

VulPro Annual Report 2018



VulPro NPC
Vulture Programme for the Conservation of Vulture Species in southern Africa
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1. Executive summary

In 2018, VulPro continued to raise public awareness for vulture preservation through its accomplishments in the spheres of conservation, rehabilitation, research and its captive breeding programmes. It has gained renewed interest both inside and outside of the southern African borders, and on other continents. VulPro has travelled to other African countries to assist and educate keen conservationists in saving Africa's vultures and eager environmentalists have undergone training at VulPro to continue helping vultures in their own countries. Training has also been given to a number of local volunteers to enlarge the pool of people that can assist VulPro when needed. Kerri Wolter in her capacity as CEO has travelled to the United States of America twice during the past year to further spread knowledge about African vultures and the dire straits that they are in. It was also an opportunity to forge and strengthen relationships with various entities and sponsors for fundraising. She had the honour of being awarded a full scholarship to attend the IUCN wildlife reintroduction workshop and conference in Chicago, USA, which was very inspirational and educational.

VulPro was greatly honoured to receive the Conservation Award for 2018 from Cellular Tracking Technologies. The prize included 21 tracking devices as well as the service provider fees for the life-time of each device. This is a big boost for vulture telemetry studies being done at VulPro.

During the latter part of 2018 the effects of global warming, which resulted in drought and heat waves, has been felt by all living beings, especially by vultures. A larger than usual number of fledglings had to be rescued, suffering from dehydration, hunger and heat stroke/stress, having landed in various dangerous areas such as highways, suburban gardens, townships, and more, showing typical symptoms of fatigue, dehydration and being under weight and associated injuries as a result of this.. Sadly, this is all part and parcel of the human interference in our ecosystems. VulPro is working hard to ensure that vultures will survive this onslaught to continue to play their all-important role in the ecosystems, as their numbers remain at critical levels, not only in Africa, but also throughout the world. Generations to come depend on actions taken to conserve these birds during these challenging times.

VulPro proudly presented a highly successful three-day rehabilitation, orthopaedic training and laser training course in January, lead by Dr. Neil and Karen Holmer Forbes, and Janet Lloyd-James, all avian veterinary experts from the UK, who all donated their time to VulPro. Janet Lloyd-James stayed on for a further 3 weeks to expand on the laser training on vulture case studies.

Power lines remain one of the biggest threats to vulture populations in South Africa. Unfortunately, power line mitigation is not a priority for cash-strapped Eskom, in spite of many promises. These power lines exacted a further toll of 52 birds killed and/or injured through their habit of perching on the pylons or having collided with the lines during 2018. Many of those that suffered wing fractures had their wing's amputated and as such cannot be released, so they will be integrated into the VulPro captive breeding colony.

VulPro is also pleased to announce that the VulPro facility was once again inspected and passed scrutiny for and obtained the Provincial and TOPS permit renewals, which takes place annual for non-TOPS species and every three years for TOPS species.

As in previous years, rescue, rehabilitation and release figures are provided as well as the progressing view of the health of breeding colonies and of populations determined from monitoring programmes. The Roots and Shoots after school programme, initiated with the Jane Goodall Institute was continued. This programme is very important to enlighten young minds in the surrounding community, and has been very successful. Once a week the children spend 2 hours after school at VulPro to learn about conservation, environmental respect and general responsibility to everything around them.

The media always shows strong interest when something interesting happens at VulPro or with vultures, such as a fledgling landing on the N1 near a toll gate. Outside of these events, the interest is much less, but regular mentions continue appearing in the various media formats.

The captive breeding programme utilizes non-releasable vultures giving them an almost normal life. This programme has been very successful, and is continually being refined. 2018 once again produced a large number of eggs, the number of chicks were down compared to that of the previous year. Interesting to note that for the first time a Cape Vulture pair fostered not one, but two African White-backed chicks successfully. This opens up the exciting possibility of having more pairs raising two chicks simultaneously.

The work done at VulPro lends itself perfectly for many research projects, that allow for better protection and conservation of vultures worldwide. These projects are printed in relevant peer reviewed publications as and when possible. Research conducted during 2018 is outlined in this document.

Income and expenses are discussed at the end of this report as usual. Without all the donations and sponsorships and supporters that provide the income required for VulPro to operate, it would be impossible to continue with this all-important work. VulPro sincerely wishes to thank everybody for their continued contributions that are the lifeline of VulPro. It is not easy to express our heartfelt appreciation in words that can show our intense gratitude, and we hope that all these individuals/groups/trusts/foundations/organisations sense that we truly mean what we say. We hope this report clearly outlines and showcases how the much-needed funds are used to conserve our vultures.

1.1 Accomplishing the mission of VulPro

VulPro's mission statement:

"To advance knowledge, awareness and innovation in the conservation of African vulture populations for the benefit and well-being of society",

This mission statement is still providing the motivation to achieve these very important goals, using the evolving methodology and strategy gained over the years, by:

- Ongoing rescue and rehabilitation service for vultures and other raptors
- Population monitoring of Cape Vulture colonies within Southern Africa and colonies of Hooded and African White-backed Vultures in the Limpopo and North West Provinces of South Africa.
- Its vulture restaurant co-operatives
- Community outreach, interaction and educational programmes
- Farmer and landowner awareness and educational extension activities
- Involvement in research projects
- Collaborations with other NGOs and government, both locally and internationally on vulture related conservation activities
- Regular output of information and profile through the media, and
- The breeding of non-releasable vulture species for reintroduction purposes

1.2. Chairman's Summary

VulPro was established for the purpose of conserving South Africa's rapidly declining vulture species. The species is faced with a myriad of threats, including injuries from power lines, electrocutions, persecution, poison, nutritional disease and deficiencies. When VulPro was established, its primary function was as a vulture rehabilitation and release centre, with the focus placed on the proactive management through education, mitigating the dangers associated with power lines, and providing supplementary feeding sites.

Since then, VulPro has also become instrumental in the development and implementation of

a breeding programme, which not only allowed for the release of captive bred chicks and the evaluation thereof, but more importantly, allows for the monitoring of vulture breeding behaviour under controlled conditions which is not as feasible as in their natural cliff breeding sites.

Over the past year, VulPro once again made extremely valuable contributions towards protecting our endangered vultures. Some of the activities included extensive training of local volunteers, international talks, advanced training in the nursing care of vultures, captive breeding of vultures, and the monitoring of vulture breeding colonies. VulPro has also once again been proud to host an international training team from the UK which included advanced avian surgical training for veterinarians.

I would also like to take the opportunity to congratulate Kerri and the team, who were recently honored with the Conservation Award, from Cellular Tracking Technologies. While many would see this award as a personal affirmation of success, the VulPro team was more impressed with the prize of 21 tracking devices, which now affords them further opportunity to enhance real time monitoring of vultures.

