VulPro Monitoring Report 2022

Cape and African White-backed Vulture Breeding Surveys

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Figure 1: The Kransberg Cape Vulture colony is monitored from Griffons Bush Camp, during the 2022 breeding season by VulPro, Limpopo, South Africa.

Summary

During 2022, we monitored six Cape Vulture colonies across the northern parts of South Africa. A total of 2036 active nests were observed during the initial survey. Furthermore, our African White-backed Vulture tree nesting survey efforts this year covered a total of three areas, comprising 23 properties and 187 active nests.

VulPro's cliff monitoring, which focuses on the northern parts of the Cape Vulture population, is home to approximately 50 to 60% of the entire breeding population. Each of the six colonies monitored have shown a slight increase in the number of breeding pairs (Figure 2). The breeding success varied between 56% and 98% for Moletjie and Kransberg colonies, respectively (Figure 3).

Three African White-backed Vulture sites were surveyed this year with a breeding success rate of approximately 73%. The populations appear to be generally stable with populations ranging from 1 to 57 active nests, with varying levels of success. Between the three sites, the breeding success rate ranged betwee 69 and 74%.

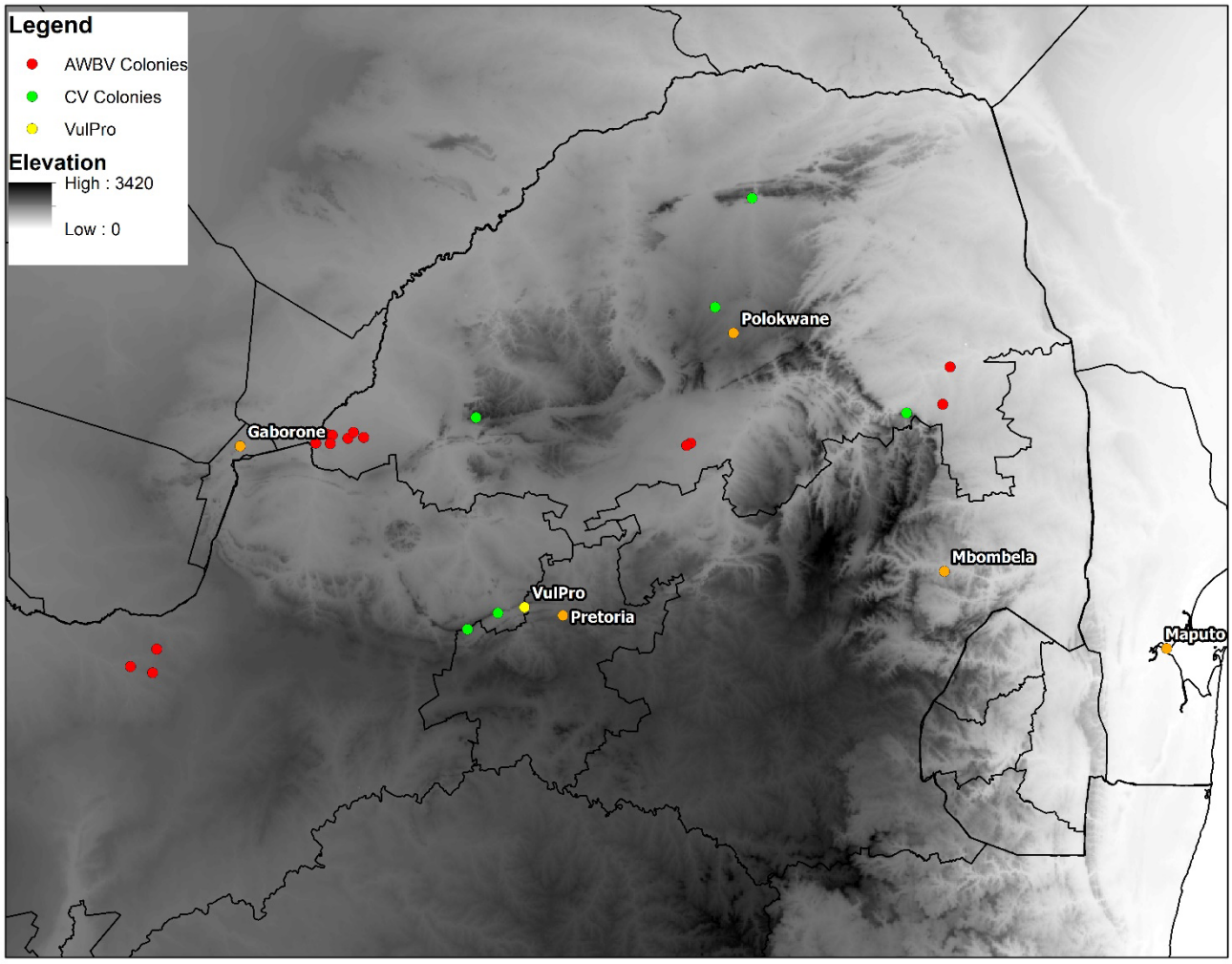

Figure 2: Map of the African White-backed (Red) and Cape Vulture (Green) breeding sites monitored by VulPro over the last couple of years across southern Africa.

