Vulture Seminar: Looking Toward the Future

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A full transcription of presentation question/answer sessions and workshops are available upon request. Contact Kerri Wolter at kerri.wolter@gmail.com for details.

Introduction

Background

The last holistic and constructive workshop centered on multi-species vulture conservation, the Pan-African Vulture Summit, was held in April 2012 in Kenya. In the two and a half years since this conference, new threats to vultures have emerged in southern Africa (wind energy developments), almost all other threats have continued in some capacity (indirect poisonings, power line collisions and electrocutions) and even intensified in certain regions (direct poisonings). It was time that vulture enthusiasts and professionals gather to re-evaluate the efficacy of previous action plans and look forward to help conserve all southern African vulture species.

This Seminar was structured to be an open forum to educate and then discuss issues surrounding vulture conservation. Invitations were open to the public and specifically sent to landowners, vulture restaurant managers, veterinarians, scientists, students, conservationists, NGOs / NPOs and government officials.

Objectives

- Determine and unanimously agree on concrete Action Plans.
- Nominate responsible parties and set timelines for these actions.
- Highlight priority actions and areas of research.

Presentations

A *Gyps* Tale: 40 Years of monitoring in the Magaliesberg. Does it count?

Dr. Craig Whittington Jones

Abstract: Cape Vultures (*Gyps coprotheres*) breed at three discreet colonies on the south-facing cliffs of the Magaliesberg ridge on the border between Gauteng and the North West Provinces, South Africa. Breeding has been monitored almost annually since 1973, but the value of this long-term dataset for interpreting the relative significance of major causes of anthropogenic Cape Vulture mortality and the effectiveness of ongoing conservation interventions in this area has not been explored. Historical data are reviewed and future priorities are identified.

Discussion

Recruitment and trends in the meta-population were discussed. Craig acknowledged that the change in population over time could in fact be from birds moving to the Magaliesberg, i.e. to the study area, but that trends at many other colonies are unknown.

VulPro's Cape Vulture captive breeding and South African supplementation programme

Maggie Hirschauer

Abstract: VulPro's Cape Vulture captive breeding programme started in 2011 and is rapidly expanding. Every captive-bred chick will be released for Magaliesberg population supplementation. The first release event is planned for February 2015. Each chick will be fitted with a GPS tracking unit and their behaviours will be monitored at VulPro's feeding site when possible. Protocols from the first releases will inform future reintroductions all over southern Africa. Ideally the parent birds raise the chicks independent of human intervention. However, most pairs (8 of 10 in 2014) are inexperienced so eggs are removed for artificial incubation. The colony was monitored intensively throughout the 2014 season. Trends in copulations and extra-pair copulations were discussed.

Discussion

There is still little known about the post-fledging dependence period (PFDP) in Cape Vultures. Peter Mundy cautioned not to remove the chicks from the parents too soon. VulPro removes the chicks from the breeding enclosure in December.

Ernst Retief questioned the need for a captive breeding programme. Kerri Wolter mentioned the fact that captive breeding was highlighted at the Pan-African Vulture Summit in Kenya, 2012. All available knowledge states vulture species are declining and facing numerous threats. At the very least, a captive breeding programme should be put in place as a precautionary measure so birds do not need to be removed from the wild for captive breeding purposes, as was the case with *Gyps* vultures on the Indian subcontinent. A Cape Vulture management plan has been completed and the first draft submitted for comments

Farmers adding to vulture conservation
Kate Webster

Abstract: Years ago there were two groups of farmers; those that had the insight to incorporate the environment with their agricultural practices, of which there were a minority. The second group would remove all 'unwanted' perceived elements hampering their progress in agriculture. Peter Hayes was a farmer that belonged to the first group and found support by sharing his experiences with me. He established a very successful vulture restaurant, which used to feed up to 100 Cape Vultures. He knew and believed that he was doing the correct thing. As the pressure on the world's resources has increased, a better partnership with the environment has become a reality. This reality in the agricultural sector has grown the first group of farmers into the majority. Together with respect for the farmers and their need to produce food for the nation, we can work together to increase the drive for Vulture Conservation.