This past year was not an easy one, with an unprecedented increase in the number of young vultures needing assistance. This seemed to be as a result of environmental changes and extreme weather conditions which has unexpectedly resulted in fledglings leaving the nest too soon.

Lastly, I would also like to take this opportunity to thank our various sponsors, who make all of this possible. Every cent donated contributes to the protection of Africa's vultures, which are an undeniable part of our South African heritage.

Prof Vinny Naidoo
Chairman

1.3. A note from VulPro's Founder and CEO

Attending the IUCN wildlife reintroduction workshop and conference was both inspiring and educational. Listening to passionate and enthusiastic conservationists, scientists and biologists talk about their respective projects from frogs, birds, tigers as well as flora gave me such hope, a sense of pride and of honour in being awarded a full scholarship to attend the 2018 meeting in Chicago. The room was filled with individuals willing to make personal sacrifices all in the name of saving species for the greater good of our environment and our heritage. I was blown away by the talk given by Michael Mace from San Diego Zoo Global showcasing how they, together with project partners, brought the California Condor back from the brink of extinction.

All interested parties united for the common good of the species and personal agendas were put aside with conservation actions incorporating both in-situ and ex-situ strategies adopted. It still is, to this day one of the most successful and influential reintroduction programmes known in the vulture world. VulPro faces many challenges and we are often asked questions about our ex-situ programmes and whether funding should not be better spent preserving the species in the wild. It has always been the great debate whether we save the species or allow them to die in dignity. VulPro believes in a multifaceted and all-encompassing strategy where conservation action is needed both in the wild as well as in captivity. A holistic approach is the future of many conservation programmes and VulPro is extremely proud to be at the forefront of leading this holistic vulture conservation approach.

The California Condor reintroduction programme started with just 22 birds, all of which were brought into captivity, To-date, the population stands at 507 and the wild population at 301. Imagine with VulPro's founder populations of Cape Vultures as well as African White-backed Vultures what impact we could have on the wild populations and their sustainability into the future. In the words of Michael Mace "It is not an easy task to reintroduce and attempt to save species but it is so worth the effort. Everything we know is integrated and when we start to destabilise these ecosystems there are consequences to pay. We have the ability to affect change, now all we have to do is do it"

I am proud to be a part of the generation that is 'doing it' and I am proud that VulPro is indeed recognised for our conservation work on a global scale. We continue to grow and expand our efforts in order to uphold our mission. It is however, due to YOU that we are in fact able to continue our fight for the plight of vultures and it is because of YOU that we are making headways into saving Africa's vultures.

And in closing, I would like to pay a tribute to YOU. Thank you, for your support in both kindness and financial as well as in believing in VulPro and standing together with us, hand in hand in making a change, saving Africa's vultures. Change where I hope our world will adopt vultures and find a passion as well as a love for what I believe, is one of our most majestic bird species in Africa.



Kerri Wolter
Founder, Director, and CEO
December 2018

2. Performance reviews

2.1. Rescue and rehabilitation

The most important of VulPro's missions is still Rescue and Rehabilitation. The rescue numbers are provided in Table 1. There were 205 birds in residence (182 non-releasable) at the end of 2017. Due to many new individuals being admitted to the facility, some with injuries deeming them non-releasable; as well as some individuals who failed with their initial release; the percentage of non-releasable Cape Vultures has increased markedly. Other types of raptors were also collected more often than previously, although unfortunately many of those were too seriously injured to be rehabilitated.

As the cost of feeding a single vulture which equates to approximately R110.00 per week (see 2.1.3), the increased number of birds means that VulPro's food bill will show an increased cost of R120 120.00 in 2018.

The rescue, palliative care and release services that VulPro offers are in as much demand as always, and the release figures emphasise the value of this work. Over the last 9 years, 269 Cape Vultures, 33 other vulture species and 53 other raptors were successfully re-integrated into their threatened or declining populations, to continue with sustaining the species by breeding and raising chicks after being rehabilitated at VulPro.

The conservation breeding programme, as set out in section 2.9, is becoming more successful in supplying vultures to supplement the wild colonies.

Table 1: 2018 rescue and release data.

Species	In 2018						
	In residence at 1.1.18	Collected/ brought In	Released	Died	Euthanized	Transferred, donated, on loan	In residence at 31.12.18 (non-releasable)
Cape Vulture	143 (125)	68	46	32	2	5	158 (140)
African White-backed Vulture	44(41)	12	2	1	1		50 (44)
White-headed Vulture	2(2)	1			1		2 (2)
Lappet-faced Vulture	8(8)						8 (8)
Hooded Vulture	0	1					1
Palm-nut Vulture	3(3)						3 (3)
Andean	2(2)	2		1			3 (3)

Condors							
King Vulture	0	1					1 (1)
Black Vulture	0	1					1 (1)
Other Raptors	3(1)	14	4	1	2	2	8 (1)
Total number of Vultures and Raptors, including breeding pairs and captive-bred vultures' resident at VulPro							235

Table 2: Summary of rescue and release data since VulPro established itself in its Hartbeespoort, Rietfontein location.

Year	Cape Vultures		Other vultures		Other raptors	
	Rescued	Released	Rescued	Released	Rescued	Released
2009	40	12	7	2	19	0
2010	25	13	5	0	14	4
2011	38	15	1	0	17	7
2012	53	31	5	0	15	6
2013	42	24	4	0	13	7
2014	54	12	18	3	8	9
2015	52	17	23	4	22	12
2016	52	8	21	8	9	3
2017	88	64	20	8	24	2
2018	104	46	16	2	14	4
Total	548	242	120	27	155	54

2.1.1 Age and reason for admission

(Both tables included)

Of the 84 vultures brought in and cared for by VulPro during 2018:

- 40 (48%) were specifically described as young fledglings, 21 (25%) were adults, 17 (20%) were described as juveniles, and 6 (7%) were immature or sub-adults. Most of the fledglings were found in January 2018 and December 2018.
- 45% had some level of mechanical injury, 25% of these attributed to power line collisions
- 3.4% showed evidence of poisoning
- 31% were victims of electrocution

2.1.2 Travel

Rescue and field work such as population monitoring surveys; power line surveys; ground truthing and visits to artificial feeding sites, accounted for an approximate 103300 km's travelled.

2.1.3 Feeding costs

Feeding the vultures in the enclosures costs on average R25 300.00 per week. This cost does not include staffing, maintenance and other costs incurred in running VulPro. Providing food for the visiting wild birds at the VulPro vulture restaurant amounts to about R6000.00 per week.

