

FOREWORD BY THE DIRECTOR GENERAL

Vultures as a family are one of the most endangered on the African continent and yet one cannot imagine Africa's skies without these iconic birds. These avian scavengers are nature's clean-up crew and in their absence proliferation of disease like anthrax, rabies, tuberculosis and botulism and decaying carcasses are the order of the day. They clean our landscapes like no other - nature's most successful scavengers and **they do all this for free**. A single vulture provides over US\$11,000 dollars' worth of ecosystem services for its cleaning services. By halting the spread of disease, they are worth much more to society in saved health service costs, not to mention contributing significant revenue to the tourism sector as well. **They are essential for our health**. Their decline can have serious knock-on effects on other species and the many benefits provided by nature. Vultures face a myriad of threats including unintentional and intentional poisoning, harvesting for belief-based use, reduced food availability and a shrinking habitat. However, not many people are aware of their predicament. Vultures may not be the prettiest or charismatic of birds and they are often referred to in derogatory terms due to their feeding strategy (consuming carrion) and because of their looks but it's hard to argue against their usefulness. They are in reality fantastically hygienic and caring parents.

The country has experienced increased vulture poisoning incidents that are impacting the populations between 2012 and 2019. Some of the notable vulture poisoning incidents reported include 191 vultures poisoned in Gonarezhou National Park (South-East Lowveld) in 2012, 40 vultures poisoned at a farm in Fort Rixon (Matabeleland) in 2014, 22 vultures poisoned in Sinamatella (Hwange National Park) in 2015, 43 vultures poisoned at Sentinel Ranch in 2016 (Masvingo), 94 vultures poisoned on the border of Gonarezhou National Park in 2017, 24 Vultures poisoned at Sengwa Wildlife Research Station in 2017 (Midlands) and in 2018, 28 vultures were poisoned in Main Camp (Hwange National Park). The most recent poisoning incident occurred in Hwange National Park in January 2019 where 21 vultures were poisoned. Whilst these are the significant incidences that have been reported, it is estimated that other sporadic poisoning events involving vultures are taking place for which no information is being received. At this rate we will simply lose these valuable birds to extinction if action is not urgently taken to reverse the trend.

Long before the advent of the African Vulture Crisis, the Government of Zimbabwe had already committed to protecting these birds by declaring them Specially Protected Species under the Parks and Wildlife Act. Zimbabwe is one of the few countries in Africa's that has accorded this special protection to vultures. By signing this Vulture Action plan the government of Zimbabwe re-affirms that commitment to protect vultures.

The purpose of the Vulture Action Plan is to encourage multi-sectoral, national, regional and international collaboration to address threats to vultures. It also encompasses awareness raising of the plight of vultures, their ecological importance and valuable ecosystem services, and propose solutions for African vulture conservation at the highest levels both nationally and regionally.

Most vultures are teetering on the brink of extinction across Africa. Considering the vital role they play in preventing the spread of life-threatening diseases, we must do everything we can to ensure the survival of these unsung heroes.

F. U Mangwanya
DIRECTOR GENERAL

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Acronyms and Definitions

CAP: BirdLife Council for the African Partnership

CBD: Convention on Biological Diversity

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

EBA: Endemic Bird Area. EBAs are defined as places where two or more species of restricted range i.e. with world distributions of under 50,000 km² occur together (Stattersfield et al, 1998)

EIA: Environmental Impact Assessment

EN: Endangered species

IBAs: Important Bird Areas. IBAs are sites of global biodiversity significance identified using international, objective standard scientific criteria. Places may be considered IBAs if they hold globally threatened species; restricted range species (world range <50,000 km²); biome-restricted species and/or congregations of significant numbers of the global population of a bird species. An IBA should as far as possible, be different in character from the surrounding area; exist as an actual or potential protected area; and, alone or with other sites, provide all the requirements of the birds, when present, for which it is important. (Fishpool and Evans, 2001).

LC: Least Concern species

NGO: Non-governmental organisation

NBSAPs: National Biodiversity Strategies and Action plans

NIBACS: National Important Bird Area Conservation Strategies

NSAIDs: Non-steroidal Anti-Inflammatory Drugs

NT: Near-threatened species

The RSPB: Royal Society for the Protection of Birds

SAP: Species Action Plan. 'A Species Action Plan (SAP) is a scientifically authoritative, strategic document that defines specific, measurable objectives and actions for conserving priority species. The plan should be achievable, time-bound and involve all appropriate stakeholders' (BirdLife International Africa Partnership, 2001).

VU: Globally Vulnerable

VWG – Vulture Working Group

ZPWMA: Zimbabwe Parks and Wildlife Management Authority



1 Introduction

1.1 The Need for a Plan

Vultures are amongst Zimbabwe's threatened species, with all but one of the vultures routinely found in Zimbabwe are listed as being Endangered or Vulnerable on the IUCN Red List. These birds are an important part of the ecosystem playing a vital role in cleaning up the environment thereby reducing the spread of diseases and the proliferation of feral animals. However, they are under serious threat from various anthropogenic factors which include poisoning and land use changes.

There has been a surge of elephant poaching in recent years and also an increase of poisoned carcasses. This has led to a spike in the number of vultures being killed through poisoning, either inadvertently or directly. This coupled with the realization that our knowledge of vulture numbers, distribution and ecology in Zimbabwe has serious gaps led to the need to develop an action plan for these birds to ensure their survival.

1.2 Methodology

This Action Plan was developed primarily at a stakeholder workshop using a process and format developed by the BirdLife International Africa Partnership (BirdLife International 2001). The workshop process involves four main steps.

1. Presentation and discussion of background information about the species in question in order to identify gaps in knowledge on the species and capture new information.
2. A thorough analysis of the threats in a cause-effect relationship using the problem analysis.
3. Use of the agreed threats, their interrelationship and differing priorities to draft mitigating interventions.
4. Development and agreement on a monitoring and evaluation plan to assess whether there is change as a result of the interventions.

Further details about this methodology can be obtained from a Training Manual developed by Sande *et al*, 2005.

1.2 Action Plan Format

The development of the Action Plan used thematic areas both for the identification of threats and the development of objectives, projects and activities (see listing below).