Discussion
Alvaro agrees that the attitudes of European farmers are 100% the same as farmers here. Utilizing 'wild' carcasses resulting from natural mortality on game farms was discussed, but it was concluded that all carcasses are removed and utilized by humans. In the Kalahari Beryl Wilson mentioned game is shot and removed but the guts remain, feeding jackals but not vultures. This is a management issue. There is a greater need for better holistically managed farms. Tim Snow commented on the alarming persecution of jackal and caracal and the need to protect them. There are many proactive farmers and pilot farms which try to keep jackal. We must just remember jackal presence is a contentious issue.

Vulture awareness actions in Zimbabwe
Merlyn Nomsa Nkomo

Abstract: The general public in Zimbabwe are not aware of vulture conservation. Zimbabwe has a high literacy rate, Zimbabweans are willing to adapt to cultural change, and the country is still in the process of developing. These factors mean there is great potential for change and increased awareness through education. I propose we approach Zimbabwean public and form collaborations with various organizations through a vulture conservation booth at the Zimbabwe International Trade Fair (ZITF), held April 21-25, 2015. Cost and logistical barriers are discussed as well as plans to attend the Harare Agricultural Show and other venues.

Discussion
There is a lack of knowledge of Zimbabwean vulture roosting sites and movement patterns. There should be a drive to involve farmers and landowners, as Zimbabwe's economy is based on them. Mark Saunders offered financial assistance to erect the 2015 ZITF booth. A White-backed vulture can be provided from Roger Parry at Victoria Falls for educational use at the booth.

The overall objective of this initiative is to be a stepping stone for other awareness actions in the region as well as Botswana and Namibia. A joint, a-political effort is necessary as vultures range all over southern Africa.

Vulture Toxicity: Veterinary Drugs
Dr. Vinny Naidoo

Abstract: Everything is toxic it's the dose that makes the difference. Is it therefore not surprising that inherently all drugs have side effects. Unfortunately these side effects are unpredictable due to variations in unique species physiology, the drug's pharmacokinetics, and the drug's pharmacodynamics. As a result drugs are routinely extensively tested in the laboratory animals and target species to elucidate their safety characteristics. This testing comes at huge cost to the developing pharmaceutical company. When it comes to non-target species, current legislation limits testing to the environmental effects of the drugs on aquatic and soil organisms as these represents the major possible routes of environmental contamination. With regards to birds, toxicity testing is usually only required for the pesticides. As a result, very little information is available for bird species and virtually nothing for vultures. What is known is that the vulture appears to be unique in their metabolism with many of the known toxicants to vultures have been discovered through accident. Of these the most important chemicals toxins, are the non-steroidal anti-inflammatory drugs (NSAIDs). Of this class diclofenac has been responsible for the massive deaths of millions of vultures on the Asian subcontinent. Most recently ketoprofen has also been shown to be toxic. Of the others Carprofen, Flunixin, Phenylbutazone, and Aceclofenac are suspected to be toxic, with only meloxicam known to be safe.

Discussion
Various studies were proposed by delegates (biochemical pathways, wild captures to test levels) but the best way to understand toxicological effects is to have a full living animal and know the dosage involved, (i.e. the standard clinical trials). Current standards for environmental toxicology studies were discussed. Environmental Impact Assessments (EIAs) currently do not account for toxicity in avian species. Even if the decision trees involved in EIAs begin to account for toxicity in other avian species (i.e. ducks or quail) these improvements may not be relevant to vultures because of their unique physiology.

Because vultures evolved to eat carrion they have a restricted diet and are less able to adapt to foreign chemicals. Synthesized drugs vs. plant based chemicals makes no difference, both are potentially toxic. Plants produce some of the most toxic chemicals known. In time vultures have come across anthrax, botulism etc., but never synthesized drugs. They are not able to adapt to a modern environment.

