VulPro Monitoring Report 2021

Cape and African White-backed Vulture Breeding Surveys

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Summary

During 2021, we monitored six Cape Vulture colonies across the northern parts of South Africa. A total of 1875 active nests were observed during the initial survey. Furthermore, our African White-backed Vulture tree nesting survey efforts this year covered a total of four areas, comprising of 18 properties and 149 active nests.

VulPro's cliff monitoring, which focused on the northern parts of the Cape Vulture population is approximately home to ~50 to 60% of the entire breeding population. Each of the six colonies monitored has shown a decrease in the number of breeding pairs (Figure 2). The breeding success varied between ~57% and ~86% for Moletjie and Soutpansberg colonies, respectively (Figure 3).

Four African White-backed Vulture sites were surveyed this year with a breeding success rate of ~73%. The populations appear to be stable however, specific properties showed signs of disturbance having an effect on the breeding success rate. The breeding success rate varied between ~57% and ~80% in 2021.

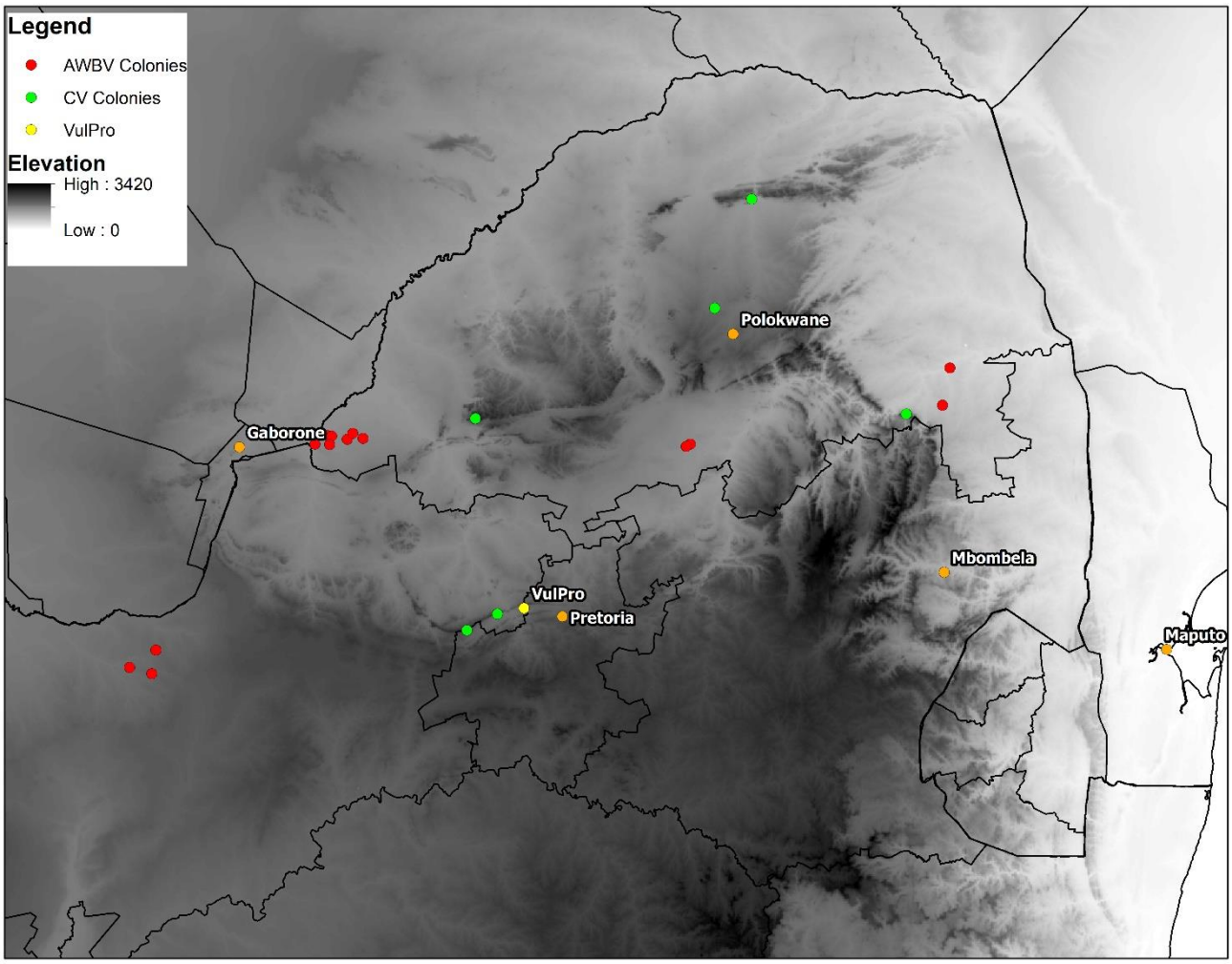

Figure 1. Map of the African White-backed (Red) and Cape Vulture (Green) breeding sites monitored by VulPro across southern Africa

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 2021: 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 at four of our existing sites in 2021. These sites included the Mareetsane area of the North West Province, the Dwaalboom area of the Limpopo Province, the Olifants River Private Game Reserve in the Limpopo Province and the Roedtan area in the Limpopo Province. The reduction in surveyed sites was a result of COVID-19 restrictions, making it very difficult to visit some of the sites. 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 2021 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 (four farms in total)	Tree-nesting	North West	South Africa	Private game and hunting reserves; pig and cattle farms
Olifants River Private Game Reserve	Tree-nesting	Limpopo	South Africa	Private share- holder block
Dwaalboom Area (eleven farms in total)	Tree-nesting	Limpopo	South Africa	Private farms with various use
Roedtan Area (two 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 (un)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 2021, we monitored six Cape Vulture colonies across the northern parts of South Africa. A total of 1875 active nests were observed during the initial surveys. We observed fewer active nests during 2021 compared to 2020, with each colony declining during their initial survey. This is a huge concern and unfortunately, we do not have exact explanations for these declines but we do believe human disturbances or climatic conditions such as windy conditions that were observed at the Kransberg and Manutsa colonies can explain some of the possible causes. We are concerned about the Kransberg and Skeerpoort colonies, which declined by ~23% and ~29%, respectively. The initial survey in 2022 may shed further light on whether the population is declining or whether it is just part of the annual variation. 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 1438 fledglings were observed during the final survey this year with an overall breeding success of 76.7% this year. The breeding success varied between ~57% and ~86% for Moletjie and Soutpansberg colonies, respectively. Furthermore, the data is currently being analysed whicht forms part of a study that looks at individual breeding success and occupancy dynamics of the individual nests at different colonies.