1. Poisoning
2. Education & Awareness
3. Research & Monitoring
4. Habitat & Land Use
5. Policy & Legislation
6. Infrastructure

The Action Plan tables are presented first and the background information on vultures, threat analyses and other documentation follows on from this. This approach is used so that the plan itself is in front of the document and is not after the introductory materials.



2 Action Plan

This includes the vision, aim, objectives and projects and activities of the action plan. After identifying the threats of the species across its range, there is need for appropriate interventions or solutions to mitigate those threats. The solutions in this action plan have been packaged as vision, aim, objectives, projects and activities.

2.1 Vision

The vision is defined as the long-term end result of interventions. It will be for a longer time frame than that of the Action Plan.

The vision for vulture conservation in Zimbabwe is defined as being

To ensure healthy and viable populations of Vultures in Zimbabwe

2.2 Aim

The aim is a portion of the vision and is related to the time frame of the Action Plan. Ideally an aim should have indicators so it can be measured.

The aim for the Vulture Action Plan is

To reduce the anthropogenic threats facing vultures in Zimbabwe

2.3 Objectives, Projects and Activities

The objectives, projects and activities were defined in the thematic working groups during the action planning workshop. These were then collated and reconciled to produce the following tables which form the core of the action plan.

Notes

In the “**Priority**” column – graded with *** being the most urgent

In the “**Outcomes and Notes**” column – Notes are in *italics*

Many of these activities will be reliant on funding. And several would be best carried out by consultants (if funds were available) rather than relying on the goodwill of the VWG members. Hence many of the responsibilities assigned to the VWG may well be carried out as specific consulting tasks (to VWG members if possible).



Table 1: POISONING Action Plan

Objectives	Projects	Priority	Activities	Time Frame	Resp.	Outcomes and Notes
1: Improve handling and reporting of poisoning incidences	1.1: Poisoning response protocol clearly defined and implemented	***	Refine and agree on protocol	By Jun 2019	WVU	Protocol document
			Update poisoning manual	By Dec 2019	FZS	Poisoning manual updated
			Develop and roll out training materials and programmes	Ongoing	VWG	
			Collect samples from incidents in PA	Ongoing	VWG	Sample database
			Procurement and distribution of necessary equipment	Ongoing	ZPWMA	Sampling equipment distributed to hotspot areas initially
			Ensure secure chain of evidence	Ongoing	ZPWMA	Manual for field staff and training
	1.2: Zimbabwean poisoning database	***	Agreement on home for database	Ongoing	VWG	Database up and running
			Database structure defined (include legal outcomes)	Ongoing	VWG	
	1.3: Incident Hotlines established	**	ZPWMA hotline protocols	By May 2019	ZPWMA	Use existing reporting hotlines
			Establish Vulture Support Groups in communities living in vulture breeding areas	Ongoing	BLZ, ZPWMA,	
1.4: Poaching hotspot map	**	Liaise with parks to compile country-wide updateable database and map	By April 2019	ZPWMA VWG		
		HWC database – link to RDCs and Parks to feed into map	Ongoing	ZPWMA	Tap into existing database	
2: Increase collaboration at a regional level	2.1: Links to regional poisoning databases	**	As poisoning database becomes established there must be protocols for 2-way linkages into regional databases	By Oct 2019	ZPWMA, BLZ	
			Database of regional management authorities, NGOs and other groups with positions, names, contacts etc.	By May 2019	VWG	See list after table



Table 1: POISONING Action Plan

Objectives	Projects	Priority	Activities	Time Frame	Resp.	Outcomes and Notes
	2.2: Establish and retain regional links in all sectors	**	Through Vulture Working Group these linkages to be maintained	Ongoing	VWG	.
3: Restricted access to hazardous substances	3.1: Hazardous substances law enforcement	***	Engage with distributors and users	Ongoing	VWG	Use agricultural networks, e.g. Agritex
			Identify supply chain	Ongoing	VWG	
			Actions on stockpiles	Long-term	EMA	<i>Work at the regional level (SADC)</i>
			Wildlife crime courts, penalties, prosecutor awareness raising	Ongoing	VWG	
	Pilot sniffer dogs (at crime scenes and at borders / roadblocks)		FZS			
	3.2: Initiate banning of some drugs/poisons	**	Lobby for the banning of key hazardous substances (suggest alternatives)	Ongoing	VWG	<i>Take a regional approach</i>

- SADC
- AHEAD
- KAZA / other TFCAs
- BirdLife Partners
- Agricultural sector
- Mining sector
- Pan African Vulture Cons. Strat.
- COMESA
- MEAs (CBD, CITES, CMS, WH)
- FAO
- link with rhino, elephant, pangolin groups to enhance messaging



Table 2: EDUCATION AND AWARENESS Action Plan

Objectives	Projects	Priority	Activities	Time Frame	Resp.	Outcomes and Notes
1: Comprehensive strategy for engagement developed and implemented	1.1: Database of engagement targets developed	***	<ul style="list-style-type: none"> First Level: (ZINATHA, ZPWMA stations, ZRP near protected areas), Second Level: (RDC, Ward and Village Level) Third Level: Development bodies (Physical Planning, Agriculture etc) 	Ongoing	VWG	Database established with contact details
	1.2: Materials developed and distributed	***	Materials developed (posters, leaflets, booklets)	Ongoing	VWG	Materials on hand Materials distributed to key engagement targets
			Translations	Ongoing	VWG	
	1.3: Implementation of engagement strategy	***	Trade shows	Annually	ZPWMA	Attendance at identified trade shows
			Commemorate International Vulture Awareness Day	Yearly	ZPWMA, VWG	Increased awareness of vultures
			Restaurant and Rehabilitation station survey and documentation	Yearly	VWG	Document of stations
			Training of ground staff in crime scene evaluation (Parks, Forestry, ZRP)	Ongoing	ZPWMA	
		Advertise policy regarding vultures	Ongoing	ZPWMA		