Survey Overview and Methods

Cape Vulture colonies were visited either two or three times, with the first survey in May to June to record the number of active breeding pairs, the second survey from July to August for the total number of active nests and the third visit from September to October to record the number of fledglings which give us a better understanding of the 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. 2020). The following colonies were monitored in 2022: Kransberg in the Marakele National Park, Manutsa Colony at the Cape Vulture Lodge near Hoedspruit, Moletjie in the Moletjie Municipal Nature Reserve, Soutpansberg in the Vhembe District and Nooitgedacht and Skeerpoort on the Magaliesberg Mountain Range.

African White-backed Vulture population surveys were conducted twice in 2022 at three of our existing sites. These sites included the Mareetsane area of the North West Province, the Dwaalboom area of the Limpopo Province and the Roedtan area in the Limpopo Province. These surveys were conducted following the "Southern African Vulture Tree Nesting Survey Protocol" set out by VulPro (Wolter et al. 2020). Walking surveys are conducted in areas with known tree nesting vulture populations and known nests are observed for activity. New nests are also recorded and activity is observed. These nests then become part of a database for the area and are visited every year to observe their breeding success trends.

Table 1: Summary of VulPro's 2022 vulture monitoring across South Africa

Site	**Work**	**Province**	**Country**	**Land Ownership/use**
Manutsa	Colony	Limpopo	South Africa	Private residential
Kransberg	Colony	Limpopo	South Africa	Protected government, Marakele National Park
Magaliesberg (Skeerpoort & Nooitgedacht)	Colony	North West and Gauteng	South Africa	Private Biosphere Reserve
Moletjie	Colony	Limpopo	South Africa	Protected Limpopo provincial government
Soutpansberg	Colony	Limpopo	South Africa	Community owned
Mareetsane Area (five farms in total)	Tree nesting	North West	South Africa	Private game and hunting reserves; pig and cattle farms
Dwaalboom Area (14 farms in total)	Tree nesting	Limpopo	South Africa	Private game and hunting reserves; cattle farms
Roedtan Area (four farms in total)	Tree nesting	Limpopo	South Africa	Private game and hunting reserves

VulPro deduces the total number of breeding attempts and the percentage of successful attempts using the following descriptions of behaviour:

- 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 of 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 behaviour 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 behaviour which is different from a sleeping posture
- Tenanted: a pair or individual bird is present at a nest where, based on the behaviour 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

During 2022, we monitored six Cape Vulture colonies across the northern parts of South Africa. A total of 2036 active nests were observed during the initial surveys. We observed fewer active nests (1875) during 2021 compared to 2022, showing a slight increase in the population. We were concerned about the massive drop that we saw from 2020 to 2021, so we are extremely happy to see that the population appears to have recovered. However, this year we have experienced declines in the number of fledglings that successfully fledged in both the Manutsa and Soutpansberg colonies. Furthermore, an interesting revelation at the Soutpansberg colony is that only the section that is facing in a more easterly direction with direct sunlight throughout the morning had a breeding success of 53% compared to the rest of the colony that experienced a breeding success of approximately 80%. The Manutsa colony is situated in the Lowveld and is the only north-facing colony that we monitor. It is situated in one of the hottest regions of South Africa and has a breeding success of 71%. The concern is that the breeding success this year is ~10% less than the last two years. This could be explained by the increased warming of climate change. As a result are in the process of obtaining the required data to draw accurate conclusions and to find solutions (e.g. provide artificial water close to the colony to avoid lethal dehydration) to deal with this increasing threat. We will continue to monitor all the colonies closely to see if we can better understand the factors driving the declines in breeding numbers.

A total of 1669 fledglings were observed during the final survey this year with an overall breeding success of 82%. The breeding success varied between 56% and 98% for Moletjie and Kransberg colonies, respectively. This data is currently being analysed as part of a study that is looking at individual breeding success and occupancy dynamics of the individual nests at different colonies.

