Proceedings of the Vulture Seminar 2015

"Looking Towards the Future"

October 26th to 28th, 2015

VulPro NPO
North West Province, South Africa

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TABLE OF CONTENTS

AIMS

The workshop is to obtain a clearer understanding of our vulture population numbers, conservation initiatives in place, collaborative studies in which to better conserve our vultures and to have specific goals and techniques in which to better conserve vultures in their natural habitats. It is important that we are all speaking the same language and are all working towards common goals in which all vulture species directly benefit. This workshop will address specific conservation questions and initiatives. Key individuals and / or organisations will be tasked with specific areas, processes and initiatives with set time-frames, objectives and goals.

SCHEDULE

Monday, October 26th

7:30– 08:00	Arrivals and tea/coffee
Presentations:	
08:00 – 8:15	Welcome address; Warren Goodwin, Private
08:15 – 8:45	Global vulture perspective; Dr. Alvaro Camiña Cardenal, Eurasian Griffon Working Group, Vulture Conservation Foundation
08:45 – 9:15	Vultures in Zimbabwe and conservation initiatives; Prof. Peter Mundy, National University of Science and Technology, Zimbabwe
09:15 – 9:45	Vultures in Botswana and conservation initiatives; Botilo Tshimologo, BirdLife Botswana
09:45 – 10:15	Vultures in Lesotho and conservation initiatives; Samuel Zwakala, Ministry of Tourism, Environment and Culture, Lesotho
10:15 – 10:30	TEA / COFFEE
10:30 – 11:00	KZN provincial vulture strategy; Brent Coverdale, Ezemvelo KZN Wildlife
11:00 – 11:30	Vulture foraging analysis; Dr. Craig Whittington-Jones, GDACE
11:30 – 12:00	Eastern Cape vulture conservation activities; Kate Webster, Cape Vultures in Crisis / VulPro Eastern Cape
12:00 – 13:00	LUNCH
13:00 – 13:30	Tree nesting vulture conservation in the savannah area; Andre Botha, Endangered Wildlife Trust
<u>WORKSHOP 1</u>	
13:30 – 14:30	What do we know of our species population numbers and where are the gaps? Are we happy with the current IUCN and BirdLife vulture species listings or can we make suggested changes? Boikarabelo as a case study; VulPro and Walter Neser Workshop leader: Craig Whittington-Jones, GDACE
<u>WORKSHOP 2</u>	

14:30 – 15:30	How the ranges of vultures have changed in the two decades between the first and second bird atlas projects; Les Underhill & Michael Brooks, ADU Citizen Science – the next 10 years; Henk Nel, Co-founder and MD BirdLasser
15:30 – 15:45	TEA/COFFEE
15:45- 16:30	How changes in protocols and observers affect results and how one can standardize this in order to gain a more accurate picture of vulture populations Workshop leader: Prof. Les Underhill, Animal Demography Unit of the University of Cape Town
16:30	CLOSURE AND ANNOUNCEMENTS

Tuesday, October 27th

FACILITATED BY RUDI KRUGER, ESKOM CORPORATE ENVIRONMENTAL SPECIALIST

7:30 – 08:00	Arrivals and tea/coffee

WORKSHOP 3

08:00 – 09:30	Vulture tracking, methods and who is doing what? Should we be sharing and informing our southern African partners on vulture movements? For example, can we inform Zimbabwe when a vulture has moved from SA to Zimbabwe, etc.? Automated collection and collation of tracking data; Rex Green Workshop leader: Prof. Peter Mundy, National University of Science and Technology, Zimbabwe
09:30 – 09:45	TEA

WORKSHOP 4

09:45 – 10:15	Vultures and Wind Turbines: Technical options to prevent collisions; Warren Goodwin
10:15 – 12:00	Predictive modelling Workshop leader; Ian Rushworth, Ezemvelo KZN Wildlife Understanding vulture habitat use in three dimensions, at a fine scale, is critical to developing risk models for the placement of wind farms and new power line infrastructure, as well as for strategic mitigation of existing infrastructure. A modeling approach using satellite tracking data was recently used to inform wind warm placement in Lesotho, and this approach has huge potential to be used for other vulture species. The objective of the session is to (1) identify the landscape/environmental variables that could/should be used to model 3D habitat used by Cape Vultures;

(2) review availability and secure use of existing Cape Vulture data sets for the analysis;

(3) propose a way forward, including any contractual agreements; and

(4) evaluate data and other requirements for undertaking similar assessments for other vulture species.

12:00 – 13:00 LUNCH

WORKSHOP 5

13:00 – 14:30 Strategic restaurant placements

Workshop leader: Andrew Tucker, CS Vet

WORKSHOP 6

14:30 – 16:00 Poisoning incidence reporting protocol and database

VSG Wildlife Poisoning database; Andre Botha, co-chair of the IUCN VSG

Workshop leader: Prof. Peter Mundy, National University of Science and Technology, Zimbabwe

Wednesday, October 28th

07:30 – 08:00 TEA/COFFEE

WORKSHOP 7

08:00 – 09:30 Research needs
- Lead studies and the effects on vultures
- Cattle dips and veterinary drugs and the effects on vultures

Workshop leader: Dr. Vinny Naidoo, University of Pretoria, Faculty of Veterinary Sciences

WORKSHOP 8

09:30 – 10:30 Captive breeding to aid vulture populations, Maggie Hirschauer (VulPro)

Global vulture breeding and reintroduction initiatives, VulPro as a regional case study; Maggie Hirschauer

10:30 – 10:45 TEA/COFFEE

10:45 – 11:30 The Bearded Vulture Conservation Breeding programme, Dr. Sonja Kruger (Ezemvelo KZN Wildlife)

WORKSHOP 9

11:30 – 12:15 Tagging protocol summary and need for practical; Andre Botha, Endangered Wildlife Trust and Kerri Wolter, VulPro

12:15 – 13:00 LUNCH

13:00 – 16:00 Practical training on fitting of tracking devices and tagging

16:00 – 16:15 CLOSURE AND ANNOUNCEMENTS

PRESENTATIONS

Global vulture perspective - Dr. Alvaro Camiña Cardenal

Alvaro indicated the success in vulture populations is due to the change in providing food from domestic animals to the birds relying on wild animals for food.

He referred to the wind farm industry and indicated that there were a couple of problematic areas particularly with regards to the South African situation. He indicated that observations from two different bird monitors resulted in different data and number of species seen. His one major concern is that the vantage point monitoring is not done correctly. He stated that the post monitoring period is vital and of grave concern to him with regards to the situation in South Africa. It is imperative that the wind developers in Southern Africa work together as a large number of these potential wind farms cover vast areas.

He indicated that in Europe, 65% of Griffon Vultures collide with wind turbines, however the population remains constant. Black Vultures are affected much less by the turbines as there are less wind turbines in the area amongst the foraging behaviours of Black Vultures. He also stated that vultures behave differently throughout the year and their home range is wider during the breeding season. He referred to the foraging area of the birds and indicated that only 7% are found in protected areas. The location of vulture restaurants is depended from area to area. He also spoke about power lines and that there is an agreement with power line companies making it mandatory to correct power lines in Europe.

Regarding to vultures attacking livestock, he indicated that in Europe it was not unusual and normally occurred where the live animals were too weak, with cattle giving birth and where farmers were not vigilant enough to check on their livestock.

He gave a brief overview of the captive breeding situation in Europe. The Bearded vulture was captive bred to restore the vulture numbers in the Alps. The first pair of wild birds bred again in 2006. This captive breeding programme made use of puppets to rear the chicks. In the case of the Griffon Vulture, rehabilitated birds were and still are being released every year and their distribution has increased.

Regarding the use of drugs, he indicated that it would correlate with the different farming practises. He referred to a 50 km radius around a feeding site to pick up what type of drugs would affect the vultures.

There is a national data base in a common format for all vulture data. Persons fitting tracking and wing tags are all permitted and trained. The universities do not share their data but do publish it. Birdlife international draws up conditions and allocated permits for ringing and tagging and permits and authorisation is subject to data being sent through to them each year. Coordinators for each species or genus provide information and receive information. (vulture working group).

Future threats could be high speed trains and possibly aeroplanes.

<u>COMMENTS</u>
Kerri rehab programme – release elsewhere?
How population is contracting not expanding, check what is happening with population – spread it out more?

Capture release site?

Airplane flight path change and increased vulture population
- Number of vultures remain stable within the same area
- Distribution of birds over landscape is not equal
- Own data and funded from the airport – national aviation responsibility

IVAD – spoke to pilots in Kimberley flying over vulture colonies

Peter – publications in Spain are more stable than SA – national survey (population census) is published annually for each species and which has generated over 36 years of data.

- Government give funding to Birdlife and they then pass on funding to the people – also use volunteers
- Model should be considered
- 25,000 breeding pairs of Griffon Vultures in Spain
- South Africa should use Europe as a model for how vulture conservation and collaboration should be utilised

Electrocution/poisoning is a lot less in Spain than in SA – 23% of total amount of meat consumed from the whole country in 2004
Kate – wind farms

- What chance of developers working together? Cooperating and sharing of information
- Working for lender – conditions put on table, conditions for collaborating

Rudi – entering into wind energy – Northern Cape will transform over the next 5 years – the province is now exporting electricity due to wind farms. Guidelines on all structures, regulatory point of view (norms and standards) needs to be available.

Suggested improvements to move forward: developers need to work together – one funder? South African wind energy developers and consultants are competitive so reluctant to share information. The Eastern Cape is fitting tracking devices to vultures for a wind farm development and this needs to be undertaken by more of the developers before completing their EIAs.

Benefits of improving the system: not forcing companies to work together – or enforce something to say they have to collaborate

- Once they collaborate – more information and data can be shared for the multiple studies being undertaken in the same areas.
- SANParks monitoring database will be accessible to users (registered user) and data sharing. This should be part of permit conditions

<u>SUMMARY</u>

- Monitoring protocol is essential
- Wind energy – connection points to consider

Vultures in Zimbabwe and conservation initiatives - Professor Peter Mundy

ABSTRACT

Many hundreds if not thousands of vultures of eight species live in Zimbabwe. The Cape Griffon is special but we no longer know where it roosts. Since 2000 the country embarked on the so-called fast track land reform programmme; likely consequences for vultures are less livestock, much poaching, and more dogs. The Parks and Wild Life Estate, at nearly 13% of the country's area, remains a haven for vultures, but the recent incidences of elephant poaching by poisoning is a new and alarming threat.

Many persons have grouped together under the chairmanship of BirdLife Zimbabwe, and various initiatives are currently under way. These are within the banner of a Vulture Action Plan, and include: documented observations, publication through *Honeyguide* journal, monitoring of certain nesting populations, investigations into the *umuthi* trade, education and awareness activities, work with vultures in captivity, formalise liaison with 'restaurant' owners, etc. Six recommendations are made: (i) every vulture has an identity, (ii) document all sightings, (iii) find the new Cape Griffon roost and monitor it, (iv) set up a mortality database, (v) inform BLZ whenever a tagged bird enters Zimbabwe, and (vi) amend the IUCN/BLI RDB categories for southern Africa.

Prof Mundy gave a summary of the populations characteristics of the Cape, African White-backed, White-headed, Lappet –faced, Hooded vultures and Palm-nut vultures. He indicated that there were an estimated 1 000 pairs of African White-backed and 100 pairs of Lappet-faced vultures breeding in Zimbabwe. He said that one must put the African populations into proportion by comparing them to the Indian populations (estimated 30 million vultures in Indian subcontinent).
He stated that the focus should be on the Cape Vultures (Griffons). He asked the question as to where have they gone to and where do these birds roost. He referred to the SABAP1 atlas data indicating that there were gaps in the information regarding the presence of Cape Vultures. They do occur across most of Zimbabwe with a few sightings in northern part of Zimbabwe and vagrant into Zambia.

The national parks were safe havens however this has changed and the birds face three major threats. The first threat the poisoning for ivory trade, the second the muthi trade and the change of ownership of agricultural land (due to political reasons).

Conservation initiatives are co-ordinated by the vulture working group which consists of 24 persons. A poster has been produced to help explain the plight of the Cape Culture. The Honeyguide journal (a national African journal) has 35 years worth of sightings of the various vulture species and their locations. The Vulture action plan of March 2015 has been put together with RSPB funding. Chris Foggin, Kerri Wolter and Rodger Parry tagged a rehabilitated White-backed vulture in Zimbabwe. An article was written in the Chronicle newspaper in Bulawayo by Marilyn and is now writing regular articles on request from the editor. A student linked to VulPro from Zimbabwe was involved in finding a tagged and GPS tracked vulture. Harare agricultural show, the trade fair and vulture restaurants are used to educate the public on these birds.