2.2. Vultures and other raptors at other facilities or satellite stations

VulPro assists other facilities from time to time. Occasionally some of the permanent residents

at VulPro are loaned to other facilities, or a bird may be loaned to VulPro for breeding or other purposes. Below is a list of the species currently at some of these other facilities, as well as noting the assistance VulPro has given.

Table 3: Vultures and other raptors outside of VulPro but with VulPro's assistance and/or still belonging to VulPro: 2018.

Other Facilities in Southern Africa				
Date	Facility	Aid provided/Loan	Birds	Result
02/03/2018	NZG Pretoria	For breeding programme	5 adult Cape Vultures	For breeding programme
09/05/2018	Pretoria Zoo	For residency & friends	1 Marabou Stork	Resident at Pretoria Zoo
08/12/2018	Other facility	For release	1 Sparrow Hawk	Released

In addition to the above, we currently have nine vultures out on loan to other breeding facilities, and have donated ten birds of prey to other facilities.

2.3. Population Monitoring of Cape Vulture breeding colonies

VulPro monitors approximately 50% of the total Cape Vulture population. From the data gathered in 2018, some of the colonies appear to be 'stable', however one has to be careful how this is interpreted as we do not know if birds from other sites are joining these colonies and thus making it appear to look favourable or stable but in actual fact the true global population could still be in decline. Also, a continued 'stable' colony is also not good news as what has happened to previous years' offspring and their breeding attempts. Stable implies no change which means the colonies will die out at some point if the numbers do not fluctuate and show some increases. Having said this, the smallest known colony on the periphery of Polokwane in the Limpopo Province of South Africa is on the brink of extinction and these birds will be lost unless we manage to somehow turn the tides; which we can only do with the support of the community and government.

VulPro has taken on a herculean task in its efforts to improve the status of the species.

Table 4 summarizes the overall data gained from the monitoring programme over the past 8 years. With the exception of Moletji, no big changes have been recorded. There is concern for the smaller colonies that may be dying out.

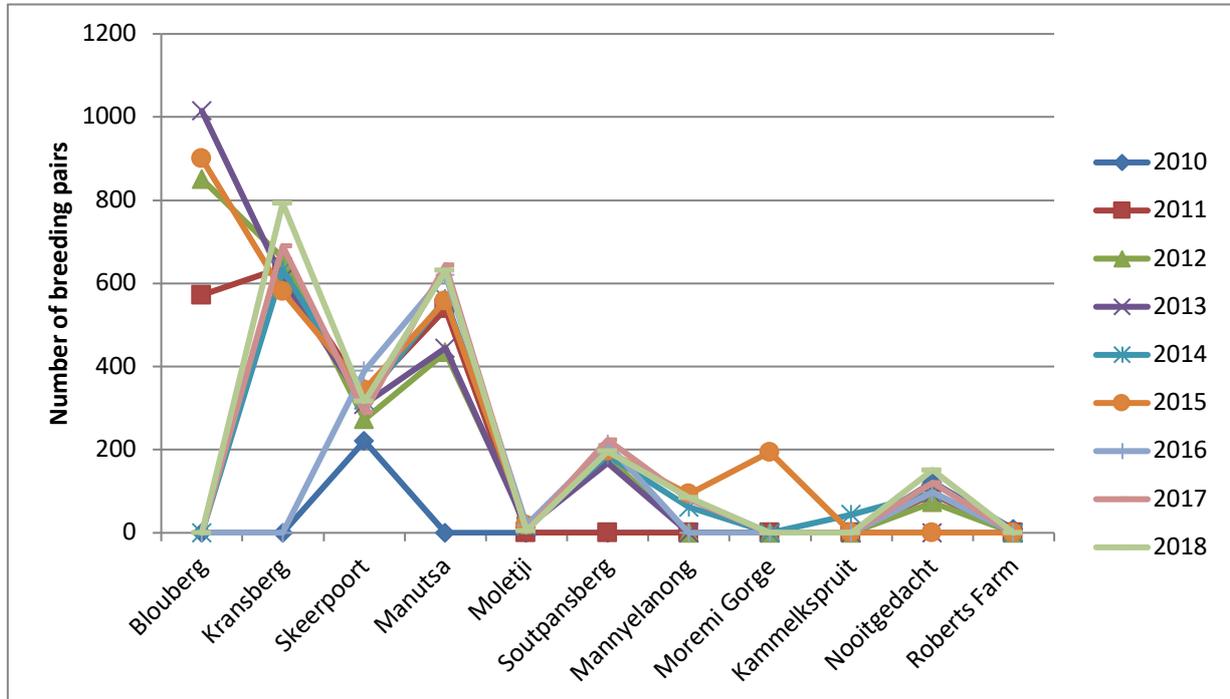
Table 4: Summary of breeding pair counts for all Cape Vulture colonies.

Colony	2017	2018
Blouberg	NR	NR
Kransberg	690	793
Skeerpoort	289	316
Manutsa	644	631
Moletji	5	5
Soutpansberg	223	196
Mannyelanong	81	85
Moremi Gorge	NR	NR
Kammelkspruit	NR	NR
Nooitgedacht	120	151

Roberts Farm	0	0
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e - estimate; NR, not recorded;

Figure 5: Breeding pair count comparisons of Cape Vultures from 2010-2018



*Moletjie was not recorded in 2010; Blouberg was not recorded in 2010, 2014, 2016, 2017, 2018; Kransberg was not recorded in 2010; Manutsa was not recorded in 2010; Moletji was not recorded in 2010 or 2011; Soutpansberg was not recorded in 2010 or 2011; Mamnyelanong was not recorded in 2010, 2011, 2012, 2013 or 2016; Moremi Gorge was only recorded in 2015; Kammelkspruit was only recorded in 2014; Roberts farm has been extinct since 2012.