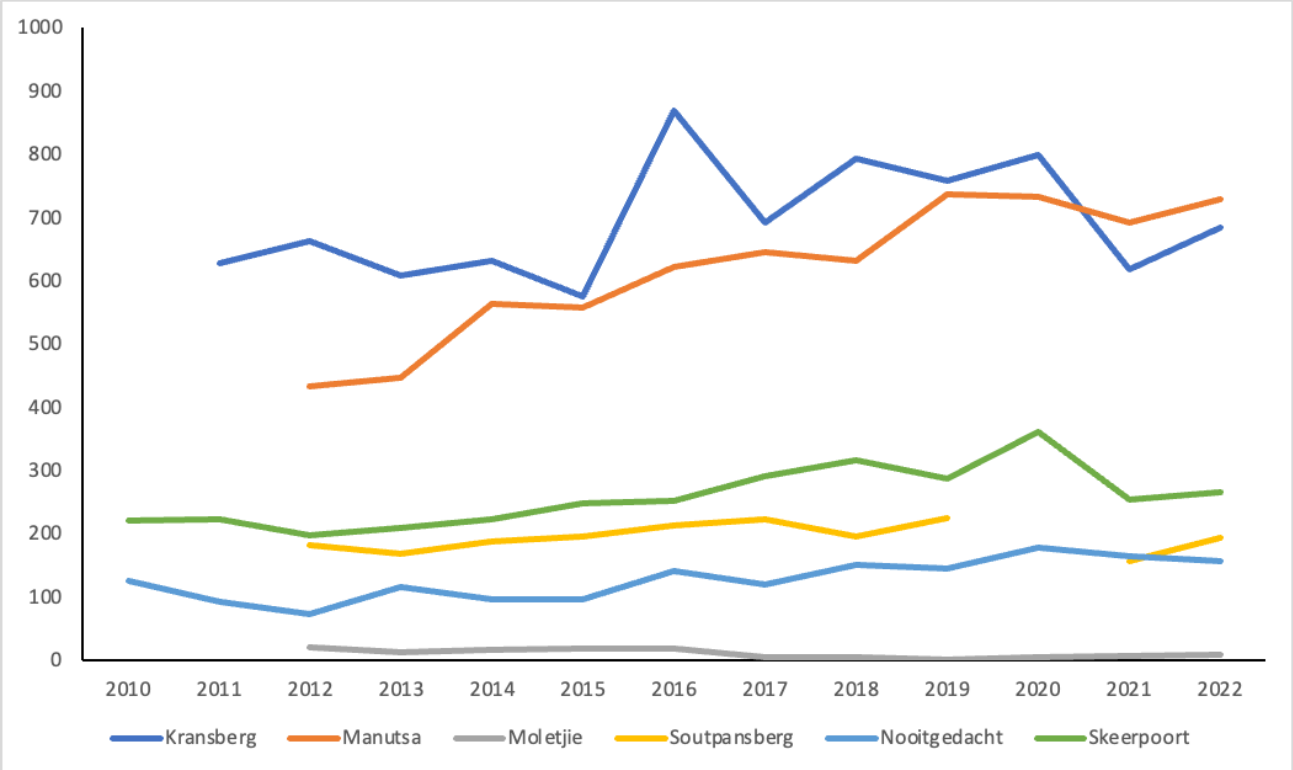

Figure 3: Annual estimates of the number of breeding pairs at each Cape Vulture colony monitored by VulPro throughout South Africa