Prof Mundy felt that there should be an incidents programme for muthi trade, diclofenac and conservation initiatives within Africa with the following recommendations;

- Vulture identity important (species, age, gender) – for poisoning incidents especially
- Documentation for vultures sightings in Zimbabwe,
- Roosting sights for Cape Griffon? Tagging and satellite tracking to get better data
- Process of mortality/poisoning database, and question is who and how? One data base agreed for all
- SA tagging vultures must inform Zimbabwe when vultures enter, for monitoring purposes
- monitoring nesting vultures (AWB in Hwange NP) to keep tab on nesting (possibly 100 pairs) to do this annually
- Birdlife International – stand up for vultures

- get through to Mugabe and the government in Zimbabwe to help save the species

COMMENTS

Kerri Wolter suggested fitting another tracking device to a rehabilitated vulture.

Look at monitoring the huge population of nesting White-backed vultures south of Kazangula on the Botswana/Zimbabwe border

The question of the poisoning – is it additive or compensatory to the vulture numbers? In addition, Peter Mundy suggested that organisations within Zimbabwe be notified when a tracked vulture with a GPS enters Zimbabwe in order to be aware and to attempt to sight the birds.

Vultures in Botswana and conservation initiatives - Botilo Tshimologo

Mr Botilo representing Mr Kabelo Senyatso from Birdlife Botswana explained that the focus is on poisoning not only of vultures but carnivores too. He gave same background as to BirdLife Botswana.

There are 4 areas of interest with Birdlife Botswana, namely;

- Bird species
  - Important to know which are threatened and which need help
  - Also other endemic species like flamingos
- Important bird areas
  - 12 areas where roosting or nesting takes place
  - Tools for conservation
  - Cape Griffon 150 in Mannyalanong
  - Also vultures in Chobe NP
- Ecological sustainability
  - Deal with corporate wars to assist with resources and funds, banks, insurance companies
  - Show importance of birds and wildlife
  - Make them champions to assist particular species
  - Agriculture another sector of involving and getting corporates such as safaris organisations involved in conservation.
- People are main concern
  - Education, talks, young people and the importance of world migratory bird day

There are 5 main species of vultures found in Botswana however these species are declining fast due to poisoning. The most common form of poisoning is by the poachers with one bad incident recorded recently where more than 500 White-backed vultures were poisoned. Unintentional poisoning takes place when the farmers target problem animals predating on their livestock. Tswapong Hills still has a population of Cape Vultures numbering around 150 pairs.

Poisoning is of grave concern for the ecosystem as well as the well-being of people. It furthermore affects the tourism sector. The disposal of agrochemicals is also of concern.
Birdlife Botswana has a two pronged approach in dealing with this issue:

- Increase public awareness
  - Work with media, billboards, adverts, field manual, lagotla meetings (villages gather), Council meeting, public lectures etc
- Enhance law enforcement and legislation
  - Capacity building of key government agencies (customs, police, army) for prosecution purposes on how to implement this law (very weak laws)
  - Lobbying key policy makers in and out of Africa to get the support of other

What can be done?

- Environment policies not strong and trying to close gap
- Heavy penalties in WCNP – 0 convictions for poisoning and numbers of incidences are increasing
- Waste management act or agrochemicals act (to combine these two in order to be able to prosecute properly)
- Ban pesticides containing chemical carbofuran
  - Now banned in USA, Canada and EU, Botswana and Africa it is still being used
- Education of public of proper use of pesticides
  - Bring together other NGOs and government officials and stakeholders must explain values of wildlife diversity and financial benefits of wildlife diversity
  - Speak to farmers so the message is passed down
  - Create and maintain vulture monitoring programme as it is non-existent due to overwhelmed by other issues, elephant population – not enough resources
  - No bird unit i.e. ornithology and differences between vulture species are often not defined
- Regulation of law (WCNP)
  - Doesn't explain consequences of act, only charged P1,000 so severity of punishment not enough to deter future acts of poisoning
  - No person allowed to kill animal under 6th schedule (P10,000 fine) and laws protect livestock not vultures or wildlife (not listed as protected game under this act)

    - Inadequate law enforcement
    - For example 400-600 birds were poisoned in Chobe (2013), 300 Kwando (May 2012) and 100 in Lesoma (2011) all due to elephant poisoning
- Close the gaps in WCNP act
    - Waive government farm subsidies
    - Seek compensation for poisoned animals – heavy laws
    - Pass legislation imposing vicarious liability
- Prosecution (waste management act)
    - Duty of care in respect of waste
    - Person who contravenes this section shall be guilty P1000
- Section 44 general penalty
    - Fine of P14000 or imprisonment
- Gaps in waste management act
    - Should be amended to specifically reference and define agrochemicals in context of waste management
    - Handled chemicals in plastic bags and labelled
- People are not deterred by law so people will continue to use poison
    - Act is silent
    - Penalty strengthened
    - Public dissemination
    - Prosecution education

Carbofuran

- Most dangerous form to vultures and other birds
- Used in Kenya to kill water birds and sold in market for human consumption
- Trade names of pesticides
- Why? USA banned the granular form but Botswana still using, poses risks to human body neurological and reproductive systems
- Availability
    - Trade names include Volcano, curaterr
    - Toxic, Tanzania have banned this
    - Illegal intention not controlled by education or stewardship programmes alone
    - Misuse is a significant gap that must be closed in the law
    - Produce alternatives

Summary of use of poisoning

- Ban effect immediately
- Strict laws, Birdlife and government to support as well as other governments
- Birdlife made flyers, posters and handouts to educate the public,
- People who find scenes of poisoning need guidance
- Government need to investigate
- Vulture field manual
    - Help prepare and increase knowledge of events
    - Advice for safe handling of vultures and secure area
    - Colour coded – alive green, dead – red, head of police – blue
- Other issues
    - Channels of communications
    - Chemicals to blame – database?
    - Lack of capacity for field equipment to collect samples for testing for each incident
    - Training
    - Regulation enforcement
    - Role of vet products toxic to vultures (diclofenac)
    - Educate and awareness
    - Participation in vulture monitoring

COMMENTS

How does the impact of the banning of all hunting in Botswana (Cecil the lion incident) impact the vultures? This has a negative impact as the value in the hunting trade has become null so the villagers will resort to poisoning the elephants that destroy their villages.

The question about the publication of incorrect information next to a picture of poisoned vultures was asked but it was felt that the positive is that the public would be made aware of the disastrous effects of poisoning on vultures but may tarnish reputation of organisations.

Vultures in Lesotho and conservation initiatives - Samuel Zwakala

ABSTRACT

Ministry of Tourism, Environment and Culture Lesotho through the Department of Environment agreed with the Government of Republic of South Africa to conserve globally significant biodiversity in the Maloti Drakensberg Transfrontier Conservation Area (MDTFCA). The establishment of the different working groups done and among them is Bearded Vulture Task Force which focuses on the conservation of the Bearded vulture listed endangered species in Southern Africa. More-over, Cape Vulture, listed globally vulnerable species is proactively conserved too, given that the population of these two species are declining which calls for human intervention. A lot of conservation efforts has been done to address the critical threats to these mountain giants. They are legally protected in both countries to ensure commitment.

At least an estimated 41 breeding sites confirmed (41 breeding pairs of Bearded vulture if one breeding site is occupied by a pair) suggesting little in the way of a substantial decrease in Bearded Vulture numbers in the Lesotho highlands and reduction from about 500 breeding pairs to about 80-175 breeding pairs of Cape Vulture in total recorded in Lesotho highlands during September 2005 Helicopter Survey for Bearded Vulture and Cape Vulture (D.G .Allen & A.R. Jenkins). Biodiversity Management Plan for Bearded Vulture developed. The conservation objective for the species is to;

i) ensure its long term survival through halting the population decline and stabilizing the population at the current population size (approximately 100 breeding pairs) over the next ten years, and
ii) start growing the population to a realistic carrying capacity (150 breeding pairs) in the future.

Secondly, following the goal of conservation plan “To stabilize the (global) Cape Griffon population” by Cape Vulture Task Force, following activities were undertaken for the two species above;

Monitoring: monitoring of nest sites and feeding sites took place throughout the species’ range to obtain information on nest site status, breeding success, population age structure and habitat use. Monitoring is done by conservation staff, scientists, members of NGOs and volunteers.

A concerted effort was made to monitor a selection of nest sites at least twice a year to obtain an indication of breeding success. Sites were monitored twice a year on foot in Lesotho. The active feeding site in Lesotho is in Quthing and managed by Quthing Wildlife Trust at Ha Tlhaku while others no longer active.

Most importantly, **Identification of unknown nesting sites** done successful with the invaluable help of different stakeholders including local communities.

Count Day; the annual Vulture Count Day is held at Quthing because of the existing active vulture restaurant. The count day serves as both an awareness and monitoring exercise, providing a minimum total count of each species on a given day.

Publishing/Education/Awareness;(Use of media); a number of articles were published in magazines and newspapers on various aspects, posters and other radio and tv slots effectively utilized to create awareness on the current plight of the vultures and how all stakeholders could assist . It is acknowledged that Education and awareness play a salvaging role and all the existing threats mentioned so that people know about these species and the causes of population decline. The Ministry of Education and Training Lesotho approached in an effort to advocate for integration of Environmental Education (EE) including these species in the Curriculum at least all levels of education if possible, emphasizing on the existing threats. Even non-formal education to at least include this concept of conservation. Different schools were visited and a detailed awareness undertaken. Besides, a number of training workshops for different stakeholders done and at respective communities, gatherings were held at public domain while in monthly sittings of Heads of Departments and councilors this issue is addressed.
A positive response from all these stakeholders observed when major developments are proposed and communities suggesting EIA to be done and clearly mentioning mitigation measures to the proponents.

Challenges : there are still challenges of funding in order to carry out these activities effectively. Political will remain as a big challenge especially when other developments are likely to have adverse effects on raptors. Conservation also suffer under-staffing and enforcement of law.

Way forward: source funding from different stakeholders like NGOs, private sectors etc. and increase partnership in the conservation effort. On-going education and awareness events and lobbying more until we are heard.

Mr Zwakala gave a background to the status of both the Bearded vulture and the Cape vulture in Lesotho. Both species have drastically declined. A helicopter survey on the Bearded and Cape vultures were done 2005 and resulted in 41 BV pairs found and 175 breeding pairs of Cape vultures. He indicated that since 2005 the surveys have not always been done but the sightings confirm the decline.

Different goups were established in Lesotho ie. The birds of prey group and they have focussed specifically on the Bearded as well as monitoring the Cape vulture status. Both of these are considered critically endangered in Lesotho. A biodiversity management plan has been set up for the Bearded Vulture (in SA) however this plan is also applicable to Lesotho. The long term goal is to stabilize the population numbers at 150 breeding pairs as well as long term survival rates for the birds. The Cape vulture population is being monitored carefully too.

Activities involved in conserving these birds include the following;

- Monitoring nest sites – breeding, age, habitat use, NGOs conservation staff, scientists and volunteers.
- Monitor selection of nest sites at least twice a year to see breeding success.
- Active feeding sites are no longer active due to a lack of available food.
- Identification of nest sites with help stakeholders and local communities.
- Count day – annual vulture count day is undertaken at Quthing due to the existing active vulture restaurant – awareness and a monitoring exercise provides a minimum total count of each species on a given day.
- Lesotho would like to use this conservation effort i.e. IVAD and use these activities to empower local people and motivate them to help vulture conservation efforts.
- Conservation officers and local people around the nesting site are used to monitor.
- Publishing education and awareness (media) articles in magazines on various aspects of vulture conservation
- Acknowledged that education and awareness play a role in highlighting existing threats:
    - Even non formal education to include some concept of conservation
    - Schools visited and training workshops for stakeholders held at respective communities
- Positive response from all the stakeholders when major developments are proposed and communities suggesting EIAs to be done and clearly mentioning mitigation measures to the developers.
- Workshops to educate the use of vultures or avoid the use thereof of vultures in the muthi trade. In addition they are trained/educated about the importance of vultures and the need to conserve them. Councillors are also involved for better understand.
- Farmer meetings are held where vulture conservation is discussed, including the issues and threats. A result from these meetings is that farmers have now stopped using poisons and rather dump live jackals at the offices of the Lesotho conservation department.
- Challenges include the following;
- Lack of funding for the activities so more resources are needed
- Geographically places are difficult to access – hire horses for monitoring of nesting sites
- Politics will remain a big challenge – without support birds will be affected
- Understaffing and law enforcement in conservation – vultures protected in environment however poison incidences (e.g. 2010 poisoning) are difficult to punish

Way forward will mean funding will have to be sourced from NGOs, the private sector and partnerships. Continued education and awareness campaigns.

COMMENTS

The question arose about environmental education with regards to muthi trade and the strong cultural influences within families.

How are farmers rewarded for not using poison to control predators?

Wind farm and mining development, where does the government stand on these issues?