Carcasses fed at vulture restaurants must be screened. Delegates decided to create a basic list specific products which are known to be toxic, suspected to be toxic, and safe for distribution to farmers. Poisoning incidences were discussed. Storing samples of every carcass was discussed, but this has a high cost. The best tissue to sample is at the site of the injection as it will store the highest concentration of the drug. Surveying both drug stores and farmers/landowners and diplomatic approaches to banning certain known toxic substances were suggested.

Towers and turbines: threats of titanic proportions, or are they?
Megan Diamond

Abstract: South Africa's electrical network has grown substantially in the last twenty years. Prior to 1990 less than a third of the country's population had access to electricity. By the end of the decade that number had doubled. This trend is set to continue with additional power stations, renewable energy developments and major power lines being built on a massive scale to meet the rising electricity demand in South Africa. It is also important to note that large scale electrification programmes like this are not unique to South Africa. Less than 5% of sub Saharan Africans have access to reliable electricity. Numerous energy development programmes, including renewable energy (particularly wind farms) and new power line networks are being planned and built all over the continent. Increased electrification of our country and continent is undoubtedly good news for people and economies, but what does it mean for far ranging vulture populations?

While the electrocution and collision impacts are fairly well understood, determining the magnitude of these impacts is proving to be far more challenging, particularly when breeding colonies appear stable with no declines in breeding pairs. Coordination is critical at this stage, in order to share lessons, develop capacity, pool resources, and accelerate collective learning towards understanding the enormity of the impacts and perhaps more importantly finding innovative mitigation solutions.

Discussion
Megan discussed pilot mitigations which utilize LED blinking lights to reduce nocturnal collisions. Walter pointed out some research already undertaken in the USA concluded flashing lights attracted birds which then led to their death.

Renewable Energy Development Zones (REDZ) were discussed. Megan commented these zones were going to be contained and are currently being screened. There are no pre-construction monitoring guidelines for Eskom unless under the context of wind or solar energy developments. Utilizing radar to mitigate impacts of wind energy was discussed but there are limitations to this technology, i.e. extensive length of lines.

Wind energy development: impacts on vultures and lessons from Spain
Alvaro Camiña

Abstract: Wind farms are distributed almost all over Spain with nearly 900 wind farms and around 18,000 of turbines. Griffon vultures *Gyps fulvus* are the most affected vulture species with around 1,000 mortalities recorded per year. Contributing factors include the species' biology, environmental variables and wind farm characteristics. Seasonal changes in mortality vary based on location because bird movement patterns and food available vary from site to site. Post-construction avian-focused assessments are recommended and can reduce mortalities due to the fact that 20% of Spain's wind turbines account for 60% of vulture mortalities. In addition, strategically placed vulture restaurants were found to reduce the crossings of vultures through wind farms, thereby reducing mortalities. Monitoring should ideally be conducted for the entire life-span of a project. At a minimum, monitoring the first eight years post-construction is crucial.

Discussion
The effects of different vulture feeding site management policies in Spain, especially in response to a Bovine Spongiform Encephalopathy (BSE) outbreak, were discussed. Distance between wind farms and colonies and the location of feeding sites are related to mortality. However these relationships vary from site to site and must be considered on a case by case basis.

Before the BSE outbreak, each village had a small dump site for dead carcasses. Post- BSE outbreak vultures started visiting rubbish dumps which then needed to be covered. Currently the government strictly regulates feeding at vulture restaurants.

Current trends in wildlife poisonings and the most abused toxins in Southern Africa
Tim Snow

Abstract: One wildlife poisoning event can devastate vulture populations. We know that poisoning incidences are increasing. We do not know the full extent of the issue because there are many challenges in recording and addressing every event in an unbiased and standardized way. Poisoning events happen through legal pesticide use, poaching, farmer/predator conflicts, accidental spills, incorrect dosage applications, and obsolete stockpiles (abuse, theft). The most abused toxins in southern Africa include Temik®, Curaterr®, Methomex®, Tamaron®, and Basudin®, which are the trade names. All are pesticides and are known by trade names or chemical names and all have numerous pseudonyms. Some of these substances are off the South African market but proliferate through the black market, while others are legally distributed although via inadequate control and distribution methods. To combat these

issues we intend to create a community of practice, who we will train to better manage poisoning incidents, and we will engage with the legislation process to remove the most hazardous materials from the market.