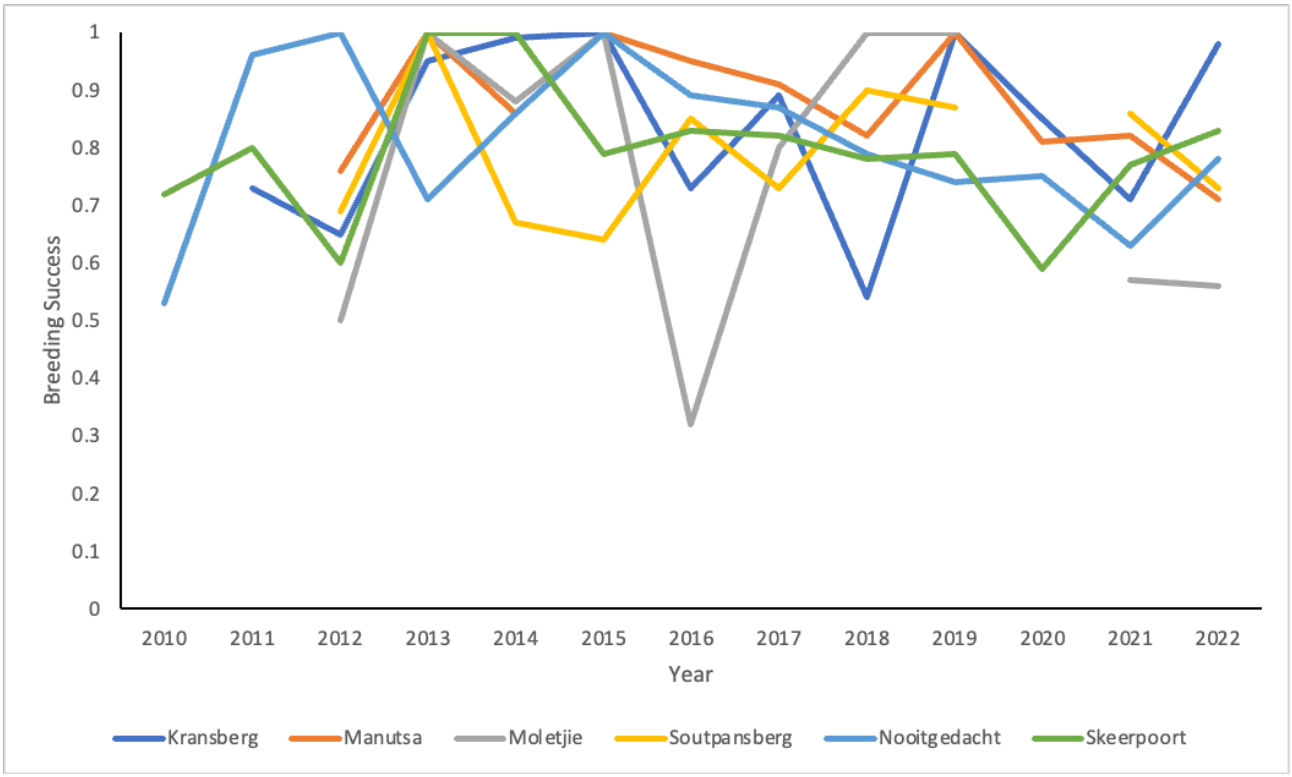

Figure 4: Annual breeding success at each Cape Vulture colony monitored by VulPro throughout South Africa.

Table 2: The 2022 Cape Vulture monitoring data recorded during each survey for each colony.

Colony	Survey 1	Survey 2	Survey 3
Manutsa	Pairs: 728		Fledgling: 728 Inferred: 75 Total: 514
Kransberg	Pairs: 684		Fledgling: 418 Inferred: 151 Total: 669
Skeerpoort (Magaliesburg)	Pairs: 266	Fledgling: 0 Chicks: 67 Inferred: 161 Total: 228	Fledgling: 143 Inferred: 77 Total: 220
Nooitgedacht (Magaliesburg)	Pairs: 156	Fledgling: 0 Chicks: 25 Inferred: 103 Total: 128	Fledgling: 57 Inferred: 64 Total: 121
Soutpansberg	Paris: 193		Fledgling: 113 Inferred: 27 Total: 140

Moletjie	Pairs: 9		Fledgling: 5 Inferred: 0 Total: 5
TOTAL:	Total pairs: 2,036 ~46% 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 2022 census at each site represents approximately 46% of the total global population of the vulnerable 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 to ensure the survival of these magnificent species.

Figure 5: Cape Vulture colonies are monitored from a nearby site using spotting scopes and photos of the cliff with previously found nests marked for reference.

Tree Nesting Vulture Surveys

In 2022 we were able to survey three tree nesting vulture breeding areas in South Africa. These sites were the Mareetsane area in the North West Province and the Dwaalboom and Roedtan area in Limpopo.

The Mareetsane area of the North West Province was surveyed twice in 2022. The area consists of four farms, namely Omega Game Ranch (hunting and game farm), Bakoven (pig, cattle and game farm) La Rancho Farm (hunting and game farm) and Woodside Lodge (hunting and game farm). Through the GPS tracking of a wild caught bird in the area, we were not only able to find the bird's nest site but a fifth farm with a further seven nests. In total, we had a success rate of 73% in the area, with 66 successful breeding attempts. Unfortunately, while our overall numbers seem to be reflecting a stable population, one site has had less than optimal success, with a success rate of 28% at La Rancho Farm. We believe this to be a result of the fact that a large power line runs through the farm, with birds nesting in the large structures. Unfortunately, while these structures represent a good nesting and roosting site for these species, they are extremely dangerous and we have had repeated incidents on this specific line. We have been in continued communication with Eskom, our national power line utility company, and we are actively working to ensure that these lines are mitigated immediately before more breeding birds are lost on this line.