Kwa-Zulu Natal Provincial vulture strategy - Brent Coverdale

Mr Coverdale stated that in KZN the conservationists noticed there were problems with vultures so their action was to work towards a common goal. This goal was to stop the decline in vulture numbers in the province. This has been developed over the last 5 years and reviewed every 3 years.

During February 2015 this process was reviewed and goals achieved were identified, however with changes of staff and political influences not all has been successful.

Emerging threats included:

- Increase in poisoning incidents throughout KZN with information being recorded from tracked vultures.
- Training of people when dead vultures are found– dead birds not identified, treat as a crime scene. Vulture poaching in comparison to rhino poaching, need to deal with it in the same way.
- Energy – 2008 alternative energy (wind farms and solar) how to address these.
- Medicinal trade and the use of vultures in this trade.
- Educational awareness – monitor if it's effective or not and has there been a change? May have ticked the boxes but the effectiveness still has to be evaluated.
- Habitat – intensive farming and game production – farm dynamics are changing.
- Elephant impact on tree nesting vultures – eco-tourism properties.
- Capacity – competency, posts are vacant so staff is stretched on the ground.
- The way forward is to pull all concerned parties together to prevent duplication of work and more can be achieved. This must go beyond the boundaries of KZN.

Solutions can include the following;

- Medicinal trade- the end users, is this culture embedded? Possibly interview users. How consumer driven is it for the sellers and the gatherers? A Healers forum meeting has recently been held to identify the demand for natural resources as well as to identify the traditional healers to try and get them to move away from using vulture parts.
- Persecution – landowners targeting carnivores need to be made aware of the threats involved with vultures. There is a greater need for carnivore and vulture specialists to work together. Identification of key people to assist in this regard. Possibly to use live bird displays under strict management guidelines.
- Law – staff and field rangers need more training to be able to treat the crime scene better to ensure better law enforcement
- Lead – promotion of lead free ammunition for hunting areas needs to grow. Private reserves in KZN have already got a lead free policy but this policy needs to expand to private land too.
- Power lines - understanding the high to low risk areas and what changes can be made. Also with regard to placement of vulture restaurants.
- Alternative energy?
- Research and monitoring – modern technology is available and an effective conservation communication too which must be utilized
- Tracking – can play a bigger role in responding to poison incidents quicker. Reporting of tagged individuals is vital but where and who to? Fixed winged surveys are more effective to helicopter ones however both could miss some nests.

A new project includes the studies and understanding of the Palm-nut vulture. Presently members of Birdlife are encouraged to report sightings.

<u>SUMMARY</u>

To finalise the working group. A meeting was held in July and a strategy was adopted by the board. Priorities are still however, given to rhino poaching with resources and staff being used there. Government spending impacts this working group as well.

COMMENTS

Why are aerial surveys done instead of ground surveys? The problem is limited man power on the ground and larger survey areas can be covered via the air which means it becomes more cost effective in the long run.

Restrictions on live displays? KZN has a permit system in place for this.

Muti markets turnover? Sustainability of this? Smaller pieces of animal parts. It was felt that Birdlife should be more involved in this and more support needs to come from its' members

Social media? The younger generation needs to be stimulated and focus must be to get the information to the younger generation – KZN have acknowledged this and is looking at alternatives such as – phone apps, twitter, instagram etc.

Vulture foraging analysis - Dr. Craig Whittington-Jones

ABSTRACT

Concern over food availability (quantity and quality) for Cape Vultures is a reoccurring theme at all strategic planning workshops for the species and considerable resources have been expended in establishing and provisioning supplementary feeding sites. Given the extensive foraging range of vultures, obtaining good data on food availability at a scale appropriate for the species is challenging. Use of national agricultural statistics is being investigated, but will require further ground-truthing.

Craig indicated that to do this analysis certain information was necessary. This included the following:
Food availability?

- Where and when carcasses will be available – no information is available on this.
- How much food is needed?
- Dependent on vulture numbers.
- Various ways to get this – monitoring processes and data collection i.e. no of breeding pairs.
- How much do they eat?
- Adults can collect enough food for themselves and chicks – this doesn't increase foraging demand but affects just how much is consumed.
- How much is required?
- Maximum value assumption used.

With the food availablilty one needed to look at the foraging sites and whether they were commercial or communally based sights as well as the mortality rate of the livestock in these areas.

Information as to where the Magaliesberg vultures forage has been aided by gps technology however the in-between (data downloads) data is often not available and ringing recoveries give very little informationi.e from where the bird was ringed to where it was recovered.
In the Gauteng province movements include 3 main breeding colonies and as indicated on the map, the grey areas are where they are foraging. The white is where there are incidental sightings and the yellow dots are the tagged birds in the Magaliesberg areas. Some information given shows birds foraging far into Namibia but these are mostly young birds (see power point presentation for map).

With this data there is a high reporting rate of birds in the south and west areas of the Magaliesberg (see map).

As to whether the birds are feeding in commercial or communal areas, this is difficult to distinguish. A large percentage of vultures feeding on the commercial farms are utilizing restaurants. One can however, interview the land owners (farmers) to obtain the information needed when it comes to commercial farming areas.

Summary
The vultures are foraging and spending a large amount of time in the Brits, Krugersdorp districts.

How much livestock is dying? Very little information of the mortality of livestock is available but there is a higher mortality rate in the communal areas to commercial areas. Pig mortality is approximately 12%.
The smaller the carcass the less food available for the vultures and to calculate the food availability one would have to look at the mortality rate to the number of animals as well as the utilisation efficiency and carcass weight.

Other food sources? There is not much recorded on this. Game for non-commercial purposes is not included in any census so there are a large number of sources not reported. Vultures are spending more time at the supplementary feeding sites and less time searching for food. Where there are more trees due to bush encroachment, there are less vultures.

Case study 1 –
Most livestock mortalities occur during the hot season (November -February) when they have heavier tick loads. However, little data is available on this and more information and work needs to be done.

Case study 2 – concentration period of mortality September - November
This coincides when vultures require more food as after fledging the demand for food decreases. This is a seasonal demand and follows the wildlife and livestock mortality patterns. There is a peak in spring when maximum amount of food is needed. The majority of vultures forage in higher cattle concentration areas.

The following issues must be remembered;

- There are no standards for cattle due to differences in breeds, slaughter weights etc, which are all factors that effect this study.
- Limited knowledge of what is dying within study area.
- Carcass management – farmers not willing to spend resources in burying carcasses so these are left in the field.
- Camera traps can be used to observe other wildlife.
- Vultures foraging close to colonies when food is available but move further away when food is limited – may need more areas outside of the study site.

Long term objectives must include other issues such as power lines and how vulture restaurants are managed together with the value of the data sharing.

<u>COMMENTS</u>

Wildlife industry is changing rapidly, mortality rates may change with management methods. How will this affect food availability? Already there is enough food with the current livestock management so wildlife mortalities may have an impact. Also how are these mortalities managed? Removal of carcasses?

If food is plentiful why are vultures still decreasing? Breeding success in the Magaliesberg has increased so we know food is not an issue. There are other underlying problems, which are major issues.
Any attempts to refine mortality rate? There is a gap in this research – no knowledge of mortality rates from many sources and thus we are reliant on farmers giving out figures. Suggestion in contacting the Wool Growers Association for information on fatalities.

Carcass not cut open in the field? Intact cows could be consumed very quickly however observations of carcasses not being utilised does occur if they are not cut open, other scavengers such as jackals could assist with this.

Collecting carcasses has been documented at VulPro and this can be combined with interviews and collaborations with the suppliers of carcasses.

Are vultures hungry? The more food provided the less likely vultures are to consume every carcass.

Vultures can shift very easily from wildlife to livestock and are able to survive due to the adaptable eating habits from livestock to wildlife and vice verse.
Vultures arrive from miles away to consume carcasses at VulPro – this could possibly mean there is a lack of food elsewhere and one needs to understand that food availability might be an issue elsewhere. Estimate VulPro feeds 400 vultures daily – taking into account birds leaving and coming throughout the day. Observing and recording crop size is an effective tool for monitoring feeding rates.

Fat pigs? Used a lot in Spain and the vulture population is increasing? Does the nutrient content affect the condition of vulture health? Room for research on captive birds' health compared to wild counterparts? – It has been observed that vultures don't like the sows as much as the smaller sized adult pigs.

Eastern Cape Province vulture conservation activities - Kate Webster

ABSTRACT

2015 has been a tough one for the Cape Vulture in the Eastern Cape, however there have been some highlights during the year as well. My talk will take you through what we have managed to achieve and how much harder we are going to have to work to ensure that these birds remain flying and foraging in the Eastern Cape skies.
My talk will include the following:

- the interactions with various farming associations and organized agriculture
- interactions with the different media
- rehabilitation work
- exposure at the Wildsfees
- continued problems with transmission and distribution Eskom lines
- tracked vultures in the E Cape
- specific positive persons involved in protecting the Cape Vulture in this province.

Kate Webster gave a summary of her work undertaken throughout the year (2015) which included interactions with the Agricultural associations. Landowners are the key people to help vultures in the Eastern Cape despite it having protected areas. It is also a way of building up relationships to get landowner trust and support which helps with the continued monitoring of vulture populations. Individual farmers' needs can also be addressed where some of them have had negative interactions with vultures. It is also a way of developing a network to assist with birds in need. Positive interactions and working together with Farmer/Landowner

Associations are also more likely to assist with donations towards vulture conservation.
The media play a vital role in supportting the Eastern Cape vulture conservation activities and live media gets information out to the general public.

Rehabilitation work does not necessarily have many success stories, however, DHL supply chain is a major supporter in assisting with the transportation of permanently damaged birds to VulPro. DEAT must be commended for their support in issuing the permits. VulPro continues to give financial support with regards to medication supplied as well as covering the costs of vets bills and fuel expenses. The landowners must also be thanked for informing Kate of any injured or grounded birds found or seen.

Power lines continue to be a problem and the Eatern Cape is notorious for the worst T structures in existence. Many of these lines need to be refurbished but this will not happen that quickly. Often the fatalities are at least 4 vultures at a time. If the birds collide with the lines and the farmers do not find them, they often die of starvation and thirst before being rescued.

Tracking of vultures in the Eastern Cape this year included 3 birds. The first was a bird that had collided with a power line near Bedford and the story of Adelaide was followed by all. Unfortunately his tracking device failed in KZN. The other 2 birds were fitted as part of an EIA project with a wind developer in the Elliot area. Sadly both these birds are also dead, one from poisoning and another from power lines.

VulPro had a stall at the Kirkwood Wildfees. This wildfees had more than 50 000 people pass through their gates and many of the younger generation were interested in the VulPro stall. The members of the public were exposed to videos, printed material, physical examples of mitigating equipment from Eskom, wing tagging devices as well as a chance to win a framed photograph of a vulture. One of the visitors was a principal of Kabega Park Primary School, who needed information on vultures as they had entered into the Enviro awards competition from DEAT. This led to a visit and talk to the school at a later date and a large contingent of learners were exposed to the world of the vultures.

Key persons involved in assisting with vulture conservation in the Eastern Cape are Fred Leask and Dorothy Trollip as well as Mluleki Sigcawu who lives near the Collywobbles colony in the Transkei. He has also been instrumental in translation work of printed VulPro material into isiXhosa. Kate's family and staff as well as VulPro, and in particular Kerri Wolter were thanked for their support.

The one major challenge is that Kate is not able to do as much work as other organisations due to financial constraints.

In conclusion - Vultures are important, it is not who we are or what we want to achieve, it's about what we can do to allow these birds to survive

COMMENTS

Farmers believe vultures do still kill cattle and although this is being addressed, it still becomes a problem every now and again. To explain what really happens to farmers can be difficult, many people dislike vultures because of this issue, which does happen due to a shortage of food and vultures starting. However, one has to be tactful and ask questions about the individual cow that died which can also shed some light to the sitatuon and the reason for vultures eating off this particular animal. Chasing the birds and making it uncomfortable may prevent the vultures from coming onto the farm in the future. Being understandable about stock mortalities with farmers can help with collaborations and dealing with it diplomatically. A farmer will listen to another farmer but not a scientist or a conservationist.

Constant education can help to prevent future conflicts between farmers/vultures and understanding of the species

Predator management forum – vulture can be seen as one, very positive forum and work being done from agricultural side

Farmers have to coincide and live with nature in harmony.

Tree nesting vulture conservation in the savannah area - Andre Botha

Vulture research and conservation work is currently being undertaken in the Kruger National Park as previously, very little has and was done. All 4 tree nesting species (African White-backed, Hooded, White-headed and Lappet-faced vultures) which occur in the Park use limited available and suitable trees i.e 25m above ground. These protected sites within the Parak are a stronghold for vultures and it is important to focus on these areas and learn more about them in order to protect the habitat and thus protect and conserve the vultures which breed within the Park. One can also see how they respond to changes in habitat such as fires destroying nesting trees or elephants pulling down these larger more sort after trees. This is referred to as biotic changes and raptor species like the Tawny and Bateleur Eagles are indictors of this, which gives an overall indication of how healthy the system is and what the solutions could be.
This study is in partnership with the EWT and the Hawk Conservancy as well as working with the communities surrounding the Park encompassing an area of 2 million hectares.