Table 3: RESEARCH AND MONITORING Action Plan

Objectives	Projects	Priority	Activities	Time Frame	Resp.	Outcomes and Notes
1: Improved knowledge of vulture distribution and numbers in Zimbabwe	1.1: Vulture distribution and numbers	***	Assessment of available location data (cards, SAPAB 2 etc)	Oct 2019	NUST BLZ NHM	Brief report
			Collation of historical data (e.g. field records, atlas cards, SAPAB).	Nov 2019	BLZ, NHM	GIS data held by BirdLife
			Update regional maps from published sources (including neighbouring countries)	Ongoing	NUST	Regional maps <i>(Use of sources in BirdLife library)</i>
			Monitoring the Cape Griffon roost at Wabai Hill and searching for new roost site	Ongoing	NUST, BLZ, ZPWMA	
			Determine the size of the vulture breeding populations in Matabeleland, Sebungwe, Lower Zambezi Valley and the South East Lowveld	Ongoing	VWG	Annual Counts Nest Counting in protected areas Transects outside protected areas
			Transect surveys (nests, flying birds etc)	Ongoing	BLZ, NUST, ZPWMA	Repeatable survey transect design Surveys carried out (annually?)
			Counts at vulture restaurants	Ongoing	BLZ, NUST, ZPWMA, UZ	Annual counts
	1.2: Vulture movements	**	Assessment of available data and development of tracking study programme	Dec 2020	NUST	Baseline report available
			Tracking studies-Lappet-faced Vultures in the South East Lowveld	Dec 2020	FZS	<i>Dependant on funding</i>
			***	Data collection system for recording vulture sightings	Ongoing	BLZ
		**	Where do vultures spend most of their time?-foraging movements	Ongoing	BLZ, NUST	



			Assess the current distribution of 'vulture restaurants' in Zimbabwe	Dec 2019	BLZ, ZPWMA, VFWT	
2: Improved knowledge of vulture biology and ecology	2.1: Vulture nesting database	***	Related to above surveys but dedicated nesting database (with success rates where possible).	End 2021	BLZ, NUST, ZPWMA, FZS, VFWT	
	2.2: General ecology	*	Vulture Ecology in an urban set up Explore vulture restaurant facilities (in Kariba) as possible tool in vulture conservation	End 2021	UZ, BLZ, ZPWMA, VFWT	
	2.3: Population modelling	*	Annual productivity-breeding success	Annually	BLZ, ZPWMA, NUST, FZS	Improved understanding of vulture populations in Zimbabwe
3: Improved knowledge of threats and values of vultures	3.1: Refinement of threat analysis	**	What are the causes of Vulture Mortality	Ongoing	WVU, ZPWMA, BLZ, VFWT	Review of vulture threat category
	3.2: Ecosystem services modelling	**	Literature review of the Indian Case Study, East Africa	Mid 2019	NUST	
	3.3 Vultures and people	**	What are the attitudes and perceptions of communities on vultures	Ongoing	BLZ, NUST, BUSE, CUT, UZ	Based on previous studies by NUST
	3.4 Vultures and the muti trade	***	How prevalent are vulture parts on the muti trade	End 2019	ZPWMA, BLZ, NUST	To also involve Zimbabwe Responsible Gambling Association
		***	Investigate the trade of vulture parts for traditional medicine	Nov 2019		



Table 4: HABITAT AND LANDUSE Action Plan

Objectives	Projects	Priority	Activities	Time Frame	Resp.	Outcomes and Notes
1: Assessment of vulture habitat and food source status	1.1: Vulture habitat model developed	**	Land cover base map		VWG	<i>2008 Forestry data but assessment of more recent data should be carried out (e.g. 2010 global data does exist)</i>
			Other baseline data collated	Ongoing	VWG	
			Develop a model of density distribution	Sept 2019	NUST	
			Ground truthing	End 2020	BLZ, ZPWMA, NUST, FZS	
	1.2: Livestock distribution map developed	***	Access to Livestock Services data to create livestock distribution database	By Aug 2019	WVU	Textured livestock density distribution map
			Recorded livestock mortalities	By Oct 2019	WVU	
	1.3: Wildlife distribution map developed	**	Use available sources (also inverse of population data)	Ongoing	ZPWMA	Countrywide wildlife distribution density map <i>ZPWMA aerial surveys</i>
	1.4: Assessment of change in priority areas	**	Identify target areas using data above plus data from Research and Monitoring	March 2019	VWG	Report and associated maps
*		Assessment of priority areas	Dec 2019	VWG		

Although landcover and landuse change is probably one of the more serious threats facing the survival of vultures the outcomes from this thematic areas are probably more useful for education and awareness rather than being ends in themselves. Their importance will be for informing political and policy processes (and not only for vulture conservation).



Table 5: POLICY AND LEGISLATION Action Plan

Objectives	Projects	Priority	Activities	Time	Resp.	Outcomes and Notes
1: Formation of Vulture Working Group Structure	1.1: Vulture Working Group formed	***	Group identified	Done	ZPWMA, BLZ	Group identified at this meeting
			Initial meeting	Done	VWG	Meeting minutes
			Parks to appoint Vulture coordinator	Feb 2019	ZPWMA	Coordinator in place
	1.2: Approval of Action plan by ZPWMA	***	Plan drafted, circulated, finalised	Oct 2017	BirdLife VWG	Action Plan to be completed at 1 st meet of VWG
			Plan approved and becomes official	2018	ZPWMA	Approved Action Plan printed and distributed
			“Plan on a Page” created	April 2019	VWG	Poster printed and distributed
2: Policy and Legislation review	2.1: Detailed analysis of stakeholders	**	Broad identification	Done	ZPWMA, BLZ	<i>Listing as part of this document</i>
			Follow ups to identify names, phones, email etc	Ongoing	ZPWMA, BLZ	Detailed database in place
			Development of detailed inclusive organogram to focus awareness efforts	Dec 2019	VWG	Detailed organogram existing and circulated
	2.2: Review of all legislation related to protection of vultures (including poisons)	*	Collation of all relevant Acts/policies, regulations in central database	Nov 2019	ZPWMA, BLZ	Database created (<i>ZPWMA, BirdLife Library?</i>) <i>Already some done in FZS document</i>
			Extraction and review of all sections pertaining to vulture conservation	Nov 2019	ZPWMA, BLZ	Legislation review document
	2.3: Review of prosecution process	**	Review of process	Aug 2019	VWG	Prosecution process document and highlights.
			Highlighting of problem areas	Nov 2019	VWG	Circulation of this document