Figure 6: An African White-backed Vulture lies dead beneath their nest, having died on the power lines that they are using to nest on, North West Province, South Africa.

The Dwaalboom area of the Limpopo Province was surveyed twice in 2022 as well. The area consists of multiple farms, and this year we increased the number of farms surveyed to 14 farms in total, all of which are cattle and game farms. This year, the Dwaalboom area once again boasted the highest breeding success rate of all the areas surveyed, with a breeding success rate of 74% a small drop from 2021's 80%. However, the amount of successful nests remained approximately the same with 62 successful nests. This could be indicative of more attempts at breeding, with failed nests possibly representing younger birds first attempts at breeding.

The Roedtan area of the Limpopo Province was also surveyed twice in 2022. This area once again had the lowest breeding success rate of 69% but this is an improvement from 2021's success rate of 57%. While this is the smallest area surveyed by VulPro at the moment, we are working to continue growing the site, and currently we are surveying four farms with 13 nests, up from last year's two farms with seven nests.

Table 3: Survey results of the breeding success of African White-backed Vultures monitored at three study sites throughout northern South Africa in 2022.

Location	Active nests (May - Jul 2022)	Active nests (Sep 2022)	Estimated breeding success 2022
Mareetsane	***90***	***66***	***73%***
Omega Game Ranch	57	50	88%
La Rancho	18	5	28%
Woodside Lodge	5	4	80%
Bakoven	3	2	67%
Woodside Cattle (New)	7	5	71%
Dwaalboom	***84***	***62***	***74%***
Swartbos	14	7	50%
Rooiderbokvale	13	10	77%
Numzaan Safaris	13	8	62%
Unknown roadside	6	5	83%
Groenedal	5	3	60%
Boelani	2	1	50%
Laastepoort	2	1	50%
Nando	1	0	0%
Leeuwdoorn	0	0	N/A
Loggerinde Hoek	1	1	100%
Dotreg	0	0	N/A
Haakdorn	22	18	82%
Kallie Lee Farm	1	1	100%
Elandskloof (New)	4	7	175%
Roedtan	***13***	***9***	***69%***
Bosveld	2	1	50%
Nooitgedacht (previously ASC Farm)	3	1	33%
Harlou (New)	1	1	100%
Renosterfontein (New)	7	6	86%
Total	**187**	**137**	**73%**

The tree-nesting data gathered this year will be added to the data collected and being used for the project, “Assessing the effects of thermal factors on the spatial ecology of a Critically Endangered African vulture”. This project, making up a PhD thesis in collaboration with the University of Pretoria, the Max Planck Institute and the North Carolina Zoo, will in part be looking at breeding site selection and breeding success of African White-backed Vultures in southern Africa, looking specifically at the effects of climate and increasing global temperature on these factors. This will help us understand which sites are the most important for these species, with a special emphasis on predicted climate changes and what we can expect for this species’ range changes as a result. Our data will join a larger database of breeding survey data from across southern Africa, including Namibia, Botswana, Zimbabwe and the southern regions of Mozambique, with partnerships and collaborations with organisations across the region.

Figure 7: An African White-backed Vulture adult looks over a chick on their nest, Dwaalboom, Limpopo, South Africa.

Conclusion

Breeding monitoring continues to be an important tool in giving us on the ground insight into vulture populations across South Africa. Through our work with these breeding colonies we have been able to identify sites that require our attention and where we can help mitigate threats to these important birds. As an example, we will continue to work to ensure that Eskom mitigates threats to lines in breeding areas, with special emphasis on making it impossible for birds to nest on these lines. We will continue to monitor progress on this site and we hope that the outcome of our work is a better breeding success rate for these birds once these lines have been mitigated.

Our work in the field continues beyond our breeding numbers as we interact with and share our results with landowners and communities living amongst these populations. This is a critical step in using our data and insight in protecting these birds, as these are the groups on the ground, interacting with these birds daily. It is therefore also these individuals who benefit the most from the survival of these populations. To do this we distribute educational material and engage in discussions, presentations and meetings with these groups. With this we are able to help implement protection strategies and engage with groups on concerns and new emerging threats to these birds. Finally, through this engagement we are able expand our network across the country, engaging with a wider audience and covering a larger area. This is not only important for expanding our surveys, but also for letting people know about our work and how we can help them live in harmony with African vultures.

Acknowledgements

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Figure 8: A VulPro volunteer helps record field data during field a tree nesting survey, North West Province, South Africa.