Initially an aerial survey was done to assess the overall vulture breeding population which included just less than 100 helicopter hours. However, with the surge in rhino poaching and the helicopter being unavailable due to the anti-poaching needs, permission was obtained to utilize a private helicopter and the survey was finally completed in 2015. Each individual nest was observed from approximately 100m away together with photographs and breeding success recorded. A lot of data has therefore been collected in a short space of time. What is also interesting to note, the vultures still remember the helicopters being used during mass cullings and therefore are not stressed by the helicopters at all.

The results show that the number of Lappet-faced vultures declined by half compared to the original survey done.

The most common tree species used is the *Acacia nigrescens* and the elephant damage to large trees is quite significant. There have been reports of a high percentage nest failures in the Mokala NP.

A mass capture of birds in the lowveld was not practical so the nestlings were targeted utilizing ladders as well as tree climbing. Recently the use of snaring to catch vultures at carcasses is also successfully used and now the preferred method based on its success. This method was taught to Andre Botha by Keith Bildstein from the Hawk Mountain Sanctuary in the UK and who is collaborating with the EWT on Hooded vulture research in the Kruger National Park. Feeding sights at Moholoholo helped with resightings of tagged birds from members of the public. Sightings of birds in the Bushveld areas are also being received. Tourists are also encouraged to report sightings.

The vultures breeding and roosting inside of Kruger NP forage widely and tracking devices are used to monitor these movements. African White-backed vultures cover most of Southern Africa especially the immature and juvenile birds. Hooded vultures seem to be more restricted and move much less than the larger tress nesting vultures. The White-headed vulture is confined to the protected areas and does not cross the east/west boundary. The Lappet-faced vultures (small sample of tagged birds) seem to remain in a confined area, however move greater distances to where there are anthrax outbreaks due to the amount of available and oversupply of food i.e more than 300 carcasses available at one time.

How do vultures play a role in the anthrax life cycle? Vultures bathe in water and can drop spores in the water but very little work has been done on this. Anthrax is endemic in the Kruger NP especially north of the Limpopo River. It has been found that during an outbreak, 50% of vultures do carry anthrax spores and after 6 months spores are still found on at least 25% of the birds. This research project is in the early stages of the anthrax genotypes. Although some vultures might have carried spores south of the park very few samples are available. More birds need to be tracked and more samples need to be taken in order to substantiate vultures spreading anthrax.

The birds feeding at a large carcass can be used as a tool for identifying poaching activities.
Threats include power lines in the Kruger NP however, Eskom has assisted in identifying the lines affecting vultures and have changed configuration of lines to improve visibility as well as critical impact areas have been assessed and sensitivity maps have been studied to improve this. Poisoning associated with poaching is on the increase and is becoming a major problem. It also appears that the use of vulture parts for muti is also on the increase during these poisoning incidents.

Addressing threats. The number of elephants poached in the Park is now 19. An aerial survey picked up 7. This was the 1st incident of this nature in South Africa however, there is a huge wave of this occurring in East Africa, Mozambique and Zimbabwe. The poison used is possibly Carbofuran. Andre Botha is busy training the Park's staff and the agricultural industry to assist persons coming across a poisoning incident and how to manage the incident correctly. One must sterilize the scene to prevent secondary poisoning. Additional training will be offered early in 2016 to officials in Mozambique and further afield. The health implications on humans with regard to a poisoning are problematic. It is difficult to stop people poisoning and to enforce the law on this.

In the case of the Hooded vulture project the information about the bird is important. This project links in with the other studies.

Lastly partners and sponsors are vitally important to allow these projects to work.

COMMENTS

How does one sterilise the area? It is done to destroy secondary poisoning and the most affective way is to incinerate the poisoned animal/s. Water holes are difficult to sterilise. One would have to drain and remove the soil. Sterilizing an elephant carcass can take days.

Does one find anthrax anywhere or is it located in certain areas? Anthrax needs a set of optimal conditions; the wet season is associated with high anthrax breakout. If vultures are transmitting anthrax then the disease needs to be managed.

WORKSHOPS

What do we know of our species population numbers and where are the gaps? Are we happy with the current IUCN and Birdlife vulture species listings or can we make suggested changes?

Leader: Professor Peter Mundy

ABSTRACT

The Cape Griffon was the first Old World vulture to be admitted to the IUCN's red data list, as Vulnerable, in 1979. Since then many of this group of 16 species have been declared threatened in some way(s), and 'reddened'. For us in southern Africa the story began with the suggestion by Ogada and Buij (2011) to uplist the Hooded Vulture to Endangered! Critical to the IUCN criteria is the "generation time" or length, which they quoted from BLI as 14.5 years (recently increased by BLI to 17.8 years). This is nonsense – it is 6-8 years. Four points must be acknowledged: (i) Africa is not homogeneous, West, East, and southern regions are different, (ii) is the extra mortality from poisoning additive or compensatory?, (iii) the IUCN defines Endangered as >50% decline in ten years or three generations, in an area <500 km^2 and in a species with <2500 adults, and (iv) let's have a correct generation time.

Our savanna vultures in southern Africa should rather be categorised as Vulnerable.

- It took 13 years for the first vulture to be listed and was considered an achievement, however it should not be seen as such. The Cape Vulture became listed in 1979 in the red Data Book of Birds.
- The Cape Vulture has remained on IUCN list ever since.
- The IUCN have changed categories to be numerical:
    - In 2003 produced regional levels but these have not been used
    - Key point was the definition of generation time considered to be the average age of parents and birth of offspring. This is calculated on 1st offspring
- IUCN in 2001 defined generation time as the average age of parents of current cohort. The generation length affects turnover rate of breeding population.
- It is recommend that the Hooded vulture be upgraded to endangered status
    - In 1992 there were estimates between 200 000 to 300 000 Hooded vultures in Africa and by 2011 the population declined to 197 000 (26% decrease). However this was a thumb suck by Peter Mundy and no accurate data was recorded.
    - It took a generation length from Birdlife International to change this status. This is effectively a period of 14.5 years, which is too long to change the status of a species.
- In discussion it was agreed that vultures reach sexual maturity at 6 years but some can and do start breeding earlier.
    - The criteria for Birdlife International and IUCN is to look at 10 years or 3 generations of a species.
- Lappet-faced and possibly White-headed vultures seem to mature at an older age, 9 years (no observations from these but every bird at nest is an adult).
- Bearded Vultures in South Africa are in decline, African White-backed Vultures are being poisoned everywhere so are they too in serious decline? The question then is, is the extra mortality from poisoning additive or compensatory? Is it adding to mortality rate or helping other populations increase?
- IUCN category for critically endangered includes the following measurements;
    - <80% decline over 10 years or 3 generations whichever is longer
    - <100sq km of occurrence
    - <250 adults
    - Probability extinction >50% in next 3 generations

- African White-backed and Hooded vultures are now critically endangered but they have a huge range and their population is still higher than the Cape Vultures. They have also only decreased by a maximum of 20%.
- Given the average age of parents and offspring older than 6 years, this is therefore not enough on age alone to be listed as critically endangered except that of the Bearded vulture.
- The population in Southern Africa is better than the rate of decline in west of east Africa (can we tell Birdlife that?)

Suggested changes and comments

- Generation length (C Whittington-Jones and W Neser)
    - Mortality levels not affecting breeding population as a whole
    - What is a generation and context of declining species as it shifts (offspring not reaching breeding age) only 5% are reaching sexual maturity, can't use a human model for this
    - Only after 20 years of a pair breeding, only 1 or 2 are becoming breeding adults
- IUCN need to be broad with categories with the various species, using a different starting point and consider survival of offspring. Using standardized criteria needs to be addressed with Birdlife International.
    - Southern African vultures not declining towards extinction like other African countries, however a pair of vultures need to raise 2 chicks to survive adulthood to sustain the populations.
    - Mortality of sub adults and adults will affect generation length, it will get shorter as they don't live as long and breed as long (4-15 years) only assuming the adults are not dying young.
    - Two factors must be taken into account namely the survival of adults and the survival of juveniles (one must not look at survival from ring recoveries)
    - Survival of juvenile bearded vulture? – only 45% of juveniles make it to 6 years
- Is the correct and most up to date data being used which reflects true vulture population numbers?
- Pat Benson indicated that 2013 data shows recovery in some of the northern Cape Vulture nesting colonies.
    - More stability in the population – increase in nesting Cape Vultures in the Eastern Cape.
- Look at vultures 50 years ago, there has been a decline overall but recent recovery has increased –
    - Cape Vulture needs to be treated differently to other species due to endemic status in Southern Africa
    - Three population trends, why major colonies not used in analysis by Darcy?
        - Birds moving from peripheral colonies to larger ones – they are getting supplemented to smaller colonies that are now being thinned out.
    - Cape Vultures are stable at this stage – with data over 14 years reflecting this.
    - Data so fragmented one can't compare, however the data compiled by VulPro is comparable and shows the Cape Vulture population figures for several of the colonies monitored by VulPro. This data reflects the species is stable at these monitored sites over the last 14 years of data collection. (K Wolter)
- Influence of political issues. Is it not easier to get funding for higher listed species? This data being used may not be utilised. (W Neser)
- Mechanism and forum – make use of this and if people provide substantial data – engage with Birdlife and IUCN. (A Botha)
- Trends are starting to affect us – engage strongly and positively,

Are we happy with the current IUCN and BirdLIfe vulture species listings or can we make suggested changes?

- There is a need to critically assess when Birdlife International publish the Red Data List.
- IUCN put out numerical criteria but most of the vulture species do not match this criteria except bearded vultures. Birds are vulnerable only when we can show the change, let's draw a line and say inspite all poisoning and threats there are still 100s of nesting vultures.

Boikarabelo - a case study

Presenter: Walter Neser

ABSTRACT

With the onset of the coal mining and power generation in the Limpopo basin, it was decided that we urgently needed to collect *'before'* data, so that possible impacts of these developments could be measured. The area north of Steenbokpan was identified as a suitable study area, which will have open cast mining right up to the 50 year flood level, which is very close to some of the nesting areas. It is also a good area for collecting the 'before' data as there are no significant operations as yet.

During this study however, unusually high failure rates were noted along sections of the study area, which warranted further investigation.

- Surveying African White-backed vulture over the last two years (2014-2015) in and on protected areas, private farms and open cast coal mine companies.
- The goal is to establish the effect on the population due to the mining in the area.
- The coal mine sites are within metres of active breeding vultures and within these breeding bird's foraging range.
    - 117 nests over 65km, not all active every season
    - 1 foot surveys and one aerial survey in 2014
    - 2 foot surveys in 2015
- 18 nests active this year, very high failure rate this year.
- The data was split into different farms. Where nests were previously found in 2014, 2015 reflected no nests, possibly land use management changes being the route cause.
- Method used included the following to determine management problems:
    - Recorded every snare and marked on GPS,
    - Highest snares on higher failure rates (robbing nests),
    - No sign of nest – possible assumption could be people destroying the nests but no evidence for this, informed land owner with the highest failure rate. Lands are being discarded and ignored as previous game farms have been bought out by the mine and thus, it has become a poaching paradise due to no monitoring,
    - Informed the mine and poaching patrols were carried out – some of the resident farmers came across poachers with a vulture chick in one of the bags and thus there is now evidence of harvesting.
- Where there are successful breeding birds, no threat thought to be in the area
- Powerlines are also put up around the mining quarries and most of these are unsafe.
- There is a need for more data and continued monitoring of this site.

SUMMARY

- breeding birds in protected areas are protected more than outside of these areas
- more work to be done outside of protected areas as the bulk of African White-backed vultures is found outside of protected areas.

COMMENTS

- Compare nesting data in protected and unprotected areas
- One must keep in mind tree nesting behaviour is more dynamic than cliff nesting (seasonal changes in nest quality, some collapse due to weather and wildlife factors).
- Careful in making assessments and consider factors. (A Botha)

How the ranges of vultures have changed in the two decades between SABAP 1 and SABAP 2 (bird atlas projects)?

Leader: Professor Les Underhill

ABSTRACT (with Michael Brooks)

Two bird atlas projects have been conducted in southern Africa. The first, with fieldwork conducted mainly from 1987–1991, included Botswana, Lesotho, Namibia, South Africa, Swaziland and Zimbabwe (SABAP1). The second started in 2007 in South Africa, Lesotho and Swaziland, with subsequent initiatives in Namibia and Zimbabwe (SABAP2). This analysis focuses on South Africa, Lesotho and Swaziland. There was a change in protocol between SABAP1 and SABAP2; the spatial grid changed from 15 minutes of latitude and longitude to five minutes. The spatial units for SABAP1 are called quarter degree grid cells (QDGCs) and for SABAP2 are called pentads. The spatial units are nested, so that there are nine pentads in a QDGC. The change in protocol complicates comparisons between SABAP1 and SABAP2, and the results presented in this paper need to be examined by the audience critically to decide whether they are real or artefact.