Discussion
Working relationships with Nature Conservation authorities need to be strengthened and expanded. Only through these relationships can we adequately respond to poisoning incidences. Legal restrictions on various substances were discussed at length. It is important to find someone in each conservation agency which you can work with and call in an emergency. If transport permits are not already in place, the investigator's intention must be declared to a law officer before travelling with samples.

Poisoning incidences must be treated as crime scenes. Protocols should be followed in the case that legal action may be taken against the perpetrator. There is a need to set legal precedence against poisoners, but to do this evidence must be collected, transported, and analyzed in a manner that will hold up in a court of law. Creating field kits was discussed but was decided against as the parts are often scattered and used for other purposes. The most important item to have on the scene is a camera.

Workshops
Veterinary drugs and vulture toxicity; leader Dr. Vinny Naidoo

- A vulture restaurant questionnaire to all owners and managers was proposed to better understand which veterinary drugs are being used (Action Plan #1)
- Creating a centralized logbook of food items and drugs used was discussed, specifically via a cell phone application which could have user-friendly drop-down menus for each carcass type, drugs used, etc. (Action Plan #2).
- There are two options for sampling toxic drug presence: from carcasses and/or animal/vulture mortalities.
- Game vs. agricultural farming practices use different drugs and this varies from location to location (i.e. applicable drugs used by sheep farmers in the Eastern Cape are different than the drugs used by cattle farmers in the North West Province)
- Interacting with Wildlife Ranching South Africa was discussed to see if game carcasses could be made available for vulture feeding. However, very little of the carcass is unused due to the value of the animal; this collaboration may not be plausible but should still be explored if possible.
- Caution was urged when feeding carcasses that have been shot with lead bullets due to the possibility of lead poisoning to vultures.
- 'Problem' animals could be utilized for feeding (i.e. warthogs which raid maize farms), but high cost of transport of these carcasses poses a challenge.
- The pros and cons of regular vs. sporadic feeding sites was discussed. Feeding regularly would be more likely to safe guard the birds against hazards found from feeding in the wild (naturally occurring carcasses), although some people argued that even with regular feedings, the birds still feed opportunistically in the 'wild'. Craig Whittington-Jones pointed out that you should not argue that vultures are an important part of the ecosystem and then attempt to completely remove them from it.
- The ability of a pig-only (or single species of carcass) restaurant to provide all of vultures' nutrient requirements was discussed. It was assumed that a pig-only restaurant would be sufficient, although the diet is very high in fat. Horse meat is very low in iron.
- There is a need for a simple toxic substance list for restaurant owners/managers or anyone accepting carcasses for vulture consumption (Action Plan #5).
- A 'Vulture friendly' farm campaign was suggested. A logo could be created for product packaging resulting from any farm which produces vulture friendly carcasses. There is the potential to target certain markets like Pick n' Pay.

Wildlife Poisons; leader Tim Snow

- Ways in which poisonings were prevented and addressed in the past were discussed.
- There is currently lack of support from conservation bodies for farmers and landowners with stock raiding issues. This might be prompting farmers and landowners to take matters into their own hands (use illegal substances).
- Using legislation to remove drugs from the system was discussed but poisons will always be available through illegal channels. The best option is both put pressure on companies to respond and to 'volunteer' drugs out of the system (i.e. reduce the *use* of legal harmful substances through informed decisions, rather forcing them off the market through legislation).
- As extremely toxic drugs (e.g. Timik®) are removed off the market and become less available to the common farmer, other less toxic ones (e.g. Oxpecker friendly cattle dip) will be made more readily available. This does not solve the issue but does improves the situation.
- We must assess the situation realistically, as we will likely never be able to ban legal yet toxic organophosphate insecticides.
- Increasing the fines for illegal use of poisons might decrease incidences.
- It is important to address rhino poaching as incidences have high impacts on vultures.
- There is a need to make more police officers aware of illegal pesticide products to take control of the market.
- An educational campaign targeting National Parks was suggested to address the impact poaching has on vulture populations. Providing the National Park rangers and staff with the statistics of vulture mortalities might make them care.
- Having concrete figures of mortalities in which all organizations can agree is important for knowledge and reduce confusion from publishing conflicting data across organizations. There is a need for a centralized database of poisoning events and mortalities which all NGOs, government officials, private sector etc. are willing to work with (Action Plan #3).
- An online poison database for citizen scientists was discussed (through the Animal Demographics Unit, ADU) but there are numerous challenges to the collection and reporting of data in this way.