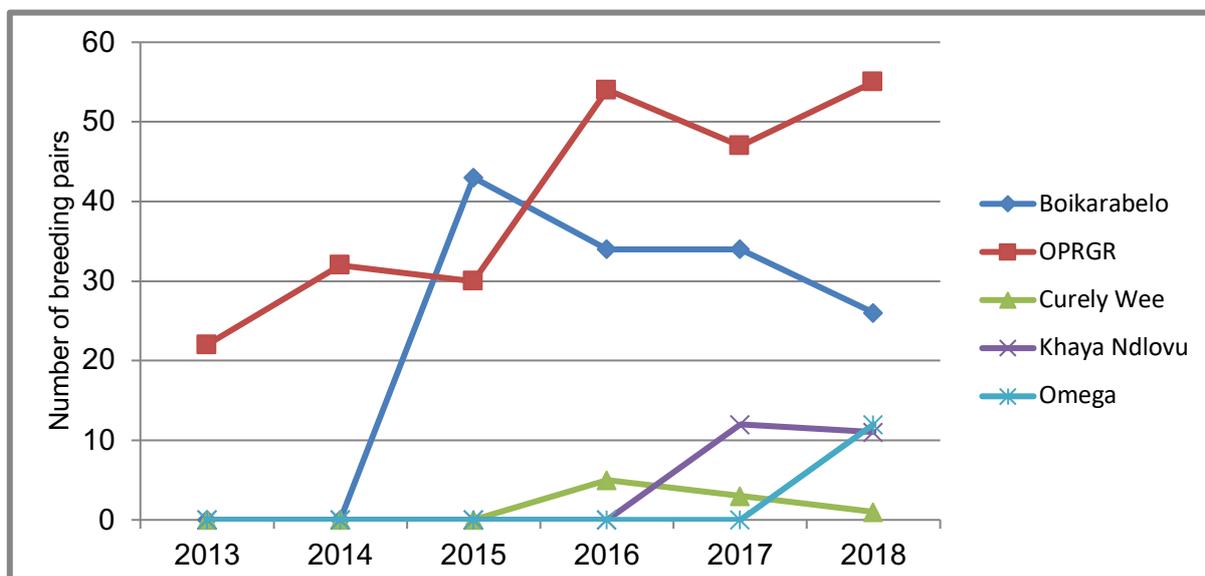
2.4. Monitoring breeding success in tree-nesting vulture species

Several tree-nesting species were upgraded to 'critically endangered' with many being data deficient. Through our breeding surveys we are trying to improve on this lack of data, as well as monitor these populations that depend very much on land management practices and habitat selection. In 2018 we continued to monitor our chosen field sites at least twice.

Table 6: Breeding counts of African White-backed, and Hooded Vultures at 4 sites across South Africa.

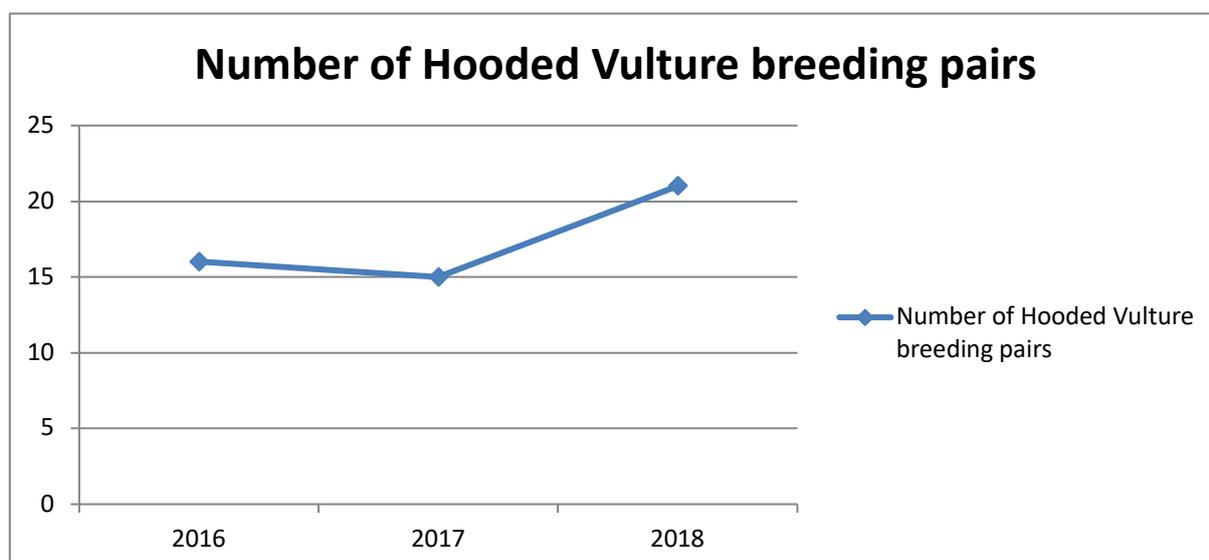
Location	Breeding Pairs June/July	Total Active Nests Aug/Sept/Oct	Estimated mid-season success (%)
Boikarabelo	31	26	83
Khaya Ndlovu	19	11	58
Curly Wee	1	1	100
Olifants River PNR	64	49	71
Omega Farm	24	29	121
Hooded Vultures	21	12	57
Total	160	128	81

Figure 7: Comparisons of African White-backed Vulture breeding pairs at all sites across five years.



*OPRGR surveys commenced in 2013; Boikarabelo surveys commenced in 2015; Khaya Ndlovu and Curley Wee commenced 2016; Omega surveys commenced in 2018.

Figure 8: Comparisons of Hooded Vulture breeding pairs across five years



2.5. Ex-situ conservation breeding for population supplementation

VulPro's ex-situ breeding programme once again proved fruitful, with a total of 35 eggs laid by 21 breeding pairs, some of whom were double clutched to obtain a second egg. Not all eggs were fertile or survived, but we produced 7 Cape Vulture, and 3 African White-backed vulture fledglings who were raised by their parents, although some eggs were artificially incubated. Unfortunately, one of the Cape fledglings died unexpectedly, bringing the number of Cape Vulture fledglings down to five. The necropsy revealed that the individual was suffering from a respiratory tract infection. The fledglings are scheduled for release in 2019.

Table 9: Summary of breeding by non-releasable Cape and African White-backed Vultures.

	2018
Breeding pairs	21
Eggs laid	35
No. hatched	11
No. chicks fledged	9
Ready for release	9
Released	0

2.6. Power line surveys and mitigation

Power line infrastructure remains the number one threat to vultures in South Africa, as a result of collisions and electrocutions, Many individuals perish as a result of these structures, whilst others suffer injuries which would prevent them from ever being released.

VulPro staff and volunteers have been undertaking power line surveys for the past 4 years, with the main areas of focus being Gauteng, North-West, Limpopo, Free State and Eastern Cape Provinces. Although these provinces remain focal areas, it is extremely important to undertake surveys throughout the country.

Between January and December 2018, another 62 vulture collisions and electrocutions have been recorded. Although this is down from previous years, perhaps due to some mitigation, it still indicates that on average just over 1 vulture per week is injured or killed due to power lines. Almost half of the accidents are fatal. These are only those that we know about – there will be more that have not been reported and we estimate only 10% of vultures that are either injured or grounded are in fact found or reported.. Figure 10 illustrates the cause of injury and the eventual outcome of these cases. Again, this must be considered a minimum figure, as injuries which could not be confirmed as power line related, were not counted. A total of 14 wing fractures were reported in 2018.

VulPro continues to strengthen our relationship with Eskom, facilitating a collaborative effort to mitigate these unsafe structures, in order to minimize the number of individuals lost to collisions and electrocutions.