Results focus on the two species which have substantial ranges in South Africa, Lesotho and Swaziland, Cape Vulture and White-backed Vulture. The results for Lappet-faced Vulture, White-headed Vulture, Hooded Vulture and Bearded Vulture are also presented. Overall, Cape Vulture was recorded in 563 QDGCs during the two bird atlas projects. Within this range, the median reporting rate decreased from 8.51% during SABAP2 to 2.66% during SABAP2, suggesting a large decrease in abundance. For White-backed Vultures, the corresponding values were 423 QDGCs, and median reporting rates of 9.04% and 10.10% for SABAP1 and SABAP2 respectively, suggesting stability of population size.

Prof Underhill explained the background to the Bird Atlas project. The 1st atlas project was in in the 1980s and the 2nd starting in 2007. The difference between the two is that the 1st atlas used 15' grid squares while the 2nd uses 5' grid squares. In 1997 two books were printed on the 1st atlas which covered 6 years of data by citizen scientists. This allowed decent maps for field guides, science and conservationists to be printed.

The 2nd atlas, which is still ongoing, is able to produce more data and can show how bird populations have changed. Referring to the map on the slide presentation the blue indicated a high reporting rate of a species while the grey pentads indicated not enough data and white no data at all. Les put up different maps of the following vulture species, Egyptian, Cape, African White-backed, Lappet-faced, Hooded, Bearded and Palm-nut vultures to illustrate the reporting rates and distribution of these species.

He then referred to the changes between the two different atlas periods regarding the species and indicated that blue and green indicates a bigger increase in the birds present in the current atlas area compared to the 1st atlas and red indicates a drastic decline or no reporting of a species which was reported in the 1st atlas in the same area. This could be referred to range changes. He again highlighted the different vulture species and the range changes presently recorded but cautioned that the species is seen to occur randomly in some landscapes and in some cases their existing range was in fact a lot smaller. Thus he suggested that one must compare declines from the omega formula with actual numbers and percentages of vulture species.

COMMENTS

Observations from the Hwange NP elephant surveys assumed that the omega term is random however the more clustered the species is, the less accurate the estimate of the species actually is.

African White-backed and Cape Vultures are more 'clumped' (clustered) but not the bearded.

The question of observations during the heat of the day revealing lower sighting rates? Prof Underhill justified this with individuals undertaking 2 hours pentads which allows for sufficient amounts of information to be collected. He compared the SABAP 1 and 2 projects and indicated that the overall checklist length is similar. He furthermore stated that counting birds doesn't record as much data as presence or absence of birds.

The value of incidentals was queried but it was felt that they do play a vital role in contributing to a symmetric basis for producing coverage maps.
Far less nocturnal species are recorded.

Weather conditions were queried but this is not a problem as SABAP1 has collected weather conditions and influences over the past 10 years.

Prof Mundy remarked that the human population has doubled which has had an impact on certain tree nesting species which is easily identified.

The challenge to the SABAP protocol is whether one can compare the two data basis (SABAP1 to SABAP2)

ACTION PLANS:
What are the outcomes/objectives?

- BirdLasser
- Data volumes expanding
- Very new term
- Define scope
- Data collection and management
- Data analysis
- Disseminating results
- Evaluate program success

Who? Bird monitoring, recognition and gamification Champion?
Resources needed:
Challenges include areas that need covering are not covered due to other areas carrying a greater interest. Atlassers can be considered;

- Selfish
- Meaningful
- Competitive
- Instant gratification
- Acknowledgment
- This is what drives them to further conservation and research
- Wikipedia, spaceX, Uber and Airbnb (these sites have caused other organisations to go bust as they have understood the new phenomenon of social media)

How do changes in protocols and observers affect results? How can we standardize this to gain a more accurate picture of vulture populations?

Leader: Professor Les Underhill

Monitoring vultures
There are 2 types of monitoring

- Basic counting – nothing about how/where? – majority of monitoring is done using this method
- Leading indicator – while it is happening and where issues occurred e.g. breeding success on a yearly basis, body condition etc

Data collected – signal (biological message) and noise (various factors e.g. time of day – observer process)

- Large samples – largely used – more data the better signal
- Reduce noise – challenges to this are smaller samples and have to have well trained people to carry out this method
- Tagging Bird ringing easy – AFRING database it is more defined
    - Satellite tracking data/tagging/ringing - need for central repository as it will be extremely valuable
- Where is recorded data stored?
- Counts with a lot of noise – citizen science project at vulture restaurants? How many species and how many counts? Out of this noisy data may get some signal over a longer period of time and average out noise

COMMENTS

The issue of monitoring and data collection on Cape vultures was questioned i.e is it being done in the same way with 3 monitoring sessions per year per colony? It was pointed out that VulPro has been monitoring several vulture colonies for years now according to the accepted Cape Vulture Protocol and due to the same methods and same individuals counting, the data is comparable, even if only one count has been done instead of 3. It was pointed out that VulPro is counting breeding pairs not individuals.

Feedback and comments were made regarding the fact that a monitoring protocol is already in place however it needs to be implemented or training needs to take place. It was recommended that all colonies should be monitored in the same manner. The issue of no cliff monitoring by EWT was mentioned and that the data then becomes difficult to compare.
The question of where the data is stored collectively was raised. ADU at UCT is a central point for all data collected.

The following comments were made regarding data;

- Peter Mundy queried where does Pat Benson's data on Cape Griffons go to and what methods and terminologies is he using
- Craig Whittington-Jones stated that having a central database must be publicly accessible
- Peter Mundy indicated that raw data online can be attached to journal articles and that it is important that data be published
- A suggestion of SANBI as a repository was made
- Les Underhill cautioned Bird clubs and their longevity
- UCT Percy Fitzpatrick have an archive of raw data
- Kate Webster indicated that financial constraints with regard to monitoring are an issue and that the ADU are encouraging people to get involved with vultures and monitoring which can be useful in collection of more data in a more cost effective way.

SUMMARY

The cliff nesting protocol already exists however there is no system ensuring all data is collected in this manner. The realization is that the data collected is not being utilized and shared and therefore we are losing valuable biodiversity. The ADU does not own the data and there is open access to it.

It was agreed that ADU house the data for Southern Africa however it can be linked/mirrored and linked to Zimbabwe Birdlife for example. It was pointed out that data should be accessible to various people but due to politics this is not always possible. All ringing, tagging and tracking data should be sent to SAfring however this does not happen and again the ADU was asked to champion this.

The complex issues regarding all information on tagging, ringing and tracking not reaching a central point was discussed and it was agreed that the ADU as an a-political body would be the best repository in this regard.

CONCLUSION

- Info to go to ADU – permitting system, norms and standards discussed
- Fully trained people to tag and track birds – apply to get a permit from unconventional marked panel (non existent yet) was a universal decision
- Recommended
    - One data bank – all spectrums of monitoring vultures otherwise no central database
    - Patagial tagging invasive – authority should be granted
    - Challenges – no colony data or monitoring (general consensus ADU)
- Organisations need to communicate (can't make a decision without all delegates)
- Solution – start with database as a voluntarily system – not forced to send to central database. Those that are concerned about publication rights for their data can be discussed further
- Wrap up – ball needs to be passed to ADU

Citizen science in the next ten years

Presenter: Henk Nel

ABSTRACT

The cloud, parrot drones, tweet, like, lol, blackberry, load-shedding … Ten years back these terms conjured up quite different images from what they do today. Throw in a few more TLA's and the new language of IM'ing – it can make you feel very old, very fast.

We live in interesting times – the internet of everything and miniaturisation of technology has changed the world's landscape forever. The Arab Spring and Edward Snowden leaks have toppled governments and formed new global alliances/enemies. More than anything else, this new phenomena of instant, unmoderated, ownerless, everywhere, anytime communication has empowered individuals like never before, for better and for worse… we live in interesting times.

At least one of the good stories to come from this, is another buzz term that has been building momentum in recent years: citizen science. Definitely not something new to the scientific community, but it has grown in size where its impact can't be ignored anymore. It too has its pros and cons – let's have a look…

- Technology has changed world's landscape
- Formed new global alliances
- Instant un-moderated communication, changing politics, business and conservation
- How it is deployed and how can it work for conservationists
- 20th century, university decided what to be studied
- Independent organisation came about on how to monitor, analyse and observe
- Got momentum – causes
- 3 factors –
  - technology (smart phone),
  - social media (demonstrations etc in SA on social media on anonymous accounts – making games of what goes on social media: "like" button),
  - crowd funding (small amount of money from lots of people) can be used for vulture conservation
- Good time to be citizen scientist
- Comments
  - Business company for app – still in planning phase (monetized greater ecosystem)
  - Egyptian vulture sightings in EC, elusive bird is around.

Vulture tracking: methods and who is doing what?

Leader: Professor Peter Mundy

Rex Green introduced automated collection and collation of tracking data.
He indicated that the question again is where to house the data. The ADU is one option but the storage of data can also be. He referred to the different tracking systems and indicated that the Argos system often gives bad data points as opposed to the cell track technology system. He referred to creating a crawler which would collect the data automatically every day.

This data could then be directed to the ADU and be available for anyone. The issue of ownership of data is a concern and both Peter Mundy and Craig Whittington-Jones indicated that this could be secured and a data sharing agreement could be drawn accordingly with limited access of the data for 5 years. VulPro indicated they would happily share data as the species needs are important and if the data is not used and does not become available, informed decisions could not be made for the species benefit. The issue of overcoming where resources are put to accessing data was discussed. Acknowledgement of data and how people look at data from different angles is also an issue.

Security issues and collapse of technology was queried. Rex indicated that a cloud server was unlikely to lose data. The question of hackers was asked and Rex felt that people were not interested in vulture data anyway. However, it was felt that possibly poachers would pose a risk. Les Underhill indicated that the ADU have firewalls in place to protect access to data and that the data is replicated to a back-up should hackers manage to get into the system and delete data.

Les Underhill indicated they had lost ADU data to hackers previously and have learnt from this, this is the reason why the back-up system was established. Peter Mundy indicated that Bird clubs do not have any form of back-up which is a weak link in the meta-data system and this is where the ADU have the advantage as they have this infrastructure already in place.

The ADU has an easy platform for collecting and linking data. Sonja Kruger however indicated that Movebank has a similar sort of system and there should not be a need for a new platform. The question was asked as to why persons were not using this system. Is it because it's a private institution or are people just not entering data into this system? To solve some of these issues, norms and standards need to be drawn up with regard to licensing and permitting and the permitting authority should enforce the sharing of data and housing it in a central repository.

It was proposed that Movebank be used for storage of tracking data and other data to be stored and shared at the ADU. All projects on tracking data must be registered with a time frame for publication. There should be an expiration date of confidentiality. Patagial wing tagging should also work on a permit system. Mechanisms for enforcing permits (for all provinces) should be established.

<u>SUMMARY</u>

- Tagging vultures should be under a permit system
- Movebank or recognised system to put data into
- Delegates all agree on this

Should we be sharing and informing our southern African partners on vulture movements? E.g. can we inform Zimbabwe when a vulture has moved from SA to Zimbabwe?

Questions asked: what happens to birds that are tracked and tagged in Zimbabwe or outside of Zimbabwe and then travel into Zimbabwe. Who's ringing and tagging vultures? Where do these vultures come from, breeding, roost and where are they headed to? This information is given to Birdlife Zimbabwe if the handling, ringing etc occurs in Zimbabwe, however what about South African birds crossing into other countries? Where does one get this information from i.e do the South Africans inform neighbouring countries if a SA bird has entered their country?