Table 6: INFRASTRUCTURE Action Plan

Objectives	Projects	Priority	Activities	Time	Resp.	Outcomes and Notes
1: Infrastructure threats defined and interim plan to mitigate these in place	1.1: Linear infrastructure database	*	Database and map constructed	End 2019	ZPWMA, BLZ	ZESA to be approached for transmission grid GIS
			Database of incidents regarding problems on these	End 2017	ZPWMA, BLZ	BLZ, ZPWMA to jointly hold database
			Risk assessment for selected areas	Apr 2020	VWG	Risk assessment possible after data acquired
	1.2: Strategy for infrastructural threats developed	*	Position paper written and circulated	Aug 2019	VWG	Paper circulated and redrafted
			Strategy official	Feb 2020	ZPWMA	Becomes part of the Action Plan
			Review of policy regarding EIA for linear developments	Nov 2020	VWG	Policy review document
	1.3: Information disseminated	*	Information leaflet for mining companies	Mid 2019	VWG	



2.3.1 Vulture Working Group

The Zimbabwe Vulture Working Group was established during the Action Planning Meeting. The purpose of the working group was defined as being

1. For Coordination of Action Plan projects
2. Fundraising
3. Awareness
4. Policy and Advocacy

The following members were agreed

Organisation	Position	Contact
Zimbabwe Parks and Wildlife Management Authority	Vulture Coordinator	To be advised – post to be created
BirdLife Zimbabwe	Group Convener	
Zambezi Society	Group Member	
Frankfurt Zoological Society	Group Member	
Environmental Management Agency	Group Member	
Wildlife Veterinary Unit	Group Member	
Victoria Falls Wildlife Trust	Group Member	
National University of Science and Technology	Research Coordinator	
Chinhoyi University of Technology	Group Member	
Bindura University of Science Education	Group Member	
University of Zimbabwe	Group Member	
Mukuvisi Woodlands (Eco Schools)	Group Member	
National Museums	Group Member	
CAMPFIRE	Group Member	
World Wide Fund for Nature	Group Member	
Malilangwe Trust	Group Member	
Zimbabwe National Traditional Healers Association	Group Member	



2.3.2 Reporting Protocols and Vulture Incident Database

In order to improve the collation and storage of data it is vital that reporting protocols are standardized. This should hold true for all poisoning incidents but the following is the recommended protocol for vultures. As all vultures are specially protected animals in Zimbabwe the first reporting line will be the ZPWMA. However it was recommended that other members of the Vulture Working Group also be informed.

Table 8: Reporting protocols and vulture incident database	
Vulture Incident “Hotline”	<ul style="list-style-type: none"> • First reporting to Parks at local level (even outside the Parks and Wildlife Estate) • Failing that above report to the nearest ZRP station • Additional reporting to others (Vulture Working Group members) at regional level. These to be identified and circulated to Parks and ZRP • Regional reports link into the national level <i>Anonymous calls should be accepted</i>
Vulture Database	<ul style="list-style-type: none"> • Recommended that this be established on a “cloud”. Currently available data should populate the cloud database and help to establish its structure (e.g. data already existing on the Wildlife Veterinary Unit database) • Identified key organisations of Vulture Working Group can access the “cloud” database. Initially this will be ZPWMA but others will be defined at the first meeting of the Vulture Working Group • It will be vital to identify responsibilities for funding this initiative, both for establishment and for maintenance • It is also considered vital that this database links with other initiatives in the Pan African context. The flow of data is expected to be in both directions

Note: ZPWMA Regional Office Locations.

Northern – Chinhoyi; Southern, Masvingo; Central, Kwekwe; Western, Bulawayo

Parks has reporting protocols linked to Rhino monitoring- there was a suggestion that the same could be adopted for the vultures

2.4 Monitoring and Evaluation

A monitoring and Evaluation (M & E) plan is needed to determine whether activities are progressing according to schedule and have an impact on the conservation of the species. By obtaining information on the progress made in the implementation of the activities and using this information against the set indicators, it is possible to assess progress of implementation of the plan towards achieving the defined aim and objectives. Monitoring and evaluating progress on a regular basis helps to assess the priorities or slippages and make necessary adjustments if required. The M & E report also serves as a basis for keeping everyone informed.

The Zimbabwe Vulture Action Plan should be evaluated on an annual basis and be coordinated by the Zimbabwe Parks and Wildlife Management Authority in conjunction with BirdLife Zimbabwe. The engagement of other important stakeholders such as conservation NGOs, Government departments, scientific experts, local community representatives and International Conservation NGOs may be necessary during the evaluation.



3 Background

3.1 Introduction

Six species of vulture are found in Zimbabwe. An overview of these species is given below (BirdLife Zimbabwe Information Poster). In addition, there are records of two vagrants - the Egyptian Vulture *Neophron percnopterus* and the Rüppell’s Griffon *Gyps rueppellii* (Mundy, pers. comm)







Table 9: Vulture overview		
White-Backed	Cape	Lappet-Faced
		
<p>The commonest vulture in Zimbabwe, and can gather at a carcass in large numbers (hundreds) where it feeds greedily and aggressively. It has a long neck to get inside the carcass. Can be seen almost anywhere in the country, but rare in the Eastern Highlands. Adults breed in lower altitude areas, and younger ones can roam wherever they want, and sometimes over huge distances of more than 1,000 km from point to point. Adults breed annually in tall acacia (and sometimes baobab) trees. Very vulnerable to being poisoned at a carcass, which is now its main threat. Rated as “critically endangered” by BirdLife International in Africa as a whole, but probably “near-threatened” in Zimbabwe.</p>	<p>Is the second-largest of Zimbabwe’s vultures. It is mainly confined to the western, central and southern parts of the country but has been found on rare occasions in the Zambezi valley. This vulture is only sparsely represented here with the bulk of the population being found in South Africa. It tends to forage over grassland and woodland although it is reliant on cliffs and escarpments for breeding and roosting. These birds hunt over very wide areas so will roost at times in trees and pylons. A small, isolated breeding colony exists at Wabai Hill in central Zimbabwe which is believed to be the only breeding site in the country. Sporadic breeding since 1991. Although uncommon, flocks of over 100 have been recorded occasionally at animal carcasses.</p>	<p>This is the largest of the country’s vultures with a wingspan of nearly 3 metres. It occurs sparingly over much of Zimbabwe, though very rare in the east. It has a good population in the Gonarezhou National Park as it prefers semi-arid zones. The adults often fly around in pairs, and each is a study in black, white and red colours. It breeds in lowveld areas way off the high veld, and nests in Very short trees at 5 - 10 metres off the ground which arc at the centre of a small territory of a few sq. km. It visits carcasses but usually does not feed much from them, and instead is partly a predator of small animals. When it does visit carcasses it postures around a lot. Bird Life International has an action plan for it in Africa, while in Zimbabwe it probably rates as “near-threatened”.</p>