Figure 10: The cause and result of all power line interactions noted through the VulPro Centre in 2018.

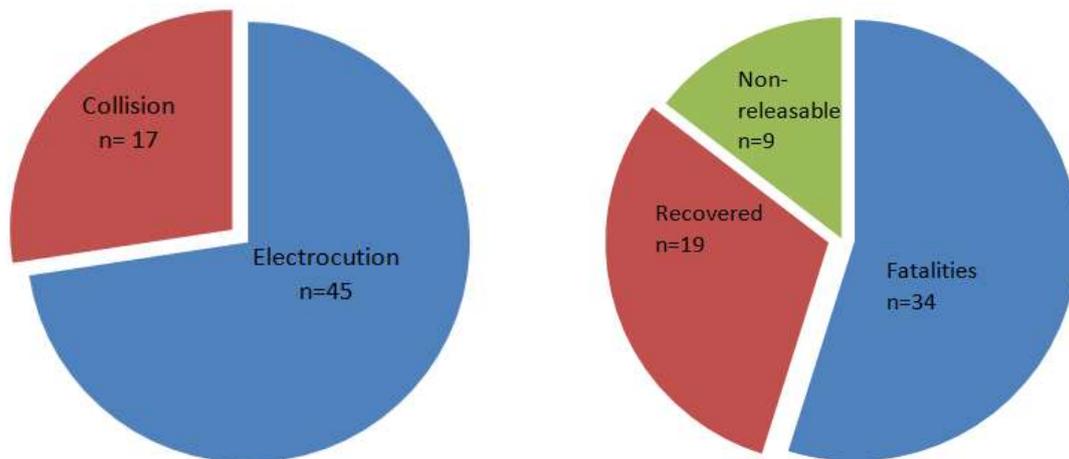


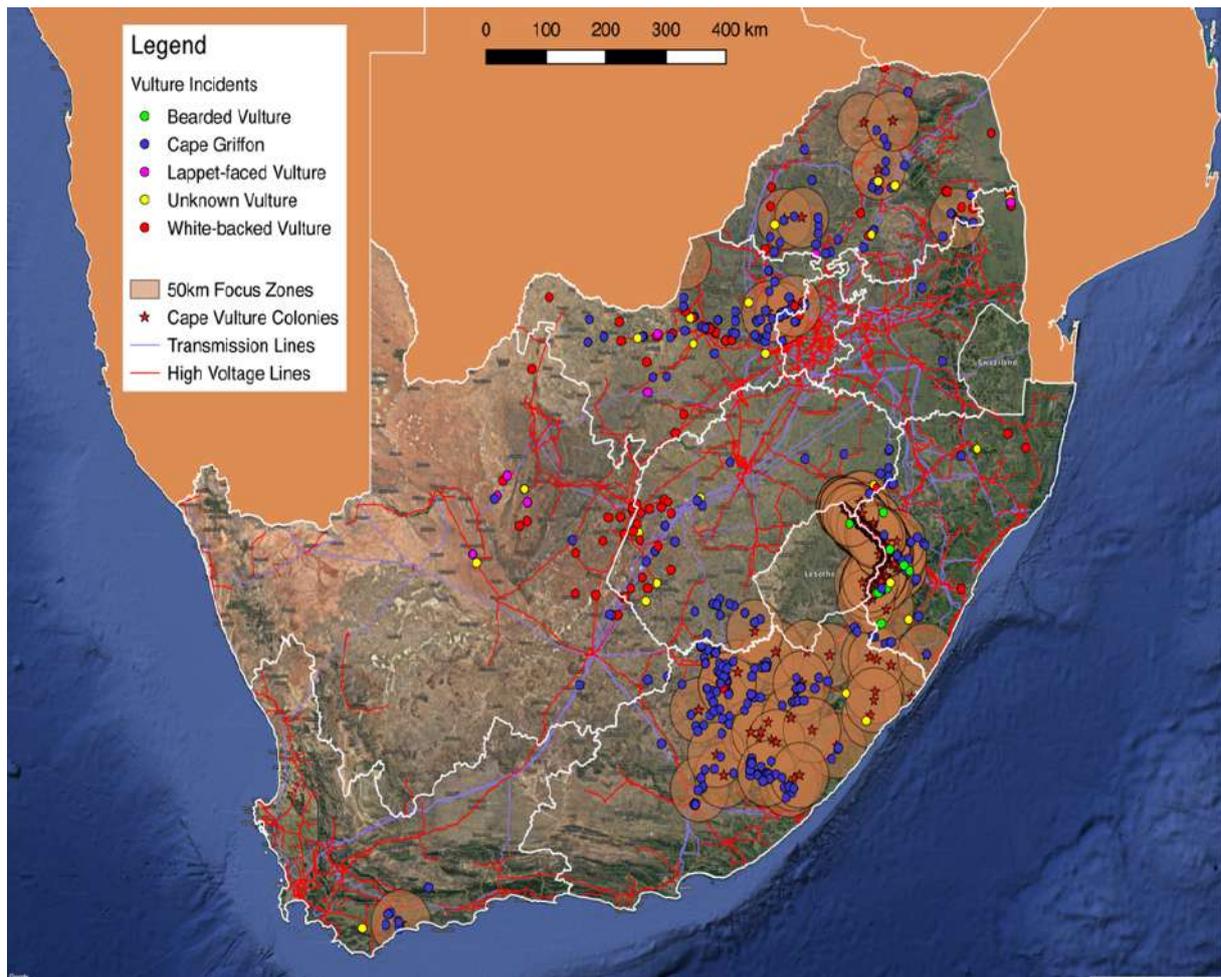
Table 11: Power line accident statistics overview for the past 5 years.

	2014	2015	2016	2017	2018
CV	30	59	96	75	60
AWBV	39	27	9	10	1
LFV	1	1	1	2	0
Un-ID	27	9	45	3	1
Total	97	96	151	90	62

Legend: CV = cape vulture, AWB = African White-backed Vulture, LFV = Lappet-faced Vulture, un-id = unidentified vulture

During 2018, VulPro initiated a collaborative research project with Eskom, aimed at identifying possible trends in vulture-power line incidents. Through the analysis of vulture incident data, we are able to ascertain the spatial relationships between high vulture utilization areas, and the occurrence of power lines. Initial analysis has revealed strong correlations in the number of power line incidents that occur within the 50 kilometer buffer zones around high vulture utilization areas such as breeding colonies, feeding sites etc. incidents. The figure below displays vulture collisions and electrocution on both Eskom transmission and high voltage lines.

Figure12: Vulture power line incidents across southern Africa.