COMMENTS

- AFRING only gives basic information and ring number as that is all the information they have available.
- It is suggested that when a person in Zimbabwe sees a tagged bird to approach AFRING for information
- Contact the ADU system so it can be accessed on formal and individual sightings
- Norms and standards could be implemented
- Registration and recognised ring number and permit from province – data goes to the ADU
- ADU as meta system incorporating AFRING
- AFRING website – must include tagging information and this should be accessible on their website
- Tagging information is supposed to be recorded and sent to the ADU but is not happening and thus permits should only be given out and renewed once this happens
- Norms and standards –Birdlife SA and EWT have sent recommendations to the DEA
- There is still an opportunity to provide input into these recommendations
- What is the role of Birdlife SA in vulture tagging etc?
- ADU will need to interact with various bodies as the neutral and independent body in order to manage the data

CONCLUSION

- Responsibility for Birdlife Zimbabwe to report tagged birds and look up organisations
- VulPro will share all information, tagging and tracking with relevant countries as well as send all data to ADU
- Register data with ADU – already required legislatively
- SANParks permits differ from conventional permits? Loop hole in KNP is that students are applying for satellite tracking and due to inexperience it is then not the student who fits the devices. The supervisor must make contact with the ADU
- Charge or fine for failure to adhere to permit conditions could be introduced? This needs to be enforced
    - If student doesn't complete project?
- All students need ethics approval, which should stipulate where data should be sent to for storage. Species specific permits?
- Having a regulatory frame that covers these steps would be useful

Vultures and wind turbines: technical options to prevent collisions

Leader: Warren Goodwin

ABSTRACT

Wind power investment continues to grow on a global scale, with numerous major developments planned or already underway. The ongoing problem of bird mortality associated with turbine collisions is thus expected to increase, particularly in cases where efforts for mitigation in the planning and design stages have been unsuccessful. As there currently appear to be few viable technical options for avian collision prevention in turbines of standard design, a desktop study was carried out in order to identify existing as well as other possible applications for readily available technology in this respect. Turbines used for commercial power production are commonly in the 2 MW range and cost in the region of US $3 million to $4 million each. Wind farms are often situated on mountain ridges or hillsides in order to make optimal use of prevailing winds. Soaring birds such as vultures are readily attracted to these areas in search of slope deflection updrafts, which they utilize by circle soaring, straight-line soaring or lee wave soaring. Research suggests that eddies generated by wind turbine rotors enhance vertical mixing of momentum and heat. This additional turbulence naturally draws in vultures and other soaring birds, particularly on days of poor natural thermal activity. Video evidence shows a second year Eurasian Griffon *Gyps fulvus* circling over and between turbine blades before eventually being clipped on the wing by a blade tip as it passes through the top quadrant of the swing. Recent investigation into the visual field of two *Gyps* species suggests that these birds possess a considerable blind sector, making them particularly susceptible to collision with turbines. It also appears that such incidents almost always take place in the upper quadrant of the turbine blade swing, and thus any technical options considered for collision prevention or mitigation in vultures should take these factors into account. Avian Radar Systems employ simultaneous vertical and horizontal scanning marine radars and are already a proven technology for collision mitigation in various species. Units may be programmed with a rule set based on specific risk conditions, making use of the industry standard 'Modbus' communication protocol to communicate with the wind farm Supervisory Control and Data Acquisition (SCADA) system to initiate a variety of response actions. These systems are however relatively expensive, and depending on the size and layout of a wind farm, multiple units may be required. Laser or photoelectric sensors may prove useful, and could be set up between fixed towers in front of wind turbine banks, or directly between blades. These could be wired via a Programmable Logic Control (PLC) to communicate with the site SCADA system. Both sensor options, whilst technically possible and relatively inexpensive in relation to initial turbine setup, present their own disadvantages. In the first option, the requirement for two substantial tower structures for each turbine would be restrictive, whilst in the second option, rotor setup, physical alignment, blade automatic adjustments and centrifugal forces would constitute major drawbacks. Due to field limitations, the use of 'time of flight' retro - reflective sensors and other laser screening applications would also be restricted. Thermal Detection Systems provide a promising option. Thermal cameras fitted to individual turbines and operated along with related hardware and software are capable of detecting and recording approaching birds, even under conditions of poor visibility. They are particularly effective when used in a vertical viewing scenario, are relatively inexpensive, and could be readily adapted in conjunction with a PLC and site SCADA system to effectively alert controllers, record data, automatically cut power, or stall an individual rotor.

Warren discussed the issue of the risk of wind turbines with vultures. Developers look at models and sight these turbines accordingly but some still put vultures at risk. Deterrents have been used but have never been very successful. He further explained that although it looks like the turbines are turning very slowly the blade spins faster than the speed of the hub.

He illustrated a typical turbine (most being in the 2 megawatt range) and explained there are a couple of turbine parts that have to be understood in order to understand collisions. These are the yaw, the pitch of the blade and the nacelle where the controls are. He stated that turbines are normally placed in similar areas to where vultures fly (updrafts and lift) and that turbines produce eddies. This he illustrated with a video.

He spoke about the mitigation systems and referred to the avian radar system which communicates with the turbines to stop, slow down or break slightly. Depending on the size, different systems might be needed.

Other solutions are possibly the laser/photo-electrical system but where to place this and at what distance the laser could pick up the information would be a problem. The Thermal Animal Detection System (TADS) is also a promising idea however the placing of these thermal cameras on the turbines could be problematic, software is needed.

COMMENTS

- TADS was done on water birds and vultures fly differently in thermals and not in straight lines.
- How long does it take for a turbine to brake? This will depend on size, as the larger the size, the more time is needed to slow down and thus is not instantaneous
- At what distance is one looking at for a thermal camera? – Various lengths have to be set, reason why this hasn't been done yet?
- Very few alternatives for existing turbines, wedge tailed eagle cases in Tasmania are regularly killed by turbines
- Alvaro indicated what is the optimism on the value for this device? He indicated that it takes at least 30-45 seconds to stop a turbine, and where would one put the device, on the whole wind farm? It must prove that it can work to be able to mitigate. No solutions are guaranteed to stop the turbines and one must compare the cost to developer?
    - Cost in comparison to other devices cancels it out
    - Possibilities must be tested first for this to work (scientific proof)
- Vultures are drawn in and need observer looking at 200m radius to shut thermal down
    - Better chance of picking up birds when flying around the turbines
    - Successful for other purposes but challenges to vulture mitigation
- Alvaro also indicated that should there be 8 flights per hour, one cannot stop the turbines each time as the turbine loses power. It takes up to 20 minutes to start up again
- Flashing devices? Department for US painted one blade black and one white – birds detect the blades better and thus colouring does make a difference
    - Put flashes that trail behind blade? So looks like a physical barrier to bird – use of material
- Reflective tape?
- Majority of vultures using the turbines for uplift or passing through?
    - Is there a possibility the turbines are creating thermals?
    - However, many will not always fly in thermals
- Birds not attracted to turbines, birds utilised these areas before the turbines were placed there
- Bugs can confuse the devices
- US example of using coloured blades however are withholding this type of technology
- Birds not seeing the turbines as a threat (learning)

Predictive modelling

Leader: Ian Rushworth

Understanding vulture habitat use in 3 dimensions, at a fine scale, is critical to developing risk models for the placement of wind farms and new power line infrastructure. A modelling approach using satellite tracking data was recently used to inform wind farm placement in Lesotho, and this has huge potential to be used for other vulture species

Ian explained how this modelling was used for the placement of wind farms in Lesotho with the Bearded Vulture.

- Data – GPS tracking developed
- Combined environmental data and GPS data
- Non adults further range – random points
- Flying height model particularly important for wind farm development
- Broad scale result – help wind farm developers where to build
- Fine scale – individual energy infrastructure can be changed e.g. move individual wind turbines
- Wind farms proposed in high risk areas
- Conclusion
    - Build similar models for CV if data is available

<u>COMMENTS</u>

- Craig Whittington-Jones enquired if the historical nest sites were used? So can add in abandoned sites that have been repopulated to the model
- Conservation planning and targets – to get to the higher population level – optimising and allowing for future populations.
- Same model for Cape vultures could be used and one could then establish a risk map for both the Cape and Bearded vultures
- Cape vultures not yet below threshold
- High wind energy and where does it overlap with high use bearded vultures
- Areas with enough wind for investment and avoid bearded vulture areas?
- Sonja Kruger indicated that often it can be a loose situation as the developer is unable to move wind farms even if in high risk bearded vulture areas
- This predictive modelling can be used as a tool for trade offs – contribution to debate and provide data upfront and more on site monitoring required to look at specifics
- Cape Vulture – finer scale at height risk – lower at risk height directed to powerlines to reduce collisions (different for wind farms and wind turbines)
- Cape Vultures have a wider range than Bearded Vultures – birds still fly through high risk areas
- In a year – chances of bird flying through may change
- Used wind farm models in high, low and medium risk areas – outcome doesn't look very promising
- Model – flying height for powerlines will have another model with lower flight height (so potentially 3 different flying heights for 2 powerlines and wind turbine)
- Wind direction and wind strength and temperature in species location
- Key thing to the model is a generalised model over the whole area
- Data not recorded for these variables
- How can we approve precision of these models?
- Can we derive national data sets for this model to be improved?
- How can we use the Bearded vulture modelling approach for Cape vultures?

Ian indicated there is an extensive data set to work with. He stated that one must identify the existing (suitable) Cape vulture tracking data sets that are already collected. He put up a summary of the tracking data with at leat 87 including altitude and another 15 without altitude information. He also stated that many of the devices failed shortly after being fitted to the bird or that the bird had died in less than 1 year. Data available included from Dana Marburg, Ezemvelo, REST, EWT, VULPRO, Morgan Pfeiffer

and Ben Hoffman with a set of 540 000 data points. He asked if there were any other studies not included in the spreadsheet. The question is what is the minimum standard for the model?

One must make a living model and be able to re-analyse and improve the model as one goes. As to how often this re-analyzing should take place is the question. It must be remembered that the metadata must have all the information on each individual bird. The age of the birds fitted with devices is very important too and a subset data based on the age that it is tracked must be established.

Discussion about present tracked birds indicated that Beckie has a device on a Cape vulture in Botswana and some tagged birds from Botswana are being seen feeding at VulPro. Morgan Pfeiffer and Ben Hoffman have new data sets however Morgan is not prepared to share data at this stage. VulPro are planning to fit 4 more devices in the Eastern Cape within the next month. It was also felt that some of the Cape Vultures at Potberg should be fitted with tracking devices as well to cover this area.

Colony data and roosts, restaurant data (VulPro has these) for current movement?? Location of colonies and number of birds (breeding and non breeding) data is also with VulPro. Information could also be gained from the Cape Vulture Task Force if available. Dave Allen at Durban would also have information on the colonies in the Transkei area. The knowledge of active vulture restaurants is important and food availability. Restaurant placements will affect movement of birds through wind farm areas.

Collaborators identified and confirmed to work with this are the following;
Modelling process people involved- Rex Green, EWT, Arjun Amar, Ian Rushworth, Sonja Kruger, Kerri Wolter, Constant Hoogstad and Rudi Kruger (Eskom)

Objectives included the following;

1) Identify landscape variables

- Statistical landscape topography
- Things to consider
    - Thermals
- Can't model ability to use thermals – frequency of data downloaded?
- Weather lapse rate (overcast, clear dependent on the way they fly)
- Wind maps from tracking data
    - Season and breeding bird? Different distance variables
    - Turbines create turbulence and prevent lift (existing wind farm could become an attraction) – but not many nationally
    - Average out over the whole year (lose some detail in this) - could subset data and be more specific?
- Topography in individual areas is important – to make decisions
- Correlation between wind conditions and collisions to wind turbines is high in Spain
- Use more specific variables for mitigation
    - What data can we get? Difficult to obtain certain data sets of environmental variables (average wind speed and direction, may be inaccurate but could provide some insight)
    - Slope aspect and average wind?
    - Model probability that birds are in area?
    - Data exists from wind farm companies?

2) Intellectual property and contractual requirements for sharing data and publication

- Will be discussed over email on appropriate data sets to use?
- European model will assist in this and data set – Dr. Alvaro
- Wind data from industry – Rudi Kruger to get data (Eskom and Sam) test subset

3) Propose a way forward and time frame

- Payment for analysis – financial cost – Tim Reid proposal to run this?
    - Models already written for BV and basic model written
- Wind developer to offer to pay for analysis (no conditions associated with funding)
    - Reassure developer for the involvement
    - Level of independence between all parties
- Quote ZAR250,000
- Who is to write the contractor for the developer – via Fitzpatrick?
    - Agree to circulate draft of contract to all organisations
    - Contributors become authors but an outsider is analysing data

4) Discuss intellectual property and contractual requirements

- Specifically for this purpose – data set not shared beyond this – only for this modelling process with correct controls in place – no other third parties involved
- Also use for powerlines
- Peer reviewed publication to utilise raw data? (majority of journals require raw data, British and American societies)
    - Not going to wait for publication
- Discuss and talk through limitations as can be misused
    - Suggestions – developers and conservationists to use
    - Map location? Birdlife, KZN, ADU? Email discussions to confirm point of release and processes involved. Environmental authority, developers and Eskom need to understand
    - Collision perspective – flight paths and plans, this is more of a tool for new developments rather than existing ones, however same principle does apply to flag high risk sections of monitoring
    - Database of collisions part of testing of risk map –
    - Engage with Eskom, understand is it complementary to risk maps?
    - Risks for collisions with aircraft? Different altitudes?