Table 9: Vulture overview

White-Headed	Hooded	Palm Nut
		
<p>It is the most attractive of Africa's vultures, and walks about with an 'arrogant' demeanour. It is the only vulture which can be easily sexed as to male or female when in adult plumage, by the large number of white secondaries in the wing of the female. It visits large carcasses but often does not feed from them, and if it does then it is very fastidious and never gets soiled with blood and gore. It is quite something of a predator on small animals, and also specialises on carcasses of small animals, even occasionally pirating the kill from an eagle. It breeds in lowveld areas and prefers to nest in baobab trees which are surrounded by territories up to 50 or so sq. km. Few if any seem to get poisoned.</p>	<p>This is a small vulture and dark brown in colour. It is fairly uncommon in Zimbabwe but is attracted to abattoirs. It is rare on the Highveld, and absent from the Eastern Highlands. At carcasses, which it frequently visits, it is forced to the margins by the larger birds, because it is at the bottom of the hierarchy. It compensates for this competition by trying to feed first, and by being comfortable in the vicinity of large carnivores. Also it specialises on other food sources such as termites, and faeces both of lions and humans. It breeds in lowveld areas and nests in tall evergreen trees and below the canopy, and its nests cannot therefore be seen from an aerial survey. BirdLife International has declared it as "critically endangered" in Africa, but it is not so in Zimbabwe, being rather "near- threatened" at worst, because of the chances of eating at poisoned carcasses.</p>	<p>Is very scarce in Zimbabwe with one, or possibly two, isolated populations. It has been resident at the Aberfoyle Tea Estates in the Honde Valley and on the adjacent slopes of Mount Nyangani for a number of years. It is believed to breed at Aberfoyle although perhaps only two or three pairs and younger birds occupy the area. It is infrequently recorded in the Zambezi valley, and these birds are more likely to be wanderers from Zambia rather than representatives of a separate Zimbabwean population. The adult is a visually striking bird being pure white with black on the wings and tail. As its name implies this vulture feeds mainly on palm husks although other seeds and fruit also make up their diet along with small birds, mammals and other small creatures.</p>

In addition there are isolated records of the Egyptian Vulture (*Neophron percnopterus*) and the Ruppells' Griffon (*Gyps rueppelli*).



3.2 Taxonomy

All vultures found in Zimbabwe belong to the family Accipitridae.

Class: Aves
Order: Falconiformes
Family: Accipitridae

Table 10: Vulture taxonomy					
White-Backed	Cape	Lappet-Faced	Hooded	White-Headed	Palm Nut
<i>Gyps africanus</i>	<i>Gyps coprotheres</i>	<i>Torgos tracheliotos</i>	<i>Necrosyrtes monachus</i>	<i>Trigonoceps occipitalis</i>	<i>Gypohierax angolensis</i>

3.3 Vulture Research in Zimbabwe (PJ Mundy)

Who has noticed vultures in Zimbabwe, and who has then written about them and studied them? Well of course the original San (Bushmen) inhabitants must have known vultures well and their mode of communication were the paintings of their rock art. As yet, however, I know of no site in Zimbabwe that has undoubted vultures painted thereon, though in imagination I see them there at Bambata (*contra* Parry 2002: 44). Similarly with the Bantu peoples and their (much) later entry, culminating in the very recent intrusion of the Ndebele group in the 1830s, vultures must have been well known to them. But all they have left us with are their superstitions, and their generic names for the birds – *Gora* in Shona and *Inge* in Ndebele. Species were not recognised, or at least not named as such.

Soon the Europeans were arriving, as traders, hunters and missionaries, into a land that barely had a name. Undoubtedly vultures were in their sights, often perhaps as pests, because they devoured the hunted animals when given a chance (e.g. Selous 1908: 260). But the Europeans wrote about their experiences and observations in southern Africa, actually from the mid-17th century far to the south, though not for another 100 years in the country that was to become Southern Rhodesia. So far the earliest note I have is from 1873 (Buckley 1874).

And it was just notes, and many of them, for the next 100 years. Then, John Ledger and I started the Vulture Study Group (VSG) in 1973, in South Africa, and in that same year I put a letter and a short article into *Honeyguide* (Mundy 1973 a, b), and elsewhere a description of our cannon net (Mundy & Choate 1973). And now, one might say, the game was on!

I quickly teamed up with Angus Anthony, and he studied the Lappet-faced Vulture *Torgos tracheliotos* in the Gonarezhou National Park (Anthony 1976). This followed on, in much more detail, from the observations of Ron Thomson (Thomson 1974). Meanwhile I had been visiting Wabai Hill on Debshan Ranch, to count the Cape Griffons *Gyps coprotheres* there, at their only known roost in the country (Mundy & Steyn 1977). Eventually I finished my D.Phil. thesis at the then University of Rhodesia, and it was published as a book (Mundy 1982). This covered my studies on all five species.

For many years, aerial surveys for elephants had been done, and in the Hwange National Park the observers had extended these to include counting vulture and eagle nests which were on the tree canopies. A general paper on the work was published (Howells & Hustler 1984), followed by more detailed studies on Hooded and Lappet-faced Vultures (Hustler & Howells 1988a) and White-headed Vultures (Hustler & Howells 1988b). Summaries of all species of vultures in southern Africa, including of course in Zimbabwe, and with general maps, were done (Mundy 1989).

For years the VSG had been planning a *magnum opus* on all the vulture species in Africa (eleven of them), and whatever was known about them. This was published towards the end of 1992 in Johannesburg (Mundy *et al.* 1992), and a little later by Academic Press in London. This book was very detailed on the species' characteristics, and their overall biology and ecology.