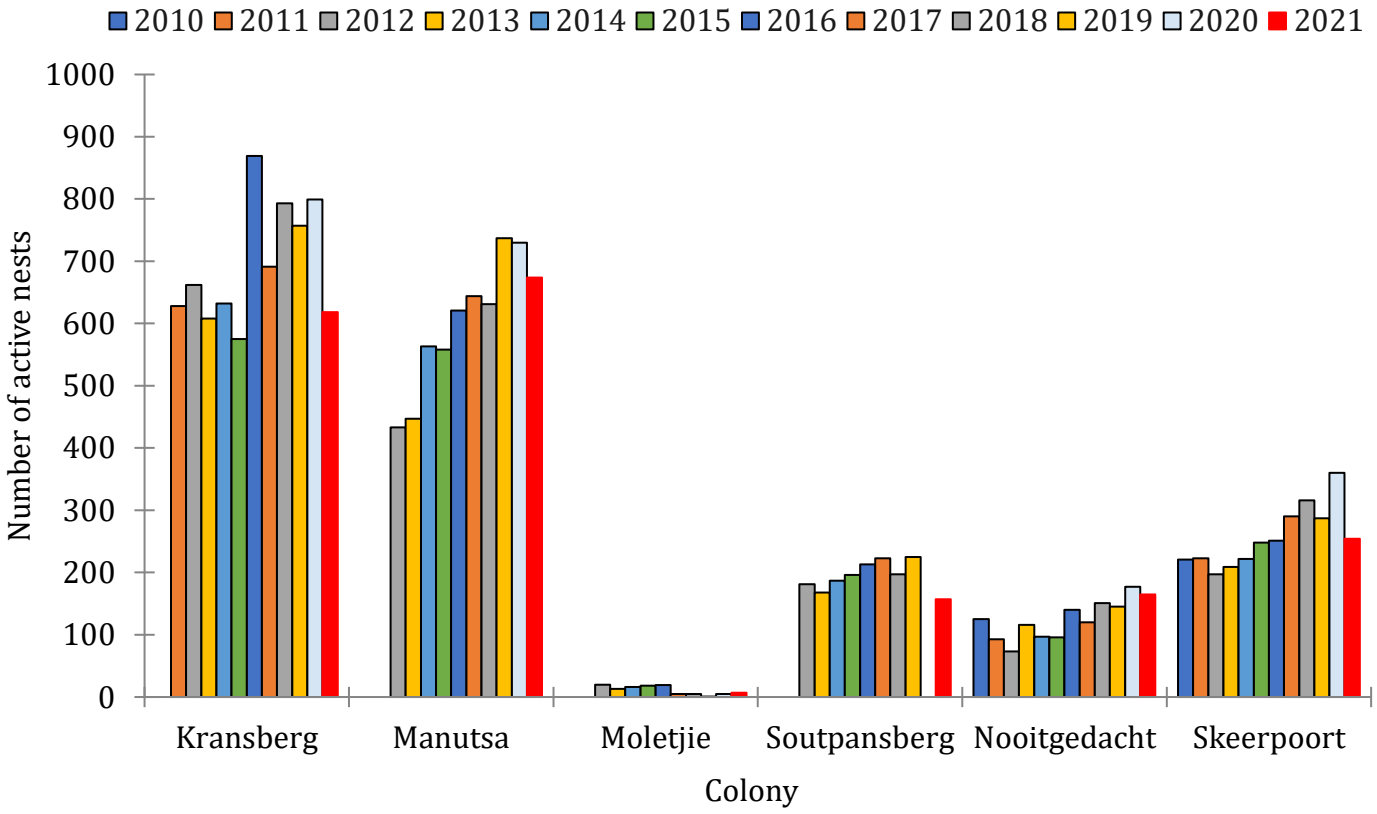

Figure 2. Annual estimates of the number of breeding pairs at each Cape Vulture colony monitored by VulPro throughout South Africa

