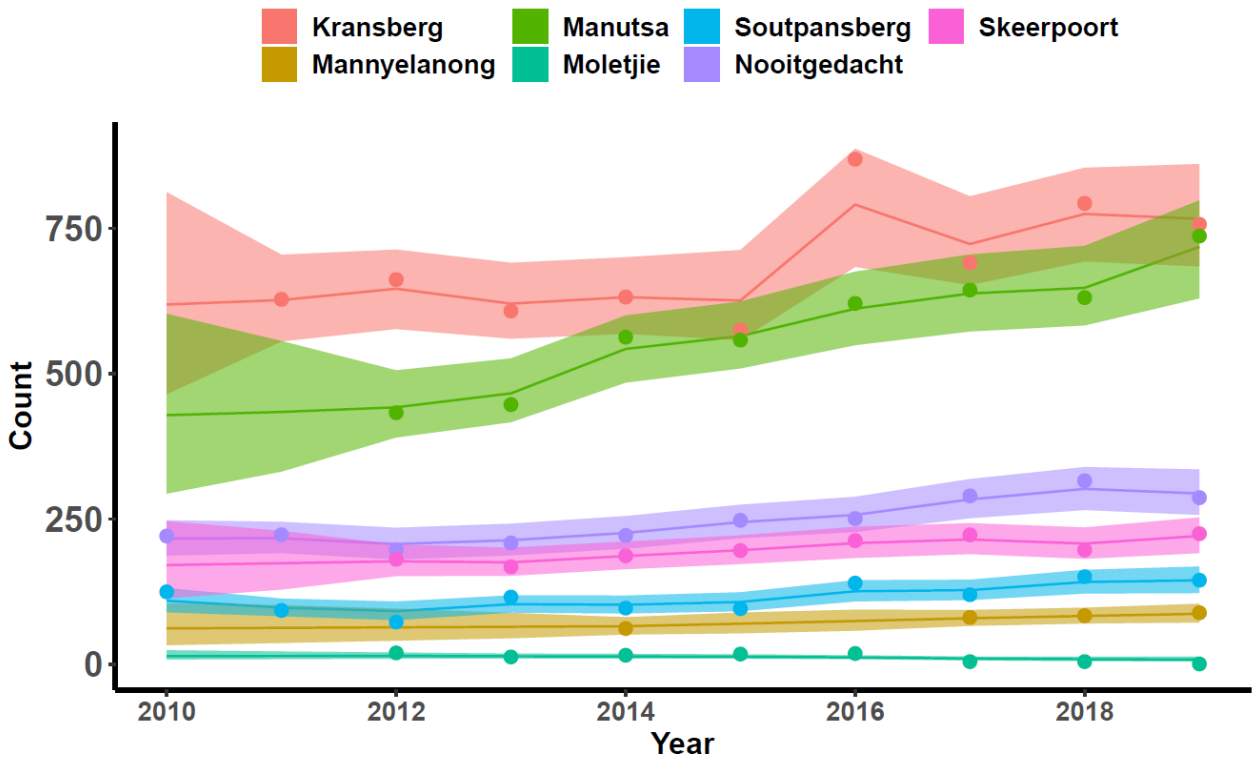
VulPro deduces the total number of breeding attempts and the percentage of (un)successful attempts using the following descriptions of behavior:

- Brooding: an adult is seen on the nest in a guarding or shading posture denoting the presence of a chick
- Chick: a chick/nestling is seen; a pair or individual bird is seen feeding a chick but the chick is not actually seen or a pair or individual bird behaves in a manner indicative to there being a chick present
- Copulation: a pair is seen mounting and/or copulating at a nest
- Fledgling: a large chick/nestling is seen, or when a fledgling is seen
- Hidden: there appears to be breeding behavior at a ledge or crevice but the observer cannot accurately see to record the data
- Incubation: an individual bird is laying in a manner indicative of incubation behavior which is different from a sleeping posture
- Tenanted: a pair or individual bird is present at a nest where, based on the behavior of either the pair or the individual bird, breeding is suspected
- Working: an individual bird or pair is actively building a nest on a ledge

Cape Vulture Breeding Surveys

All seven of the Cape Vulture populations monitored by VulPro had mid-season breeding success estimates over 85% based on the two monitoring surveys conducted at each colony. Skeerpoort and Nooitgedacht were the only colonies were a third survey was possible and their end-season estimates were 79% and 74% respectively but this is to be expected as the number of fledglings observed in the third survey is naturally lower than the number of breeding pairs observed in the first survey at the start of the breeding season.

Figure 2. Annual estimates of the number of breeding pairs at each Cape Vulture colony monitored by VulPro throughout South Africa and Botswana. Credit: CJW McClure. Publication in prep.