Generating farmer involvement in vulture conservation; leader Kate Webster

- There is a current Farmers Workshops initiative occurring with VulPro in conjunction with CS Vet. This forum gathers the largest pig producers in southern Africa.
- Mpumalanga Alzu has created a forum for game breeders and vets in the high veldt. The gatherings are newly initiated and well attended. This network could be utilized to disseminate vulture conservation information.
- Farmer to farmer interaction is how trust is generated, but effective awareness must happen on a larger scale in collaboration with conservationists and the private sector.
- Venues such as agricultural expos and stores should be utilized to increase awareness.
- Initiating a live vulture tracking website with GPS tracking data might encourage a public sense of ownership of birds, an incentive not to use poison on the farm in threat of killing the tracked vulture.
- Farmers' wives should not be discounted, as they are often active in the management of farms and the decisions regarding animals.
- There is a lack of resources to generate farmer involvement in Zimbabwe as many resources are in English or Afrikaans, thus material must be translated. This publication should be concise, not a booklet. For instance there is no need for a species ID guide. In Shona and Ndebele there is only one word for all vulture species (Action Plan #6).
- A restaurant newsletter would provide a forum for farmers to share stories, get involved, and support farmers and landowners who work in isolation. By sending these restaurant

owners/managers a newsletter, VulPro will be more likely to get information (i.e. re-sightings, etc.) back (Action Plan #7).
- Restaurant-specific camera trap protocols are available from Beryl Wilson.

Wind farm development; leader Alvaro Camiña
- BirdLife South Africa and EWT have produced updated (2015) pre-construction studies for every wind energy development project. This data is available to the public on the BirdLife South Africa website.
- The distance between colonies and wind farms in Spain can be as little as 400m with low collisions rates.
- To reduce collisions we must know how the birds feed in an environment without turbines (i.e. movement patterns)
- Kate Webster mentioned she has noticed a partial migratory pattern of Cape Vultures in the Eastern Cape.
- Small colonies in KZN may be nursery areas, with more reported individual birds than breeding pairs.
- Flight height of vulture is not the main focus as flight through or below rotaries are both risky.
- A balance of vantage point observations and GPS tracking data is likely the most accurate; it is not recommended to rely solely on one or the other option.
- It is important to remember vultures instinctively look for moving live animals when foraging, then find carcasses. The grazing of livestock must be accounted for as well.
- There are NO mitigation measures in Spain except for stopping turbine operations when large congregations of vultures are seen advancing and during migrations.
- We need to convince developers to spend more money to focus on vultures and the monitoring of vulture movements.

Power line mitigation; leaders Megan Diamond and Chris van Rooyen
Megan and Chris were acting as intermediates between the Vulture Seminar forum and Eskom. They agreed to deliver the following messages/issues raised by the forum.