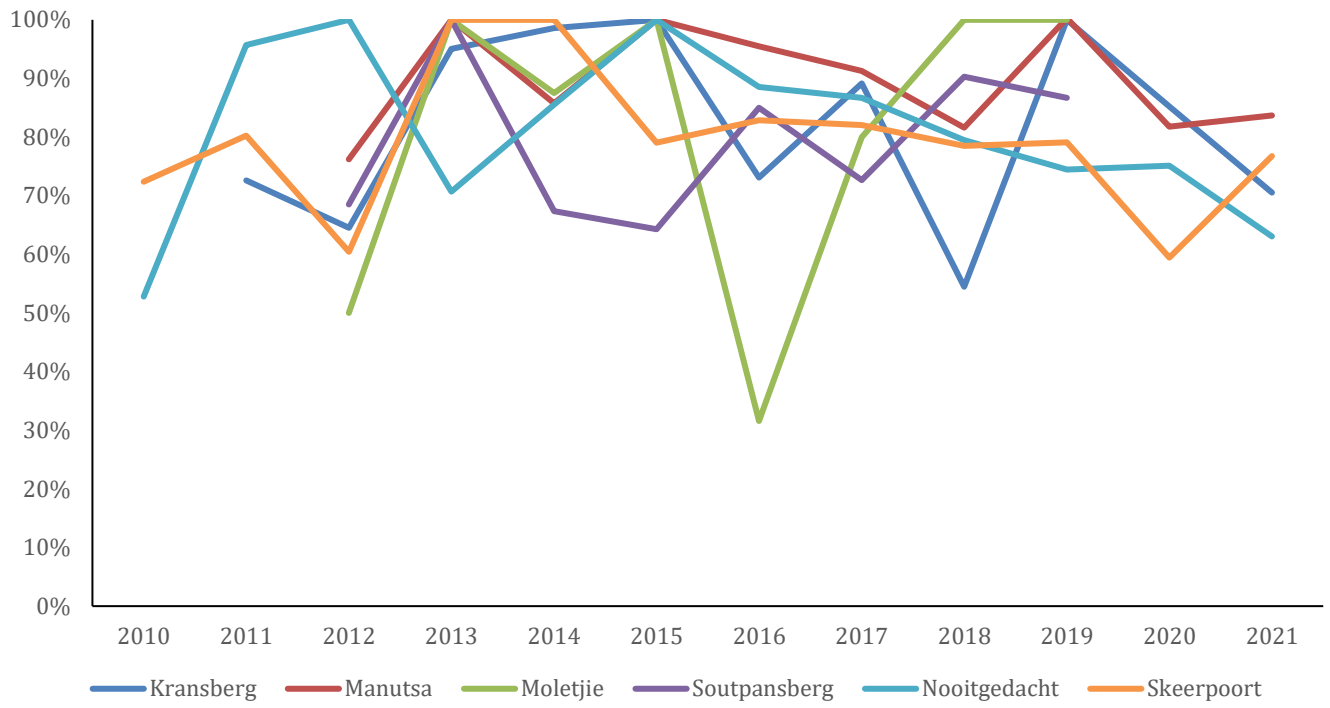

Figure 3. Annual breeding success at each Cape Vulture colony monitored by VulPro throughout South Africa

Table 2. The 2021 Cape Vulture monitoring data recorded during each survey for each colony:

Colony	Survey 1	Survey 2	Survey 3
Manutsa	Pairs: 674		Fledgling: 527 Inferred: 37 Total: 564
Kransberg	Pairs: 618		Fledgling: 205 Inferred: 231 Total: 436
Skeerpoort (Magaliesburg)	Pairs: 254	Fledgling: 0 Chicks: 3 Inferred: 241 Total: 244	Fledgling: 117 Inferred: 78 Total: 195
Nooitgedacht (Magaliesburg)	Pairs: 165	Fledgling: 0 Chicks: 10 Inferred: 109 Total: 119	Fledgling: 55 Inferred: 49 Total: 104
Soutpansberg	Paris: 157		Fledgling: 126 Inferred: 6 Total: 135

Moletjie	Pairs: 7		Fledgling: 4 Inferred: 0 Total: 4
TOTAL:	Total pairs: 1,875 ~43% 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 2021 census at each site represents approximately 43% 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.

Fire above the Skeerpoort Colony.

Tree Nesting Vulture Surveys

Despite the challenges we faced in 2021 with the COVID-19 pandemic, we were able to continue with our tree-nesting surveys. This year we were able to survey the Olifants River Private Nature Reserve in Limpopo, the Mareetsane area in the North West Province and the Dwaalboom area and the Roedtan area in Limpopo. Further, we conducted initial assessments of the Lephalale area in Limpopo and the Tosca area in the North West Province in order to begin full surveys in 2022.

The Mareetsane area of the North West Province was surveyed twice in 2021, in July and in October. The area consists of three farms, namely Omega Game Ranch (hunting and game farm), Bakoven (pig, cattle and game farm) and La Rancho Farm (hunting and game farm). This year we were also able to add a new farm Woodside Lodge (hunting and game farm). In total, we had a success rate of 70% in the area, with 73 successful breeding attempts. Despite this large number of nests however, the area still suffered a number of declines. This was most prevalently seen on Woodside Lodge, whose breeding success was 27% (from 15 nests in July to 4 in October). We are unsure as to the exact reason behind this decline, however, the farm was being heavily worked on in October in an effort to clear bush encroachment. One theory is that this disturbance may have caused the decline. We hope to expand further into this landscape in the coming years during our annual surveys.

An adult African White-backed Vulture protects her nest.

The Dwaalboom area of the Limpopo Province was surveyed twice in 2021 as well. The area consists of multiple farms, and this year we increased the number of farms surveyed to 13 farms in total, all of which are cattle and game farms. This year, the Dwaalboom area boasted the highest breeding success rate of all the areas surveyed, with a breeding success rate of 80%. In total 61 successful nests were recorded.