Only the Soutpansberg, Mannyelanong and the north-facing Manutsa colonies showed an increase in the number of breeding pairs in comparison to the 2018 census (Figure 2). A decrease in the number of active nests was detected at Kransberg, Moletjie, Nooitgedacht and Skeerpoort in 2019.

Unfortunately we predict the loss of a Cape Vulture colony in the Limpopo Province. Due to the high frequency of human disturbance at the Moletjie colony, we do not expect any breeding pairs to remain in 2020. The breeding success of the last remaining pair in 2019 is unknown but only one pair was observed during the two surveys in comparison to the seven active nests seen in 2018.

However this local extinction may be balanced by the re-establishment of the historic colony at Robert's Farm in the Magaliesberg which has been extinct since 2012. Movement patterns of tracked Cape Vultures and preliminary surveys indicated roosting of three to five individuals observed during October 2019. We will continue to monitor this site in 2020 in the hope of observing and facilitating the re-establishment of the third Magaliesberg colony.

Table 2. The 2019 Cape Vulture monitoring data recorded during each survey for each colony:

Colony	Breeding Pairs	Nestlings	Fledglings
Manutsa	Total pairs: 737 Tenanted – 44 Working – 25 Incubating – 652 Copulating – 1 Hidden –15	Total active nests: 739 Brooding - 638 Incubating – 3 Tenanted – 80 Copulating – 3 Working - 0	

		Hidden – 15	
Kransberg		Total active nests: 757 Brooding - 524 Incubating – 106 Tenanted – 101 Working – 10 Hidden – 16	Total active nests: 805 Fledgling - 166 Chick – 0 Brooding – 553 Incubating – 1 Tenanted – 83 Working – 0 Hidden – 2
Skeerpoort (Magaliesberg)	Total pairs: 287 Tenanted – 54 Working – 45 Incubating – 182 Copulating – 6 Hidden –0	Total active nests: 256 Chick – 4 Brooding - 184 Incubating – 58 Tenanted – 9 Copulating – 0 Hidden – 1	Total success: 227 Fledgling – 55 Chick– 24 Brooding – 127 Incubating – 5 Tenanted – 15 Hidden - 1
Nooitgedacht (Magaliesberg)	Total pairs: 145 Incubating –110 Tenanted –17 Working – 15 Copulating – 1 Hidden – 2	Total active nests: 129 Brooding - 102 Incubating – 20 Tenanted – 7 Hidden – 0	Total success: 108 Fledgling – 37 Chick – 6 Brooding – 56 Tenanted – 8 Hidden – 1
Soutpansberg	Total pairs: 225 Incubating – 193 Tenanted – 11 Working –15 Hidden – 3 Copulating – 3	Total active nests: 195 Incubating – 3 Brooding – 182 Tenanted – 8 Hidden - 2	
Moletjie	Total pairs: 1 Incubating – 1 Tenanted – 0 Working – 0 Hidden – 0	Total active nests: 1 Incubating – 1 Tenanted – 0 Brooding – 0	
Mannyelalong	Total pairs: 89 Incubating – 78 Tenanted – 10 Working – 2 Hidden – 0	Total active nests: 85 Chick – 16 Incubating – 6 Tenanted – 15 Brooding – 48	
TOTAL:	Total pairs: 2,241 ~50% of the global population**		

**Global population estimate of 4,400 breeding pairs taken from the Red Data Book of Birds of South Africa, Lesotho and Swaziland (Taylor et al. 2015).

The total number of breeding pairs estimated from the 2019 census at each site represents approximately 50% of the total global population of the endangered Cape Vulture. We continue to engage with landowners, stakeholders and the general public on the importance of protecting these breeding sites and mitigating threats in the surrounding landscapes.

During an innovative research collaboration with the Max Planck Institute of Animal Behaviour, we deployed 20 GPS tracking devices on Cape Vulture fledglings on their nests at the Skeerpoort

colony in October 2019 as the first long-range life history study of its kind in South Africa. These individuals have now fledged and their movements will be monitored closely.

African White-backed Vulture Surveys

An increase in the number of active African White-backed Vulture nests was measured at four of the five study sites during the first survey of 2019. The total number of active nests during the first survey was also higher than the 128 nests recorded in 2018, yet the second survey was lower at 115 nests in comparison to 130 in 2018.

Overall a concerning year as the average mid-season success rate estimated from all study sites in 2019 is substantially lower at 67.8% than the 86% estimated success rate in 2018. However this was largely attributed to the 121% success rate at one study site as more nests were found later in the season.

A new breeding site was identified on the Madikwe Farm in the North-West Province of South Africa and will be incorporated into our study sites in 2020 as the initial survey indicated 30 active African White-backed Vulture nests late in the breeding season.