Later in that decade the VSG started its annual conferences, which included summaries of the birds from around the sub-continent. I contributed an article to the first one (Mundy 1997a). Just about contemporaneously, the southern African bird atlas project was published in two volumes. Zimbabwe had joined this initiative, albeit a little late, and atlassing had been hotly pursued in the period 1988-1993. For the first time ever, detailed distribution maps were shown of every species, including six species from Zimbabwe (Mundy 1997b). In the next year, the Important Bird Areas project was formulated, and Zimbabwe put forward its sites (Childes & Mundy 1998), three of which included vultures (middle Zambezi valley, Hwange National Park, Wabai Hill). Soon after, at the Vth world conference on birds of prey and owls, I contributed an article which included some Zimbabwe notes (Mundy 2000). Publications on vultures now slowed down from Zimbabwe, but the new decade heralded in the VIIth edition of the famous *Roberts birds of southern Africa*. Based on the atlas maps (named SABAP 1), good summaries were produced of eight species of vultures, that included notes from Zimbabwe (Piper 2005).

Of course many notes were produced over the years, and in my own “bibliography on the vultures of Zimbabwe” I have about 300 items from 1873 to the end of 2000. I hope to be able to bring this up-to-date, and digitise it.

Currently there is a new interest in vultures, and several projects are underway. Vultures are now part of the special species survey of the BLZ, as well as continuing to be recorded on the SABAP 2, field card, and nest record card schemes.

Research Publications

- Anthony, A.J. (1976) Lappet-faced Vultures Certificate in Field Ecology
- Mundy, P. J. and Steyn, P. (1977) Cape Griffons on Wabai Hill
- Mundy, P.J. (1980) Five common species. D.Phil (1982 into a book)
- Howells, W.W. and Hustler, C.W. (1984) Four common species
- Hustler, C.W and Howells, W.W. (1988) Hooded and Lappet-faced Vultures
- Hustler, C.W and Howells, W.W (1988) White-headed Vulture
- Mundy, P.J. (1989) General accounts of eight species
- Mundy, P.J., Butchart, D., Ledger, J. and Piper, S. (1992). The Vultures of Africa
- Mundy, P.J. (1997) in AF BOSHOFF et al., Vultures in the 21st century.
- Mundy, P.J. (1997) accounts of six species, in SABAP (I)
- Piper, S.E. (2005) accounts of seven species, in Roberts VII
- Chiweshe, N. and Mundy, P.J. (ongoing) Cape Griffons on Wabai Hill

Since 2011/12:

- Matsvimbo, F. road strip counts
- Mundava, J. Vultures and 'muti'
- Frankfurt Zoological Society/Malilangwe Trust - Vultures in the lowveld



3.4 Distribution and population status

3.4.1 Africa distribution

Vultures are widely distributed throughout Africa and belong to the “Old World” grouping of birds. Table 11 has brief notes on their distribution throughout the continent and the distribution pages are shown in Figures 1 and 2.

White-Backed	Cape	Lappet-Faced	Hooded	White-Headed	Palm Nut
Found throughout semi-arid and savannah regions of Africa. Important breeding areas in eastern and southern Africa	Mainly found south of the Zambezi river with a few vagrants recorded further north	Found throughout semi-arid and savannah regions of Africa	Found throughout semi-arid and savannah regions of Africa but with a more restricted range than the Lappet Faced.	Similar range to the Hooded	One of the more common vultures found throughout central and parts of western Africa

3.4.2 Zimbabwe distribution

Two of the six species of vulture found in Zimbabwe have a country-wide distribution – the White-backed vulture and the Lappet-faced vulture. One – the Palm-nut vulture - is very rare with most sightings thought to be vagrants. However, nesting has been observed in the eastern mountain areas of the country). In addition, there are records of two vagrants - the Egyptian Vulture *Neophron percnopterus* and the Rüppell's Griffon *Gyps rueppellii* (Mundy, pers. comm.)

White-Backed	Cape	Lappet-Faced	Hooded	White-Headed	Palm Nut
Found throughout Zimbabwe with breeding recorded in the Hwange and Zambezi valley areas	It is mainly confined to the western, central and southern parts of Zimbabwe but has been found on rare occasions in the Zambezi valley.	It occurs sparingly over much of Zimbabwe, though very rare in the east. It has a good population in the Gonarezhou National Park as it prefers semi-arid zones	It is fairly uncommon in Zimbabwe but is attracted to abattoirs. It is rare on the Highveld, and absent from the Eastern Highlands. Important breeding areas include Tsholotsho and Gokwe areas	Found in the north and south-east of Zimbabwe with breeding areas in Hwange and south of Lake Kariba, and in the Gonarezhou	Is very scarce in Zimbabwe with one, or possibly two, isolated populations. Vagrants seen in the Zambezi valley area

Notes on vulture distribution



- Five species found in Zambezi Valley, South-East Lowveld, south and north Matabeleland
- Three species found on the Highveld (White-Backed, Lappet-Faced and Cape. Wabai Hill is a nursery area for the Cape Griffon)
- Vulture rare in eastern highlands probably because of tree plantations
- From the records there appear to be 3 “holes” with no vulture records (Umfurudzi, Buhera to Chimanimani and Karoi to Kwekwe)
- Hooded vultures were expanding onto Highveld as private sector abattoirs expanded but this has been reversed since 2000
- White-Headed Vultures appear to be expanding onto the Highveld and towards Bulawayo.
- Knowledge of breeding areas is very poor

Table 13: Estimated populations in Zimbabwe

Species	Distribution	No. cards in atlas	Breeding	Estimated population	Status
Cape Griffon	South of 18°S	183	Wabai Hill	25 birds	R
White-backed	Everywhere, except NE	2643	Below 1200 m	1000 prs (?)	RB
Lappet-faced	Absent from NE and ec	1083	Below 1000 m	100 prs (?)	RB
White headed	N and S of highveld	906	Below 1000 m	100 prs (?)	RB
Hooded	N and S of highveld; spreading	829	Below 1000 m	50 prs (?)	RB
Palm-nut	NE corner; but several sightings	1	Aberfoyle	1 pr	R
Egyptian	2-3 sightings in 20 years	1	no	-	V
Ruppell's Griffon	Highveld, 3 sightings	0	no	-	V

R = Resident; RB = Resident Breeding; V = Vulnerable



Figure 1: Vulture distribution in Africa (from Mundy *et. al.*)