1. Proposed collision assessment project, collision detection measures.
    - VulPro data shows collisions are not focused around breeding or roosting sites. In fact there are collision hot spots which are not centered on any particular location, hundreds of kilometres from any roost site.
        - These hot spots are likely due to a higher incidence report rate and may be possible to extrapolate over the entire line to determine more accurate collision rate.
    - Dark backgrounds may contribute to lack of visibility and increased collisions.
    - Collisions are an underrepresented source of mortality because electrocutions create faults in the lines and are reported to Eskom. The bird dies immediately and remains under the line, whereas birds which collide with structures can often walk for many kilometres and are never found/reported.
2. Monitoring below colonies must be prioritized.
    - VulPro has found drastic rates of mortalities under a power line at the base of the Kransberg Cape Vulture colony.
        - Birds land at the base of the cliff when weather is poor and they can't reach the cliff to roost. Also juveniles are less adept at flying.
        - Wishbone structures were the cause for the majority of fatalities, but it was previously assumed that wishbone structures do not pose a major threat.
3. Standardized power line survey method needed
    - There is a new phase with BirdLife IBA surveys which will include power line surveys. This protocol could be very useful to BirdLife.

4. EWT/Eskom partnership and communication is failing
    - There is a lack of action and responses from the EWT and Eskom partnership once bird fatalities are reported.
    - In Eskom's regulations, they have 2 years to conduct mitigation from the time of a report. While it is in their best interests to mitigate as early as possible, it often is not possible.
    - Eskom advertises that they will respond with mitigation measures within 3 months (Kate Webster reports). This wording should be address and changed if not true.
    - The partnership is not well advertised. Farmers either report incidences directly to Eskom but without response or simply do not know who to report incidents to.
5. Suggest EWT/Eskom create a website to report and log incidences
    - Kerri and VulPro have offered to centrally collect all reports then give to the partnership.
    - This website should be a place to log incidences and check on the status of any response.
    - Old incidences and reports should be made available for researchers.
6. Resurrect avifaunal-focused trainings for environmental assessments
    - System and procedure was structured by Megan but it is currently not in practice.
7. A reference document which outlines specifics of every safe and unsafe structures is needed (Action Plan #12)
    - Staggered verticals are being implemented by mining companies despite the fact they are classified as bird-unfriendly.
    - Updated standards must be widely available and transparent

Other topics mentioned outside of workshop forum:

- The forum is data deficient on mortality causes. It is important to model the population status to be able to approach developers with factual evidence of anthropogenic impacts (Action Plan #14).
- The deteriorating relationship between EWT and multiple other organizations (both present and not present at the Seminar) is concerning and must be investigated. Animosities between groups is only hurting productivity as certain actions are being duplicated (i.e. Cape Vulture species management plans, vulture-focused meetings, etc.).
- Data sharing is a stumbling block for many organizations because data has been stolen/used inappropriately in the past and collaborations not acknowledged. Courtesy and openness is required but this is a difficult subject to breach when intellectual property is involved.
- An annual Vulture-focused forum is necessary and was encouraged by all delegates. VulPro is willing to host and organize. Better communication is needed between all organizations to reduce overlapping schedules and duplicating agendas.
- There were questions posed if it was possible to confirm the Cape Vulture population was in fact declining. Peter Mundy replied by explaining that the nucleus colonies (of which there are half a dozen or so) may remain stable, yet the fringe colonies go extinct when populations decline. This is exactly what we are witnessing now as the Waterberg, Namibia, Wabai Hill, Zimbabwe, and other colonies are now extinct. If we focus on counting the nucleus colonies only, the population may appear stable, yet this is not the case.
- Potential negatives of a Reintroduction or Supplementation Programme were discussed (i.e. disease exposure to wild birds). If the underlying causes of mortality are not addressed, the captive bred birds will be released only to die. At this point VulPro and others are actively addressing multiple threats. It was agreed the breeding and supplementation programme should continue to gain knowledge. Ultimately, provincial governments will be the ones to decide if the programme proceeds.

Results

1. **Action Plan: Vulture restaurant Survey** **IN PROGRESS**

Responsibility: Kerri Wolter (NW, GP, others), Kate Webster (EC), Beryl (NC), Mark Saunders and Simon Capon (Zimbabwe), Harold Hester (Botswana)

Timeline: Kerri Wolter will compose and distribute immediately

July, 2015 – compile feedback and provide to Dr. Vinny Naidoo

Challenges: Getting farmers to submit data

Follow up: The questionnaire was created and disseminated to regional champions (see Appendices). Responses are currently being collected and compiled.