Table 3. Survey results of the breeding success of African White-backed Vultures monitored at five study sites throughout northern South Africa in 2019

Location	Number of active nests (June/July 2019)	Number of active nests (Sept 2019)	Estimated mid-season success
Boikarabelo	39	21	53%
Khaya Ndlovu	29	13	45%
Omega Game Farm	30	22	73%
Curly Wee	2	2	100%
Olifants River PGR	40	27	68%
Madikwe	N/A	30	N/A
Total	131	115	

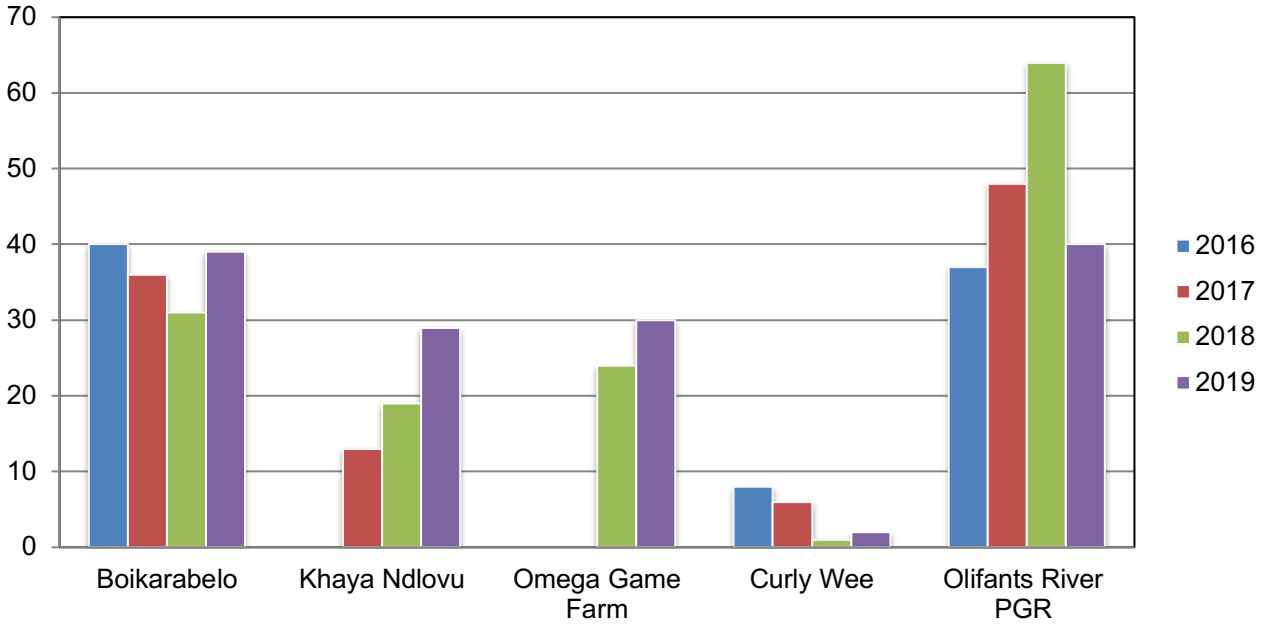
The Olifants River Private Game Reserve: During 2019, we witnessed a considerable decrease in the number of active nests between the first and second surveys with a concerning mid-season success estimate of 68%. However, this breeding success estimate further decreased as a third survey in October revealed only 14 active nests with an end-season success estimate of 35%. The reasons noted for the substantial decrease in breeding success has been attributed to natural causes as nest predation by leopards, pythons and baboons was observed. We suspect that a combination of factors such as decreased foliage and prey availability due to extended years of drought may of resulted in increased opportunistic and perhaps targeted predation by leopards at ORPGR.

Boikarabelo/Ledjadja Coal Mine: Unfortunately we have witnessed a continued decline at this site, both in the number of breeding pairs present as well as the mid-season success estimate at 53%. There has been a marked increase in poaching activities at Boikarabelo and thus VulPro submitted recommendations through which have yet to be implemented and feedback is still pending from the new management.

Curley Wee: The 2 remaining pairs were recorded breeding successfully during both surveys. Although an increase from the one pair observed in 2018, this site has still markedly decreased from the previous 2016-2017 records of 8 and 6 active nests respectively. We hope the previous breeding pairs have relocated to the more abundant site at Omega Game Farm due to the close proximity.

Omega Game Farm: An additional six active nests were recorded in the first survey of 2019 in comparison to the 24 found in 2018. The mid-season breeding success rate of 73% is relatively positive despite less active nests recorded in the second survey than 2018.