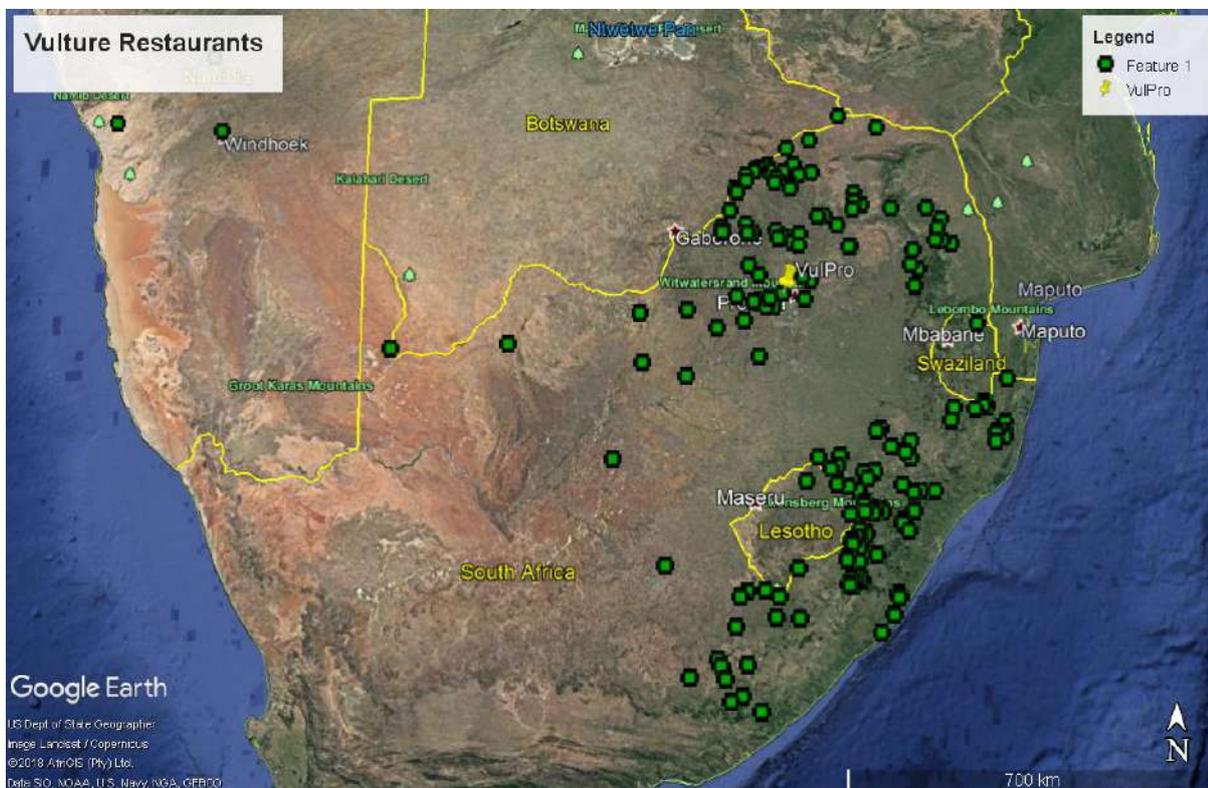


2.7. Management and associated work around vulture restaurants

Vulture artificial feeding site, also well known as vulture restaurants, provide safe, reliable, toxin free food sources for vultures in an ever-fragmenting environment. VulPro ensures good and constant communications and relationships with farmers and landowners who manage artificial feeding sites on their properties, as well continuously seeking to formulate new collaborations. We provide advice, assistance, guidance and support regarding the correct establishment of such sites, but also how to properly and effectively manage such sites in a manner that benefits both the land owner, as well as vultures, We accomplish this through engagement, site visits, as well as circulating pertinent information and protocols to all relevant stakeholders on a regular basis.

Presently, there are 389 known artificial feeding sites in southern Africa, however only 129 are active on a regular basis. We are continuing with studies aimed at maximizing the value of vulture restaurants for conservation purposes. Depicted in the figure below, is the current distribution of vulture restaurants throughout southern Africa.

Figure 13: Vulture artificial feeding sites in southern Africa



2.8. Community outreach, interaction and education

VulPro places huge emphasis on the role of education within the field of conservation. In order to make a lasting impact, it is vitally important that we reach individuals in a manner that would stimulate a true sense of appreciation towards a severely misunderstood species. Thus, we continued to set out to equip the leaders of today, along with the conservationists of the future, with the necessary skills and knowledge that would result in a community that endeavors to preserve rather than persecute vultures.

Once again, the many school and scout groups that visit the facility prove that VulPro is providing the necessary and interesting experiences that will guide and teach the young people to respect

and honour the environment and all in it.

Table 14: Numbers of individuals (written in order of attendance within the month) hosted by VulPro or addressed by VulPro staff in 2018.

Month	Family Groups	Other small groups	Large groups, i.e. Clubs or conservancies	School and scout groups	Totals
January	4	1, 2, 2, 2	4		15
February		4	24	125#	153
March		2, 1	62*, 55*, 10*, 20*, 25*, 30*	39, 22	266
April	5	2, 1		15, 20	43
May	5, 3	3, 6, 4, 4, 2	9, 8, 3	10**	57
June	4, 2	1, 25		26	58
July	4, 4	7	20*, 11*, 450*	55	551
August	2, 2, 2, 2	6, 5, 6	6	62, 59, 62	214
September	2, 2	6, 5	400	1600, 27, 8**, 80	2130
October	6, 2	5			13
November	3	3, 3	25, 12, 4	59, 40	149
December	6, 2, 8				16
Totals	70	108	1178	2309	3665

* Attending lectures on VulPro's activities in 2018

** Roots & Shoots after school programme

Skype lectures by Debra Toor

The continuation of our environmental education endeavors is of the utmost importance, as we need to motivate an immediate change within our citizenry. Utilizing talks, tours, presentations, and various media platforms: VulPro needs to address the leaders of today, so that we can prevent the loss of this invaluable species. Through educating the leaders of today, not only do we lay down the foundation for the conservationists of the future, but also try to ensure the continued existence of the species for the generations of tomorrow.

Worthy of mentioning are:

Education

- A number of students from St.Stithians and other institutions did community service at VulPro during the year.
- Debra Toor initiated a "Skype in the Classroom" programme, presenting educational segments on vultures both locally and internationally. This has been a fantastic initiative, as it has allowed for like-minded students from across the globe to come together and learn about the importance of vultures, This programme will be continued in 2019

Training and collaborations

VulPro hosted a very successful three-day rehabilitation, orthopaedic training and laser training

course by Dr. Neil and Karen Holmer Forbes, and Janet Lloyd-James, all from the UK. Dr. Neil Forbes is one of the leading avian medical specialists in the UK and globally. This course had a massive impact, with conservationists, rehabilitators, and veterinarians both local and international, attending. The knowledge and skills shared during this course will allow for the advancement of avian medicine and veterinary care, especially for vultures. Not only will this improve the quality of veterinary care received, but has also provided enlightenment regarding new techniques and procedures of which many were previously unaware. With these added skills and information, we believe that more vultures will be given a chance of freedom, which may not have previously been possible.