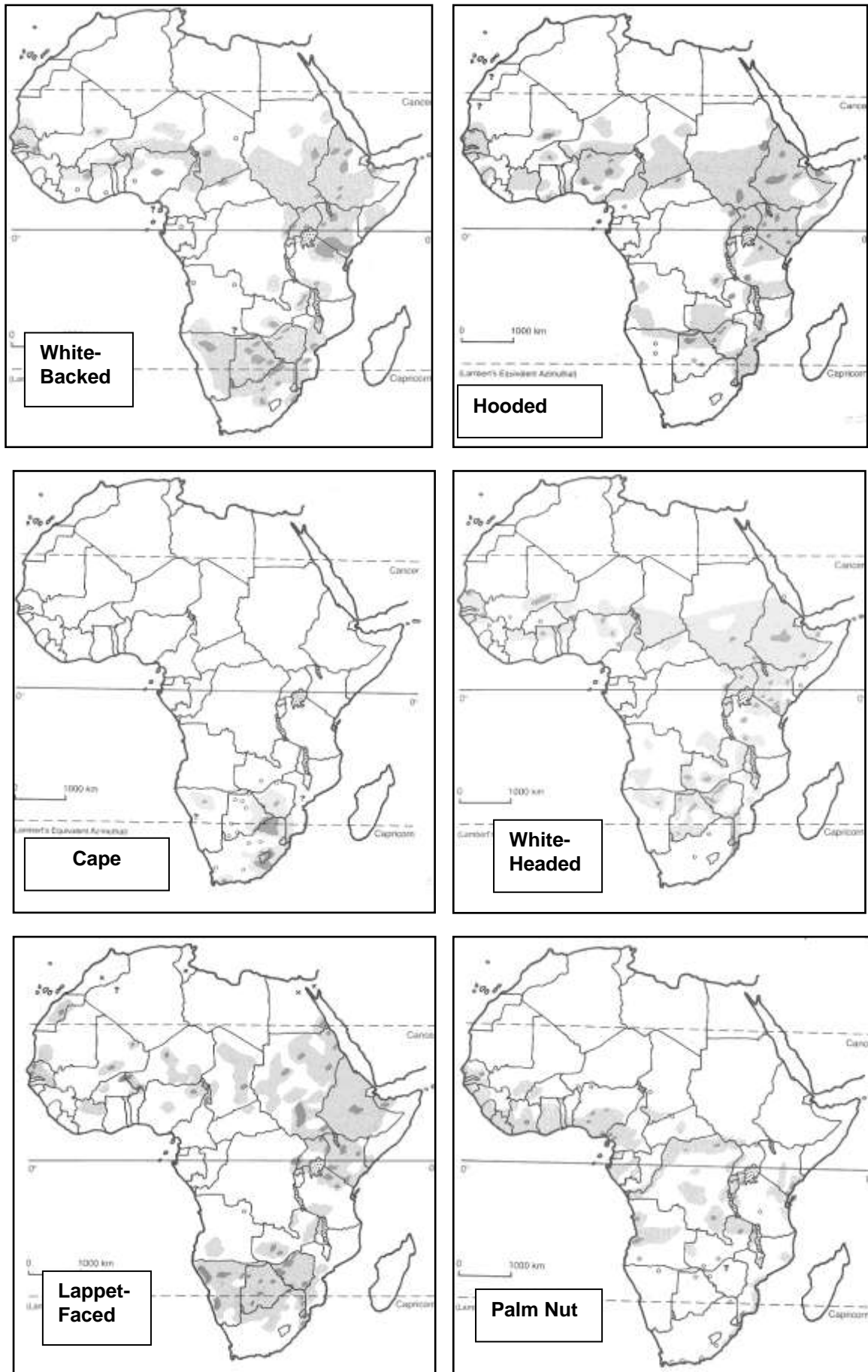
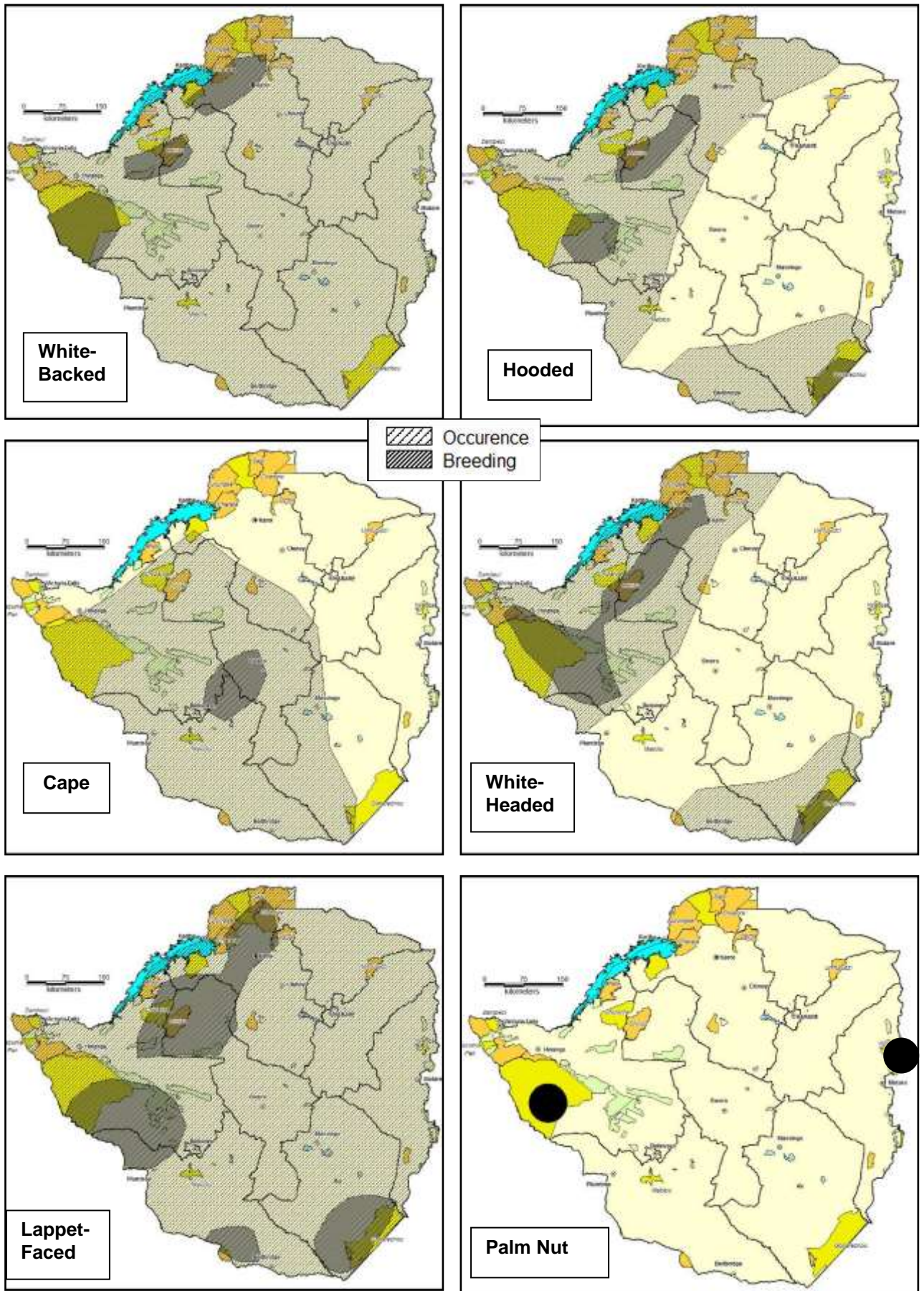