Project plan:

- Collate tracking data
- Contract with Reid
- Collate available Cape Vulture data sets
- Secure funding
- Principle – move as quickly as possible and contributors getting data sets ready and cleaned in compatible format to be imported into model – critical next step

Strategic vulture restaurant placement

Leader: Andrew Tucker

Andrew spoke about his involvement with vulture restaurants and the pig industry. He stated that there is strict bio-security and pathogen free pig herds in SA and the losses were utilized to establish vulture restaurants. He illustrated the importance of correct sites and the need to fence the feeding site in order to make the area pig proof from feral pigs scavenging as well as other scavengers such as jackals. In addition, the site should always be inaccessible to people to prevent theft.
Camera traps have been used and set up at some of the already established feeding sites, to obtain information as to what is happening at the site, species utilitsing the site both diurnal and nocturnal.

He stated that restaurants were not established to tame vultures but as a supplementary feeding programme and it is having a positive impact on the number of vultures visiting the sites. He explained that pigs were a good source of food for vultures as it is actually a lean type of meat similar to that of game. The fat observed in pigs is actually a concentrated layer on the outside only. Beef and mutton are much fattier meat sources for vultures. He furthermore indicated that pig carcasses are much safer for vultures due to quality control and stringent regulations at piggeries. Andrew also stated that most mortalities within other livestock are not always readily available for vultures as they are consumed by humans. In Europe 85% of the food fed to vultures is pork.

The placement of restaurants is vitally important as well as the sustainability regarding costs and management. He referred to freezer trailers as well as farmers willing to assist.

<u>COMMENTS</u>

Where is there a need?

- Thabazimbi – the existing restaurant is closing due to the mine having been shut down
- Moholoholo in Hoedspruit – need more food for their restaurant
- Vulture restaurants can be used to keep vultures away from poison and contaminated carcasses and thus should be used as a conservation tool to save the species. If placed correctly, it can also aid in preventing power line collisions / electrocutions and wind turbine collisions by not pulling birds away from colonies and roosting sites but only if the sites are correctly placed.
- 2 new sites – Nylstroom and abattoir north or Pretoria (possibly north of Bloemfontein for AWB)
- Possibility for farmers in EC?
- AWB north side of Africa due to poisoning (as restaurants will help survival of young birds and prevent poisoning elsewhere)
- Research?
    - Population size of vultures will determine effectiveness of restaurant?
    - Funding for 2 projects – economic impact?
    - New sites?
    - Acceptance of new sites? How long does it take, time of year etc (surplus?)
    - KZN – pork put out and within 1 hour vultures were feeding
    - Size of pigs? Small pigs good for feeding more birds and vultures can feed on individual ones
  - Complete mix and range – bulk of meat is larger pigs
  - Higher mortality rate in small pigs
  - Calcium rate in small pigs?
    - Cut large pigs open – boar is less favoured and vultures may be fearful at first
  - Restaurants for roosting places?
    - Roosting on power lines?
    - More areas where birds are roosting on power lines so placing roosting areas that are safe
  - Guidelines of restaurants
    - Not to place closer than 2km to power line
    - Must not be placed near man made threats
    - Increase risk where restaurants are placed
    - Permitting process? Not regulated – VulPro to do site visits before confirmation and look at power lines

- Consider permit requirements for restaurants and more policing – but not too much as this will become a deterrent
    - Work together with landowners and form working relationships
- Policing people feeding where they shouldn't be – no way of policing this
- Prioritise restaurant places
- Move restaurants that are a hazard to birds?
    - Eskom lines?
- Belfast farmers are introducing a vulture stamp of approval for their livestock suitable for restaurants.

Research needs

Leader: Dr. Vinny Naidoo

Lead studies and effects on vultures
- Etosha as a control site for lead – comparison (0-10 levels of lead)

All other vultures in Namibia and South Africa being exposed to lead and the source is unknown
- Cape, AWB and Bearded vultures

Where is lead coming from?
Not soil? Possibility lead bullets from trophy kills
Cattle dips and veterinary drugs and affects on vultures

Toxicity in vultures
- Repeated exposure of carbrofen will kill vultures
- Meloxicam safe (no reason for this)
- Aceclofenac – not used in SA but used in cattle in Asia (cheaper than meloxicam)
- Pesticides – how to determine what level of toxicity
- Support and give antidote to poisoned vultures – only if sample is sent to lab in time
  - Couriers can take samples within 25 hours, relatively cheap ~ZAR250

<u>DISCUSSION</u>

- Can one identify isotopes from lead bullets to lead in blood?
- Can correlate but no guarantee (30%? Even with lead toxicity)
- Not an easy isotype for one source
- In the U.S lead bullets are being banned could South Africa possibly follow this route?
- This has worked in the U.S as the hunting season limits use of the bullets
- Is it possible to get the hunting industry in South Africa to agree?
- There are still high figures of lead in Maun in Botswana
- Hunting has now been banned in Botswana and only may take place on private game farms where lead bullets are still being used.
- Ian Rushworth has met with hunting industry and they have indicated they are keen to work together on this issue, however one needs good evidence of lead poisoning. There could be a backlash from the hunting industry due to these bans and questioning data as lead could come from recycling in its' original source
  - It is therefore imperative that to find the most common source of lead and only once there is scientific proof, will the hunting industry work with us.
  - Isotype analysis not as accurate and always difficult
  - The cost difference between lead to non lead bullets is quite high
  - Non lead bullets are more accurate
  - In Limpopo some hunters have been convinced to only use non leaded bullets which has had some affect
  - Could one use legislation? Not necessarily the solution – positive advocacy in convincing farmers and hunters to be environmentally responsible is the way to go
  - Rudi Kruger indicated that one needs to change views and perception with conclusive evidence.
- Sonja Kruger queried whether lead attaches to bone of livestock, especially for cattle feeding at junk yards. Bearded Vultures have really high levels of lead exposure and it is not sure where they are getting this from
  - There is no evidence how lead is released from bone so one needs to be able to do research on this
- It is best to use a hunter or community member to speak to 'their own kind' in order to get by-in
- The Hunters associations are social persons and one could use the human element affect to bring the message across regarding the use of lead bullets and the effects to human health
- One needs to design a process to get scientific evidence, using organized hunting with good data.
- The major objection/glitch will be the cost factor

    - EU and US animal rights are assisting in helping to ban hunting
    - Locally the industry are objecting
- At feeding sites all carcasses should be sampled
    - Results back in time? Can prove where source is coming from?
    - Should be sampling carcasses as a project
    - OVI toxic session can do – funding?
    - Provide protocol – what to sample (liver suggested tissue)
    - The issue remains how many carcasses need to be sampled to get clear results (analyse a few 100 or 1000 of carcasses and may be costly?)
    - Bearded vultures do not feed in hunting areas – so need to know where source is coming from. Possibly water?
    - Cost of test – device for testing lead poisoning? But farmers may argue against validation (use for screening)
        - Until funding is found it is suggest to get samples and bank/store them as lead is stable
- Breeding success and source of lead poisoning? This may be the cause for poor breeding success. Monitoring this and good indication of early death of eggs and chicks could be lead toxicity
- Lead in petrol? How much spread over environment–
    - Caused environmental issues – mowed verges of roads and feed to cattle
    - Indicator that lead concentration goes down with less lead petrol
- Susceptibility for California condors
    - Higher exposure but less issues of poisoning

Toxicity study would involve the following;

- What is the exposure level? And where: bone, soil etc?
- Not all birds recover from lead poisoning. One can use non releasable birds to study what levels of lead kill birds but it must be remembered we are working with endangered species
- Studies worldwide on lead are not suitable for SA
    - SAGHCA would like to partner and understand this issue but strong element for more evidence – they are reliant on hard data and querying overseas studies as long as they don't influence the programme
    - Willing to help design research protocol and method
- VulPro prepared to use birds that need to be euthanized. Protocols now so that birds can be used
    - Happy to sacrifice 2 vultures as VulPro is involved in many other potential fatal studies.
- The question of funding was asked and it is understood that the hunting organisation is willing to assist
- Samples of bones from abattoirs in Bearded vulture range. Easy source of bones – normal food for BV? Cattle may not be representative species – test what is being put at restaurants – dairy cattle and sheep?
- Things to consider:
    - Pork being fed to vultures? One of biggest deficiency in pigs is lead and it is farming practise to inject with iron or does the lead then come from the soil in the paddocks?
    - It was suggested the influence of old lead water pipes however this is very unlikely as now moved away from these a long time ago
    - Lead flashing on roof and water tanks?
    - Lead levels in water?
- There is no current SA legislation regarding this but one must presently rely on goodwill.
- One must also remember that there are the persons who hunt for the pot and they must be pulled in as well.

Scientific committee? Ian Rushworth proposed that 6 key participants, SA Hunters and Game Conservation Association, Fitzpatrick Institute, VulPro, OVI, Ezemvelo, medical school? And SANBI meet and discuss the way forward

- Organise meeting with all role players
- Ian Rushworth will coordinate this and meet at VulPro or faculty facilities
- OVI doesn't get enough specimens to pay for lab – have to rely on government so possibility may close down

- Model by EPA for ½ life
    - Min level of lead is 0
- Publications on other bird species can be used but not many on vultures
    - Collecting feathers for lead concentration? Depends on how they are processed – look at temporal analysis
    - TUT has machines available for this

What about other poisons?

Do people know how to diagnosis, treat and prosecute?

- Solution?
- Viable to run analysis to basic pesticide?
- Pay per sample or whole kit paid for?
- Possible for commercial labs but costly
- 1st step – collecting samples (PM, samples fresh)
- VulPro and Vinny Naidoo do a training programme by using dead bird and show the technique
- Delegates agree this will be useful
- Challenges – lab result take few days so more involvement with vets
    - Treatment is dependent on poison
- Management side? Basic first aid of vultures
    - Andre – training EWT already do with SANparks – storage and transport of sample and venues analysed – cost of sample (acquire funding)
    - Freeze what you can – most chemicals are stable for this
    - How long to store samples? – tissues metabolise drug so as quick as possibly to 3 degrees and within 24 hours into a freezer
    - Snap freeze – tissue into liquid nitrogen
- Anyone doing forensic training – EWT part of this training course, SABS and assistance of training
    - Collect what you can and store properly
- Substances of storage?
- Compressed gas? – temperatures not low enough for this and costs/benefit not worth it
- Challenges – not always near to a place for storage of samples (need to be preserved as quickly as possible, portable cooler bag that freezes something?)

Poisoning incidence reporting protocol and database

Leaders: Professor Peter Mundy and Andre Botha

The VSG wildlife poisoning database (Pan-African vulture/wildlife database) has a mortality database. There are many gaps in this data base. It has been managed by the IUCN-VSG since 2012. In the total number of mortalities, vultures make up the bulk of this (6100 known from 1961-2014) while the others are mostly cranes, however, this is incomplete.

Mr Botha indicated that their data base will be web-enabled within the next 3 to 4 months and the public will then have access to it. They are presently working on updating the reliable information and he referred specifically to the cyanide poisoning of elephants in Zimbabwe. The information needs to be verified with an authority or reliable source and not substantial evidence. It will be linked to the ARDB. It will have open access and people can use the network to gain information. Where it is sensitive and linked to poaching obviously the information will not be available for everyone and permission will have to be granted before access is allowed. Presently information can be submitted to the co-ordinators via dropbox folder.

The information/data per country weighs very heavily with South Africa. Many of the African countries have limited to no data available. There is an obvious lack of training when collecting data from a poison scene. Single birds that die often are not recorded and data is then not collected. The number of poison incidences reported in South Africa are higher however the number of mortalities are not as high. There are huge gaps in West Africa.

There has been a surge in the number of poisoning in the last 5 years. The majority of vultures affected is the African White-backed vulture. Substances used is often inconclusive as often the discovery of a poisoning is too late to collect conclusive samples. Sampling is often inadequate and the storage of the samples problematic. The testing of these samples is also expensive e.g. 600ZAR per sample.

He then cited examples of poisoning incidents in Namibia, Mozambique and Zimbabwe. It is often associated with elephant carcasses e.g. 146 elephants and 1912 vultures poisoned. Most of these cases are poaching related however there have been some confirmed cases for muthi trade poisoning where the heads of the birds are removed.

<u>COMMENTS</u>

- Prosecuting for the use of vultures for muthi? Culturally insensitive
    - Has been attempted – Durban raided market
    - Forget about prosecution – sustainability and turnover? And what is being used over the year – authorities and muthi network collapsed
    - Laws to protect culture and wildlife – conflicting
    - No one dedicated to monitoring markets – Soweto?
- Bulawayo in Zimbabwe**.** Josephine explained what she has done and indicated that prosecution is difficult. She talked to traditional healers to change the culture, there is clash with wildlife as healers can get from sustainable source (already have permits)
    - Corruptions – police paid off
    - Motherboard – better impact and government (workshops etc)
    - Visits to markets by fellow Africans can help
    - Police raid markets – registration produced then police don't prosecute
    - Most problematic are ones not under the raider
    - Industry is difficult to get information out of
    - Solution – communication is essential for it to work
- Superstition vs traditional medicine?
    - Spiritual component of the vulture mixed with herbs
- Number of traditional healers registered – 45,000 and also other people (churches also using medicine)
- Vulture as a totem?
- Relationships with research officer

- Other sources? Vultures dying on powerlines. Possibly use this in the market instead?
- Work with agent to know what has killed them
- Problem with powerlines – doesn't go to main muthi market which is easier to monitor than local and individual one-man markets
- Focus on larger markets

SUMMARY

Andre agreed to forward the database to all delegates and data set. This will be up and running by the end of February 2016.