2. **Action Plan: Vulture Restaurant feeding database, cell phone app** **IN PROGRESS**

Responsibility: Rex Green will create cell phone app, VulPro will house the database.

Timeline: March 2015

Challenges: Getting farmers to use habitually

Collaborators: VulPro (Kerri Wolter and Walter Neser)

Follow up: Rex and VulPro staff will meet in February to discuss the content of the app and proceed with its setup afterward.

3. **Action Plan: Poisoning Incidence Database** **IN PROGRESS**

There is a great need for a non-political, cross border centralized database of all poisoning incidences. The database will start with vulture incidences for a trial phase and see how the database can grow to include other species.

Responsibility: Fadzai Matsvimbo at BirdLife Zimbabwe will collate data

Timeline: end of November, 2014

Collaborators: Tim Snow, BirdLife Zimbabwe (Julia Pierini and Fadzai Matsvimbo), local Nature Conservancy organizations

Challenges: getting people to accurately collect data, reporting bias in unconfirmed cases

Follow up: All incidences should be reported to both **poisoningincident@blz.co.zw** and **snowman@bundunet.com** using a standardized Report Form (see Appendices). Specific reporting forms and protocols should be followed in every circumstance (see Action Plan #4)

4. Action Plan: Poison Incidence Response Protocol **COMPLETE**

A thorough and standardized 'crime scene' reporting protocol is needed to accurately report poisoning cases. Through the use of this protocol, ideally perpetrators could be held accountable in a court of law.

Responsibility: Tim Snow will provide content

Maggie Hirschauer will disseminate to Seminar delegates.

Prof. Vinny Naidoo will advise on procedure after speaking to and getting advice from Prof. Antoinette Koetze (University of Pretoria and National Zoological Gardens).

Timeline: immediately

Collaborators: VulPro, University of Pretoria, NZG, Ondersterpoort, BirdLife Zimbabwe

Follow up: Report forms and protocols were produced by Tim Snow (see Appendices and Action Plan #3)

5. **Action Plan: Toxic substance list, a guide to feeding vultures** **COMPLETE**

This is a list of known safe and unsafe drugs in a simple format on A4 sheet. This will be used for reference at vulture restaurants when consulting carcass suppliers and will be distributed to farmers, landowners and any individual or organization collecting carcasses for vulture consumption that we are aware of.

Responsibility: VulPro, Kerri Wolter will produce
Timeline: immediately
Collaborators: Dr. Vinny Naidoo

Follow up: The A4 sheet has been produced and disseminated to all delegates (see Appendices). VulPro has printed multiple copies for display on cold room doors and other food prep areas.

6. **Action Plan: A4 vulture awareness handout for farmers, 6 languages** **IN PROGRESS**

This should be a concise educational tool for handout in Zimbabwe and other rural areas when conducting field work. It will be translated into Ndebele, Shona, Zulu, English, Tonga, and Xhosa.

Responsibility: Merlyn Nomsa Nkomo, Thelma Nobuhle and Obert Phiri will provide the content
Timeline: Content final by the end January 2015
Translated by June 2015
Published and distributed by July 2015
Resources needed: publishing
Collaborators: Lucy Kemp will provide contact for translators

Follow up: The handout has been compiled and printed in English (see Appendices). VulPro is currently working to have the document translated.

7. **Action Plan: Vulture restaurant electronic newsletter** **COMPLETE**

The electronic 'Restaurant Newsletter' will be distributed to vulture restaurant managers bi-annually at the end of November and May.

Responsibility: Walter Neser will compile the content.
Timeline: first issue produced by end of 2014
Resources needed: content from other sources, pictures
Collaborators: Beryl Wilson will provide camera trap instructions for first issue, Andrew Tucker will assist with dissemination.

Follow up: Issue #1 has been completed and disseminated to delegates and all vulture restaurant owners in VulPro's database. The information from Beryl Wilson will be used in the next issue so as to avoid time delays.