Figure 3. The number of breeding pairs recorded in the first survey of each study site from 2016 to 2019 of African White-backed Vultures

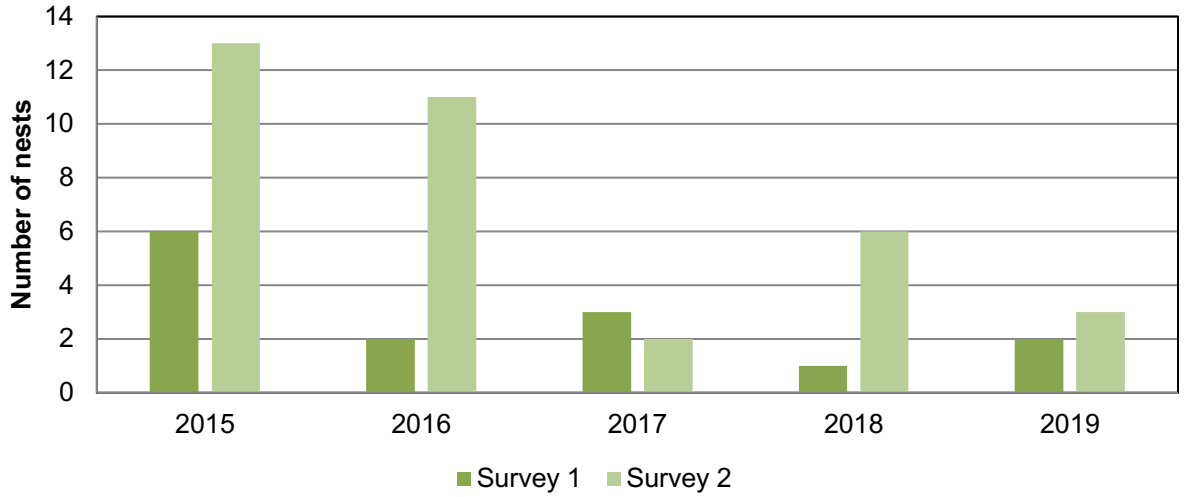


Wild captures of African White-backed Vultures occurred at the Olifants River Private Game Reserve and Omega Game Farm during October 2019 for research purposes of this critically endangered species. Eighteen African White-backed Vultures were ringed with coloured leg bands for identification, blood samples were taken for lead testing and two individuals were deployed with GPS tracking devices. The fitment of coloured leg bands and tracking devices will greatly contribute to understanding the foraging ranges, movement patterns and species survival through our re-sightings database and research projects.

Hooded Vulture Breeding Surveys

The first survey in June 2019 at the Olifants River Private Game Reserve found two active Hooded Vulture nests of the 21 known nest locations which include historic and abandoned breeding trees. Three active nests were detected in the second and third surveys in August and October respectively with one confirmed fledgling observed in October. This is a decline from the six active nests monitored in 2018.

Figure 4. Graph of the number of active nests of Hooded Vultures in Olifants River Private Game Reserve 2015-2019



Conclusion

Annual monitoring of breeding sites has become critical as all African Vulture species continue to rapidly decline across their ranges.

The increase in breeding pairs at seven of the breeding sites provides optimism and evidence of VulPro's ongoing efforts of community education, landowner involvement, mitigation of powerlines and research collaborations.

VulPro's monitoring data of the last decade is currently in preparation for publication with the Peregrine Fund and will soon be published as "Population growth rates in northern Cape Vulture (*Gyps coprotheres*) colonies between 2010 –2019" (Hirschauer MT, Wolter K, Howard A, Rolek BR and McClure CJW).

VulPro continually strives to mitigate the numerous threats within southern Africa through powerline surveys and our relationship with Eskom, identifying problem areas for mitigation and engagement, rescue and rehabilitation as well as scientific research to answer the questions required for the conservation of these irreplaceable species.

Acknowledgements

Vulture counts are only possible with the support of all landowners involved: Omega Game Farm, Madikwe Farm, Leopard Lodge, Ingwe Bush Camp, Griffon's Bush Camp, Boikarabelo Farms namely; Doornkopje, Boompan, Osorno, Kruispad, Klaarwater and Haardekraaltje farms, Curly Wee Piggery, Olifants River Private Game Reserve shareholders, Khaya Ndlovu Eco-resort, H12 Leshiba, South African National Parks and Richard Ancker-Simmons of Manutsa Ranch.

In addition, this work would not be possible without the financial assistance from Colchester Zoo, Columbus Zoo and Aquarium, Boikarabelo Coal Mine, Olifants River Private Game Reserve, Hans Hoheisen Charitable Trust, the Rufford Foundation, Reeder Conservation Fund, Fresno Chaffee Zoo, Cleveland Zoo and the Tusk Trust. Thank you to the many volunteers who assisted the VulPro team with our monitoring fieldwork.