VulPro assisted with the training of fellow conservationists from neighboring countries: Botswana, Tanzania, Nigeria. These individuals were provided with protocols and practical field experience in various vulture related protocols such as undertaking population surveys, vulture handling, rehabilitations, establishment of vulture artificial feeding sites.

VulPro continually emphasizes the importance of having an adaptive management approach, and thus, we feel we must always advance our procedures and protocols, and share these through practical, hands on training. This is achieved through exposing not only VulPro staff to ongoing training, but also local and international volunteers from all across the globe. VulPro hosts on average, 26 international volunteers per annum, from Australia, Germany, France, England, and America to name but a few. During 2018, VulPro hosted a total of 25 international volunteers.

2.9. Involvement in research projects

Research remains of paramount importance to our vulture conservation work. Utilizing the research data gathered within every aspect of our conservation activities; we aim to analyze, formulate and then publicize pertinent information and protocols. This includes the last eleven years of rehabilitation data, tracking movement analysis, ongoing morphological advancements, ongoing veterinary and pharmaceutical research, comparisons in survival of tagged versus untagged individuals, possible impacts of fitment of GPS transmitters on individuals' survival, re-sightings of tagged versus untagged individuals, as well as development for techniques for in-situ and ex-situ vulture conservation approaches.

Some of these research projects lend themselves as graduate and post graduate projects, and others are more annual projects, all are vitally important to saving Africa's vultures:

Existing and expanding research undertakings:

- GPS tracking and ground truthing: Using data derived from individuals fitted with tracking devices, VulPro aims to assess factors such as survival; dispersal; foraging patterns; breeding sites; water utilization; as well as facilitate comparisons between captive bred and rehabilitated individuals' behaviors post-release. Additionally, daily monitoring of tracking devices allows us to identify areas of high vulture utilization, which can then be investigated to establish the driving forces behind these. In 2018, we released 33 individuals with tracking devices. Of these thirty three devices, twenty are still presently active and being monitored on a daily basis.
- Continued with vulture calcium study in collaboration with a PhD student. The purpose of this study was to understand calcium levels and potential deficiencies in both wild caught and captive vultures, and how to address these deficiencies,
- VulPro continues to undertake vitally important research regarding the use of Non-Steroidal Anti-Inflammatory Drugs, and the effects of these on vulture species. Towards the end of 2018, VulPro undertook a research project, whereby we tested a new NSAID which is used in India. The publication of these results is currently in progress.
- Expanding our current vulture re-sighting database which is steadily growing. As of December, including repeat individuals, a total of 35,655 re-sightings have been recorded. We are in the process of analyzing this data, and generating publications regarding aspects such as survival;

dispersal; and the effects patagial tags may have on an individuals' survival rate. In summary during 2018, 76 vultures were fitted with SAFrings, 58 vultures were fitted with patagial tags; and 36 were fitted with coloured leg bands.

- Wild captures, marking, and processing: Undertook captures of wild individuals in order to fit GPS trackers, patagial tags, or colored leg bands, along with a metal SAFrings. Blood samples are also taken to assess various factors such as lead and calcium levels. During 2018, a total of 25 individuals were fitted with patagial tags at Olifants River Private Game Reserve. Of these, 14 individuals were processed on the nest (11 African White-backed vultures and 3 Hooded Vultures); and 11 were a result of wild captures (All African White-backed Vultures). All were fitted with metal SAFrings, and blood samples were taken.

Facilitating Post-graduate studies:

VulPro continues to facilitate both local and international post-graduate students, who are in the process of completing their MsC or PhD's. These individuals undertake research at our facility, and in collaboration with VulPro, aim to publicize their findings. Some of the research projects currently underway include:

- Evaluating the effectiveness of laser therapy in the treatment of bumble-foot in captive Cape Vultures.
- Determining the effects of egg weight loss on chick development and hatchability in Cape Vultures
- Sexing of African White-backed Vultures (Currently in press under review for publication)
- Understanding the conservation benefits of artificial feeding sites

2.9.1. Publications

VulPro continues to publish its findings wherever possible and as such, the following papers have been published, or were submitted for publication, in 2018:

- . Naidoo V, Taggart MA, Duncan N, Wolter K, Chipangura J, Green RE and Galligan TH. 2018. The use of toxicokinetics and exposure studies to show that carprofen in cattle tissue could lead to secondary toxicity and death in wild vultures. *Chemosphere*. (190): 80-89.
- Hirschauer MT, Zimunya T, Wolter K, and Monadjem A. 2018. Sexing Cape Vulture Gyps coprotheres based on head morphometrics. *Ostrich*. DOI:10.2989/00306525.2017.1415990
- Williams HJ, Shepard ELC, Wolter K, Parry-Jones J, and King AJ. 2018. Inter-individual differences in exploration and aggression in the Cape Griffon Vulture (*Gyps coprotheres*): implications for the ecology of a social scavenger. *Peer J* 25759.
- Tucker MA, Alexandrou O, Avgar T, Barnhardt A, Berens D, Bierregaard RO Jr., Bildstein KL, Böhning-Gaese K, Bracis C, Brzorad JN, Buechley ER Cabot D, Calabrese JM, Carrapato C, Chiaradia A, Davenport LC, Davidson SC, Desholm M, De Sorbo CR, Domenech R, Enggist M, Enggist P, Exo KM, Farwig N, Fiedler W, Fleming CH, Franke A, Fryxell JM, García-Ripollés C, Grémillet D, Griffin LR, Harel R, Kane A, Kays R, ErikKleyheeg E, Lacey A, LaPoint S, Limiñana R, López-López P, Mellone U, Mojica EK, Nathan R, Newman SH, Noonan MJ, Oppel S, Prostor M, Reading A, Rees EC, Roesner S, Romero M, Ropert-Coudert Y, Sapir N, Schedler D, Schmidt M, Schulz H, Najafabadi M, Silva JP, Henrik Skov, Spiegel S, Takekawa JY, Teitelbaum C, van Toor ML, Urios V, Vidal-Mateo J, Wang Q, Watts BD, Wikelski M, Wolter K, Żydelis R and Mueller T. (in press) Movement distances of birds are longer in homogeneous environments.
- Venter JA, Martens FR, and Wolter K. (in press). Recommended conservation buffer sizes

derived from movement data of breeding adult Cape Vultures (*Gyps coprotheres*) in South Africa. African Zoology.