8. **Action Plan: Vulture Conservation Booth at ZITF 2015** **IN PROGRESS**

Responsibility: Merlyn Nomsa Nkomo
Timeline: arrange booth by Dec 31, 2014
Resources needed: staff, housing for staff, educational materials, and hand-outs
Collaborators: Mark Saunders, Simon Capon, Peter Mundy, Thelma Nobuhle, Roger Parry

Follow up: Booth space will be shared with the Zimbabwean National Parks for no charge. Chairs and shade will be arranged. Roger Parry is working to arrange permits to bring a live African White-backed Vulture. Accommodation is secured for all staff to attend the booth.

9. Action Plan: Cape Vulture Management Plan **IN PROGRESS**

The original CV Management Plan was produced by VulPro for the Cape Vulture Task Force where Kerri Wolter was coordinating this Group.

Responsibility: Kerri Wolter
Timeline: Nov 2015
Resources needed: expert input on the currently accepted standards, reviewed draft
Collaborators: Alvaro Camiña, Beryl Wilson, Craig Whittington-Jones, IUCN guidelines

Follow up: The first draft of the CV Management plan has been distributed to Craig Whittington-Jones and Alvaro Camiña for comments. Once comments have been received, adjustments and changes will be made and the document will be sent through to all delegates for acceptance.

10. **Action Plan: Assess vulture tracking data around wind farm developments** **IN PROGRESS**
We need to better understand the flight paths and flight height of vultures in these regions. VulPro has some tracking data and will work to publish.
Responsibility: Walter Neser and Alvaro Camiña

Follow up: The data is available and is currently being analyzed to assess its use for these purposes.

11. Action Plan: Connect with Birds and Wind Energy Forum (BAWEF) **COMPLETE**
Responsibility: Ernst Retief will email BANWEF and put Frowin Becker, Kerri Wolter, and Kate Webster in contact with them.
Timeline: immediately

Follow up: The above mentioned delegates have been placed on BAWEFs emailing list and will attend meetings in the future.

12. Action Plan: List of safe and unsafe power line structures **IN PROGRESS**
This should be a simple reference document which lists the known avian safe and unsafe structures for distribution to mining companies and other developers.
Responsibility: Megan Diamond
Timeline: March 2015

Follow up: Megan is working to compile this list and is on schedule to complete by March 2015.

13. **Action Plan: Media vulture awareness campaign** **COMPLETE**
An awareness campaign will start with articles in Farmers Weekly/Landbou Weekblad. Afrikaans and English. Focus should be placed on carcass removal under power lines.
Responsibility: Walter Neser
Timeline: November 2014
Collaborators: Ernst and Chris will edit Afrikaans

Follow up: An article was written and published at the end of 2014 (see Appendices).

14. Action Plan: Populations modelling project **IN PROGRESS**
Responsibility: Ernst will contact Res Altwegg; Craig Whittington-Jones will contact Sonja Krüger
Timeline: immediately
Resources needed: funding and time, possibly student to undertake
Collaborators: VulPro, BirdLife SA, GDACE and North West Nature Conservation
Challenges: costs involved

Follow up: No one has stepped up to tackle the project, but we are still awaiting a response from Sonja Krüger.

15. **Action Plan: Vulture Seminar 2015** **IN PROGRESS**

Annual gatherings are needed to reassess action plans and make sure outcomes are being delivered.

Responsibility: Kerri Wolter
Timeline: November 2015
Resources needed: funding, time to organize
Collaborators: all Seminar Delegates
Challenges: travel cost for all delegates

Follow up: After polling the 2014 delegates regarding location and timing preference, the Seminar will likely be held at VulPro's center in November of 2015.

16. **Action Plan: Attempt to understand and break tensions with EWT** **IN PROGRESS**

Responsibility: Peter Mundy
Timeline: immediately

Follow up: Peter has repeatedly attempted to make (email) contact with members of EWT with no response. He is persisting.

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