COMMENTS

- How easily available? Open access – sensitive information permission needed
- All delegates accept the use of the IUCN-VSG poisoning database
- Data should be made available to anyone who requests data
- Poisoning database for other animals or all animals?
- Not interested in other species –
- Kerri - go with existing database as long as it is transparent
    - Email that we want information received and not held by 3 individuals
    - 3 contacts are access points for database (enter to vulture specialist group)
    - Influenced by IUCN protocol?
- As an organisation submitting – reassured that documentation is secure and how is it being managed? – duplicate on systems or use one system. Good practice to have document with the database
- No mention of protocol – IUCN to provide with database?
- Long term solution of a server?
- The proposal is to have the poisoning/mortality incidences ONLY sent to the IUCN-VSG poisoning database
- Incidences are sent to either of 3 people (Chair and co- chairs)
- Open access?
    - Interface allows you to enter data – request info from database can be queried
    - Sensitive data can be shared but limited
    - Can look at this database without going through 3 people – individual incidences may be confidential so will have to approach one of 3 points of contacts
    - Keep this database updated when better information is found
    - Data Security?
- Unknown causes should also be entered as well in case future poisons come up
- Awareness created for finding incidences?
- Formal 1 day training programme by EWT
- Gap in general public knowledge, who is alerted, Andre to provide guidance on this
- Other comments
- Sonja Kruger suggested a need for a mortality database for unknown causes of death

Captive breeding to aid vulture populations

Global vulture breeding and reintroduction initiatives: VulPro as a regional case study

Presenter: Maggie Hirschauer

ABSTRACT

Over the last three decades, successful captive breeding and reintroduction programmes have been instituted for several vulture species in over ten countries. The reintroduction of the Eurasian Griffon in southern France is one of the most successful projects worldwide. Other efforts in Europe have focused on the Egyptian Vulture, Eurasian Black Vulture and Bearded Vulture. Breeding programmes of three *Gyps* species were recently initiated in India, Nepal, and Pakistan following the drastic population crash in the mid 2000's.

VulPro's Cape Vulture breeding and supplementation programme is the first for any vulture species in Africa. Since its start in 2011 it has produced eighteen chicks for release, ten of which were released at the breeding facility in February 2015. Eight chicks are still free-flying but have failed to forage for food outside of VulPro's vulture restaurant. The programme now aims to initiate an off-site release/hacking facility to encourage foraging behaviour and natural ranging.

Leader: Maggie Hirschauer

The discussion revolved around Cape Vulture reintroductions and the threats that are always associated with reintroduction of captive bred chicks. The question is how many pairs are needed to produce sufficient numbers of chicks for supplementation and the costs involved. In Europe this is done more successfully due to less threats however, Cape vultures in the wild are up against many threats which must be remembered. Would these threats be a hindering factor for the breeding programme of VulPro?

Locations suggested by Maggie included Roberts' Farm where the species used to breed and occassionally roosts but no longer breed, however it's in close proximity to the Nooitgedacht breeding colony. One must remember that this is a costly affair and a release site needs staff, food available and water. Craig Whittington-Jones suggested possibly establishing a release site where there are less Cape Vultures present. Alvaro indicated that all captive bred birds are at risk but it is a good idea to develop a hacking site where it is needed and where the chosen release site is based. The question asked is; having non-releasable birds in an enclosure raising chicks appropriate in that the chicks are less wild than naturally wild raised chicks on the cliffs. What is the post fledgling dependency? Not all fledglings stay in a colony once they have fledged.

Peter Mundy asked about the Namibian experiences with captive bred chicks when they were released in 2012 at REST. 13 Years ago Cape Vultures were taken to REST and kept in an enclosure for 2 years before release. Some of these birds died and the rest remained in Namibia for 2 years but have now been sighted in South Africa at vulture restaurants. Presently Maria Diekmann in Namibia cannot get permits for breeding Cape Vultures in captivity. Andre Botha suggested engaging with Holga Kolberg in Namibia as there is a strong enough need to allow this to happen. It is noted that Cape vultures still enter Namibia but do not settle there. Andre Botha indicated he would be happy to assist and act as the middle person. It was agreed the 1st step was to engage with Namibia, however considering the Cape Vulture has been uplisted to endangered, the persons in Namibia must show an effort from their side in wanting this to happen.

A suggestion of possibly re-introducing Cape Vultures into the Karoo region and areas like Mary & Martha (which are summer roosts presently) as well as the Mountain Zebra NP were discussed. It was

agreed that a feasibility study on the historic ranges as well as the threats for all sites be looked into first.

With regards to the White-headed vulture, Campbell Murn should be engaged with regard to low density species but also look at available habitat for reintroduction?

Maggie proposed that there should be a cliff nesting and separate tree nesting vulture committee.

The issue of captive breeding the Egyptian vulture was discussed. De Wildt has captive birds presently, possibly the only gene pool left in SA. Egyptian vultures presently seen in SA are not from this gene pool but other African countries so are not genetically the same. Namibia has breeding Egyptian vultures with sightings in Etosha. It was stated that captive breeding must prioritise the species and that possibly the Egyptian vulture is not necessarily a priority at this stage due to the fact that 60 years of no concrete proof of breeding within SA has taken place. Captive breeding is expensive thus must be specilaised and priority species focused on.

It was agreed that captive breeding of Cape Vultures to continue and that a feasibility study of Cape Vultures be looked into, specifically in the Magaliesberg. The feasibility study must include historical data, food availability, feeding sites and historical presence. This could also be linked to an MSc study. Andre asked about a stud book and VulPro indicated that they already hold one and work with the NZG and PAAZA.

The following persons were named as the steering committee– VulPro, Sonja Kruger (BV task force), CV task force (to engage with chair of this – to be discussed with Andre, Kerri and Constant) and Craig Whittington-Jones

Suggest more frequent committee meetings to discuss captive breeding
Tree nesting committee a discussion group to be confirmed further

<u>COMMENTS</u>

- Compensatory and additive mortality – challenge could be increasing mortality of wild chicks (investing resources and then CV mortalities increase?) key thing is where CV are coming from?
- 75% chicks reared and fledged successfully die? Will rehab birds be part of this – potential background info on this
- Possibility to look at other vulture species, i.e. Egyptian vulture?

The Bearded Vulture conservation breeding programme

Leader: Sonja Kruger (Bearded Vulture Task Force)

ABSTRACT

An update will be provided on i) the status of the Bearded Vulture Population in southern Africa, ii) the need for a conservation breeding programme, iii) progress on the project thus far and iv) the way forward.

Sonja gave a background to the breeding programme.
The issue of funding is always a problem however the fact that the Bearded Vulture lay two eggs allows for harvesting of one and raising the chick with the use of puppets. They presently have two chicks which they are rearing like this. No reintroduction will take place until a feasibility study has been done and then the top 3 sites will be investigated.

The issue of the parents rearing both chicks was discussed and Walter suggested that the chicks be swapped around to prevent the one chick killing the other as a more cost effective method of supplementing the breeding programme. It was pointed out that the nests sites are not easily accessible which makes the logistics of this not easy. It was also suggested that the parents be supplied with sufficient food to be able to rear both chicks in the wild.

The following was important to remember. Bearded Vultures defend their territories during the breeding season. There are no colonies of Bearded vultures. Eggs harvested from nests must not be from the same nest the 2nd time. The cost and accessibility of these nests is exorbitant and these nests are difficult to monitor on a daily basis due to the extreme conditions and terrain.

Patagial tagging protocol: summary and need for practical training

Leader: Andre Botha

Andre explained that the recommended norms and standards (discussed at the BOPWG meeting) have been sent but is not a finished product and will take a 2-3 years process to complete.
He mentioned the following points;

- Compare results in re-sightings rate of different tags?
- Is there a need? Yes – working groups discussed who will draft them – Birdlife and EWT (ADU)
- What is needed?
- What guidelines should be in place?
- Who will draft them?
- Who should be responsible?
- Next steps is to engage with DEA

<u>COMMENTS</u>

- Walter asked if VulPro was involved with this
    - Discussed yesterday – but EWT was not present
- Re-sighting data – copy to ADU/Afring? Do have access but managed by EWT. All tagged birds do go to AFRING if there is a re-sighting then channels through to appropriate person
- If submitted to one group is submitted to all
- Sometimes issues with losing both ring and tags? In EU raptors are only managed by ringers and trained persons first ring passerines then to move to other birds. Training for raptor ringing is different and it is recommended that separate training and qualifications be done for this group of birds.
- Sonja Kruger asked if ADU has a standardised database. There is a link – way forward is one tagging database
- Norms and standards will help this – guidelines already there so need to be placed in central repository
- ADU to receive tag and ring number? – delays in this
- Andre discussed Birdlife and EWT would take it forward – Birdlife, Afring and EWT

Practical training: tracking devices and patagial tag fitting

Leader: Kerri Wolter

Kerri spoke about the following;

- Method and type of tag?
- Tags designed for certain species?
- Tagging incorrect – too close to leading edge
- Hawk conservancy volunteers tag annually for EWT and if different people are doing this elsewhere so this should be supervised properly
- Tracking device
    - Used to use tubing outside – broke and exposed collarbone area so blisters were formed
    - Now use silicon tubing on inside instead
- Yellow tags – used by VulPro
    - Each species have a different size tag.
    - Bearded vulture tags being for Cape's – larger side goes underneath
- Sonja Kruger queried the different material for VulPro tags
- It was mentioned that the cattle ear tags are plastic and brittle and birds can bite off
- EU has been using the same tags which VulPro is now using for decades
    - Someone needs to regulate the numbers and codes – AFRING?
    - In Spain they use numbers and letters
    - Suggest use letters/numbers combination
    - Never used letter B or G or O (difficult to read)
- Andre Botha suggested that at the birds of prey AGM in April, the tagging is once again looked into with costs of different tag makes
    - One system, one set of tagging
    - Should be changed around the same time
    - Include Namibia in this
    - If there are alternatives? Should use these
    - Challenges are these tags are expensive
- Alvaro – make letters and numbers so can have many combinations – didn't want to confuse with EWT tags
- Kerri indicated she has asked Becky to work with her
- One must remember that we deal with unskilled observers
    - Photographic evidence?
    - Don't differentiate species levels with numbers
    - Often can be confusing so if number not clear can't make assumption
- A suggestion of a poster on tag types be compiled
- Time constraints must be taken into consideration as it can take up to 6 months to get the tags.
- Kerri stated that these tags can be read whilst monitoring colonies far easier than the old cattle ear tags which are often not identifiable
- It was mentioned that the tags have sensor fitted for tracking at feeding sites
    - German company has receiver can download info
    - Can record who is at feeding site
    - However very small range (50cm)

CONCLUSIONS

- VulPro is happy to train colleagues and staff
    - Can offer this as part of norms and standards training can be required
- The new style tags that VulPro uses are better for both the welfare of the vultures and for the consistency in monitoring birds
- Ian Rushworth indicated that there should be one body/person distributing the tags and that it should have a standardised system and alpha numeric code. However, it was discussed that the numerical method then makes the numbers smaller so this needs to be considered

CONCLUSIONS

Walter Neser introduced an app on android phone which covered the following;

- Power line surveys to import to GIS layer
- Report re-sightings, incident report if you come across one under power lines
- Poisoning incidents
- Restaurant feature
- All submitted to central database – farmers and general public
- Farmers' vulture booklet, guides etc.
- Set up to send to central database
- Flexible and easy to add features – Eskom and field staff
- VultureApp

Andre – African raptor database to suggest – collect data from raptor sightings and mortalities for all of Africa

- Already an app in use for this
- Andre uses this and goes to EWT central database
- suggest contact with them and how it can complement this database
- every observation is valuable for the database and encourages people to register and provide information and input

Reason for this was power line survey – phone GPS and even with someone inexperienced with power line can select the exact structure for photographing and submitting the report – uses terminology Eskom uses so can go directly to them

<u>SUGGESTIONS</u>

- Timing of future meetings and budget?
- Sonja indicated too many meetings, Kate spoke about costs and timing
- Venue with camping option?
- This suggestion was made due to accommodation costs.
- Pan African conference?

HOWEVER ALL AGREED THAT A VULTURE SEMINAR SHOULD BE UNDERTAKEN ANNUALLY AND RUN BY VULPRO

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