- Hirschauer MT, Wolter K, Forbes NA. (submitted). A review of vulture wing anatomy and safe patagial tag application in response to several injured vultures. Biodiversity Observations.
- Jordan L, Sibanda B, Wolter K, and Hirschauer MT. (submitted). Sexual dimorphism in African White-backed Vulture (*Gyps africanus*) plumage and biometrics. Ostrich

2.10. Media interest and social media

VulPro’s activities and campaigns have always attracted media attention. Through talks, after school programs, presentations, tours, training of staff and volunteers, workshops, written media, publications, and social media. Utilizing these platforms, VulPro has directly impacted over 1830 individuals, and indirectly impacted hundreds of thousands.

In December, Kerri Wolter’s Facebook page had 5000 followers, the VulPro Facebook page had 8364 followers, our Twitter account had 1138 followers, and 623 followers on Instagram. The VulPro website has an average of 8700 visitors per month,

Most recently, VulPro has also invested in a billboard, which projects a short twenty second video clip, showing the plight of vultures. This is seen by an average of 35 000 people per day.

3. Administrative issues

3.1. Board, staff, volunteers, students

As an independent NPC since 2011, VulPro has been managed by CEO Kerri Wolter under the direction of the Chairman and members of the now 8-member Board. VulPro’s Board was established in 2011, when VulPro first registered as an NPC (Table 10). The directors in 2018 are listed in Table 11 and staff in table 12.

Table15: The VulPro Board in 2018.

Name	Role	From
Prof. Vinny Naidoo	Chair	2013
Adv. Matthew Welz	Legal adviser	2013
Mark Wolter	Treasurer	2016
Robyn Howes	HR & Marketing	2014
Beryl Wilson	Research	2017
Charlton Forsyth	Business management and fundraising	2017
Craig Natrass	Operations	2017
Kerri Wolter	CEO	2011

Table16: Staff at VulPro in 2018.

Name	Status	Role
Kerri Wolter	Permanent*	CEO
Charne Wilhelmi	Permanent*	Fundraising, bookkeeping, communications, field work
Obert Phiri	Permanent*	Operations manager

Notice Phiri	Permanent*	Driver and maintenance
Charles Banda	Permanent*	Maintenance manager
Lara Jordan	Permanent*	Head of Research
Kate Webster	Permanent Eastern Cape representative	Field officer and Eastern Cape representative

*Salaried

VulPro is limited to how many salaried staff it can employ by the funds available for that purpose. VulPro therefore depends heavily on volunteers to assist with the workload, and also on persons from collaborating institutes to fund research projects. There are not enough words to express how much we appreciate the assistance from the many people who have volunteered in miscellaneous positions for differing time spans.

3.2. Travel

Travel was undertaken for the following of VulPro's activities:

- Collection of carcasses from farms for feeding the birds
- Rescue and rehabilitation
- Management and visitations to vulture restaurants
- Management of Nooitgedacht release site enclosure and all birds held within.
- Travel as required for research projects
- Travel as required for field work i.e. vulture monitoring
- Travel as required for transporting birds for veterinary attention
- Travel to schools, clubs, and other places for the Educational Outreach work
- Travel to meetings and conferences relating to vulture conservation aspects, funding, research projects, and media interviewed.
- Travel for vehicle service and maintenance

In total, the distance travelled throughout 2018 came to 103, 000km

3.3. Costs

Operational costs are broken down into:

- Salaries (section3.1)
- Travel (section3.2)
- Veterinary services
- Feeding
- Property maintenance
- Security
- Electricity, phone, etc.
- Office costs
- Research, including colony monitoring (sections 2.3, 2.4, and 2.8).

4. Fundraising, sponsorship, acknowledgements and sustainability

4.1. Fundraising, sponsors, acknowledgements

VulPro is always extremely grateful for and humbled by the assistance, commitment and enthusiasm received from all our friends, sponsors, donors, adoption "parents", family members, volunteers and supporters, enabling it to achieve ever more goals and fulfil its mission to save and increase all the vulture populations in South Africa and southern Africa.

Also, as always, our special appreciation to our long-standing donors:

- Bayer South Africa,
- Banham Zoo,
- Blair Drummond Safari Park,
- Boehringer-Ingelheim
- Boikarabelo Coal Mine,
- Cellular Tracking Technologies,
- Chicago Board of Trade Endangered Species Fund,
- Cheyenne Mountain Zoo,
- Cleveland Metroparks Zoo and Cleveland Zoological Society,
- Columbus Zoo,
- Colchester Zoo,
- Dallas Zoo,
- Detroit Zoological Society,
- DHL Supply Chain,
- Different.Org
- Fresno Chaffee Zoo,
- Gauntlet Conservation Trust,
- GH Braak Trust,
- Hans Hoheisen Charitable Trust,
- Jacksonville Zoo and Gardens,
- Lomas Wildlife Protection Trust
- LUSH,
- Max-Planck-Gesellschaft,
- Natural Encounters Inc.,
- Reeder Conservation Fund,
- Rufford Foundation,
- Rand Merchant Bank
- Sacramento Zoo,
- The Hawking Centre UK,
- The Tusk Trust,
- Wild Heart Wildlife Foundation
- World of Wings Bird of Prey Centre in Scotland,
- Zeiss South Africa,
- ZKTeco and
- Zoo Atlanta

Our well-wishers may also support us at no cost to themselves through using the My School/My Village/MyPlanet programme from Woolworths, that helps to raise money for schools, charities and conservation projects throughout South Africa. VulPro would like to thank every single individual who elected to nominate our organisation as their chosen charity.

4.2. Sustainability

VulPro places huge emphasis on the importance of forming collaborations and partnership, and we make a marked effort to maintain these relationships. As a result of this, we have been very fortunate in maintaining several funding relationship, which facilitate our ongoing vulture conservation endeavours and activities. We have also been fortunate to formulate local partnerships, which has resulted in continued delivery of carcasses to feed wild birds at our feeding site, proving more sustainable than us having to collect. Additionally, VulPro is a contributing member of both PAAZA Pan-African Association of Zoos and Aquaria), and the

Vulture SAFE (Save Animals From Extinction) programme, facilitating a sustainable collaboration and support system for all involved. As an additional precaution, our organisation has also established an investment account, so that if we were ever met with financial difficulties, we can continue with our conservation activities for an additional 12 months, whilst other funding sources are being secured.

5. VulPro Wealth Link Investment Summary

I'm pleased to advise that the investment is still R220 399.00 to the positive or 6% up. This in a market where most ended up flat at best, mostly behind. This bids well for the New Year where the general sentiment is positive and hopefully markets following suit, providing the elections go well and as expected.