We were once again able to survey the Olifants River Private Game Reserve twice this year. The area is a piece of privately owned protected land that forms part of the Greater Kruger National Park. This year the breeding success rate for the area was 69% with 11 successful nests in total. One Hooded Vulture nest in the area was successful this year as well.

The Roedtan area of the Limpopo Province was also surveyed twice in 2021. This area had a breeding success rate of 57%, the lowest of all the areas surveyed. However, this may also have been affected by the small number of nests present in the area, with only 4 successful nests out of 7 total nests in 2021.

Both the Tosca area and the Lephalale area were assessed in the middle of the breeding season this year in order to create a baseline for surveys in the coming years. The Tosca area yielded eight nests, while the Lephalale area yielded seven active nests. We look forward to broadening our African White-backed Vulture surveys to these areas next year, hopefully allowing us to expand our search and find further properties with tree-nesting vultures breeding.

Table 3. Survey results of the breeding success of African White-backed Vultures monitored at five study sites throughout northern South Africa in 2021

Location	**Active nests (June/July 2021)**	**Active nests (Oct 2021)**	**Estimated breeding success 2021**
Mareetsane	***105***	***73***	***70%***
Omega Game Ranch	62	54	87%
La Rancho	25	14	56%
Woodside Lodge	15	4	27%
Bakoven	3	1	33%
Dwaalboom	***76***	***61***	***80%***
Swartbos	22	18	82%
Rooiderbokvale	16	8	50%
Numzaan Safaris	12	10	83%
Unknown roadside	8	8	100%
Groenedal	7	6	86%
Boelani	4	4	100%
Laastepoort	2	2	100%
Nando	2	2	100%
Leeuwdoorn	1	1	100%
Loggerinde Hoek	1	1	100%
Dotreg	1	1	100%
Haakdorn	N/A	16	N/A
Kallie Lee Farm	N/A	1	N/A
Olifants River Private Game Reserve	***16***	***11***	***69%***
Roedtan	***7***	***4***	***57%***
Bosveld	4	3	75%
ASC Farm	3	1	25%
Total	**204**	**149**	**73%**

This year a new venture with VulPro's tree nesting data began with the inception of Caroline Hannweg's PhD project "Using basic biology and remote sensing techniques to model habitat selection and the impact of current and future climates for four threatened African vultures". This project, in partnership with the Max Planck Institute and the University of Pretoria, will be investigating the factors that may be affecting vulture habitat selection, breeding and movement across the southern African sub-region. Data collected over the years through VulPro's tree-nesting vulture breeding monitoring will form part of this study, helping map important breeding areas for these species, and potentially help find new sites of interest in the landscape. Partners from across southern Africa with tree-nesting vulture breeding data have been approached in order to bring as much data together as possible in order to make accurate conclusions. We are looking forward to seeing the progression and results of this study.

Conclusion

As always, breeding monitoring has given us a useful insight into vulture populations across South Africa. While most of these populations remain at a fairly constant rate, there are a number of areas with declines that have given us a cause for concern. It is through our monitoring program that we are able to pick up on these declines before it is too late, and the areas where we have seen declines will be monitored closely to determine if any further steps need to be taken.

Beyond the collection of data, we were also able to continue with other important work while in the field, such as interacting with and sharing our results with landowners and communities in order to demonstrate the importance of these populations. Educational documents and information are shared with these groups when field work is conducted for these surveys. Further, we discuss the vulture populations in the area and discuss any issues or concerns the communities or farmers may have. We also work to gather information from these groups on neighbouring or nearby properties that may have vultures breeding on their properties in order to expand our breeding surveys and cover as many nests as possible. This helps us to continue to nurture good existing relationships with communities and landowers around these populations and fosters new relationships. These are the individuals on the ground at these nesting sites and are therefore critical for protecting these species. By creating these networks we are also able to expand our rescue network. With more people aware of us and working with us we are alerted to more grounded and injured vultures, we are able to access larger areas and we are able to rescue more birds.

VulPro looks forward to continuing with our monitoring program in 2022 and looks forward to expanding and broadening the program, not only to new properties in the same area but to new areas too. This monitoring program has provided large amounts of helpful data over the years and we look forward to harnessing this data for emerging projects and studies in 2022.

Acknowledgements

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