Figure 2: Vulture distribution in Zimbabwe (after Mundy *et. al.*)





3.5 Movements

Vultures are wide-ranging species with many being capable of covering large distances. The table below briefly summarises their travel characteristics. Very little information is available about vulture movements in Zimbabwe.

White-Backed	Cape	Lappet-Faced	Hooded	White-Headed	Palm Nut
Resident but with long distance movements by juveniles and immatures (1,500 km)	Usually resident but adults can wander over 1,000 km from colonies in non breeding season	Little known	Generally sedentary and territorial	Resident. Not thought to move large distances (200 km?)	Generally sedentary and territorial

3.6 Protection Status and Threat Listings

All vultures are listed as specially protected animals in Zimbabwe under the Sixth Schedule of the Parks and Wildlife Act. Regulations pertaining to those animals (and birds) listed in that Schedule are found in Part IX of the Act and are reproduced in Appendix 1. Section 45 details the control and punishments resulting from illegal hunting or possession of the listed animals (see below)

45 Control of hunting of specially protected animals and possession or sale of specially protected animals and products thereof:

(1) No person shall—

(a) hunt any specially protected animal; or

(b) keep, have in his possession or sell or otherwise dispose of any live specially protected animal or the meat or trophy of any such animal; except in terms of a permit issued in terms of section forty-six.

(2) Any person who contravenes subsection (1) shall be guilty of an offence and liable to a fine not exceeding level eight or to imprisonment for a period not exceeding three years or to both such fine and such imprisonment [inserted by Act 22 of 2001, with effect from the 10th September,2002.]

White-Backed	Cape	Lappet-Faced	Hooded	White-Headed	Palm Nut
Endangered	Vulnerable	Vulnerable	Endangered	Vulnerable	Least concern
Near threatened		Near threatened	Near threatened		



3.7 Relationship with other plans and action strategies

Zimbabwe has a number of species action plans which include ostrich, crocodiles, rhino, and elephants. Generally these are prepared under the auspices of the ZPWMA. The plans are produced as strategies to improve the conservation of species that need immediate action.

The Zimbabwean Government is part of several Multilateral Environmental Agreements that are related to conservation of species and habitats including the Convention on the Conservation of Migratory Species of Wild Animals (CMS), African Eurasian Waterbird-Agreement (AEWA), Convention on Biological Diversity (CBD) and the Ramsar Convention as the most noticeable ones. Under the AEWA umbrella Zimbabwe is part of number of Species Action Plans. These are White –winged Flufftail, Slaty Egret and Grey Crowned Crane action plans.

More recently a National Biodiversity Strategy and Action Plan (NBSAP) was developed for the country. A number of issues that have been referred to in this plan are priorities within the NBSAP. Land use and land use systems, baseline information and Education and Awareness on biodiversity as a few examples.



3.8 **Biology, Ecology and Habitat requirements**

3.8.1: General biology of Zimbabwean Vultures

The following information on the general ecology of vulture found in Zimbabwe is presented first as a summary and then in more detail. This information comes from a variety of sources but as this is not a scientific paper, references to sources of statements have been removed.

Table 16: Brief notes on the ecology of Zimbabwean vultures			
	White-Backed	Cape	Lappet-Faced
Nesting	Tree nester, loose colonies	Colonial cliff nester	Tree nester
Clutch	One	One	One
Season	April-June	May-June	April-Aug
Habitat	Lowland open wooded savanna	Very wide range of habitats	Dry savanna, arid areas, mountain slopes
General	Gregarious, Common	Long distance flier	
Food	Carrion	Carrion	Carrion but will hunt
	Hooded	White-Headed	Palm Nut
Nesting	Tree nester	Tree nester	Tree nester
Clutch	One	One	?
Season	May-Dec	After rains	Aug-Jan
Habitat	Grassland, wooded savanna, desert, coastal areas	Mixed dry lowland woodlands	Forest and wooded habitats
General	Often associated with settlement	Often 1 st at carcass	
Food	Carrion, insects	Carrion	Fruit, predation, carrion



Table 17: General ecology of the five main Zimbabwean vulture species

Species	General Ecology Notes
Cape	<p>The age of first breeding is six years, rarely 4-5 years with an estimated 80-93% of pairs breeding annually. Cape Vultures are monogamous nest on tall cliff faces, typically in fairly large and discrete colonies numbering up to 1 000 pairs. Egg-laying spans March-September, mainly April-July, with a May-June peak with the timing of breeding appearing to synchronise the period of highest food demand (the middle third of the nestling period) with the period of highest food availability. The clutch almost invariably comprises a single egg, only very rarely are two eggs recorded (<1% of instances and possibly involving two females). The combined incubation and nestling periods cover some 6-7 months and an entire successful breeding attempt from nest building to the final independence of the fledgling can take up to almost a full calendar year. Breeding success (fledglings or large nestlings produced per egg laid) is 45-78% (mean=60%); at Kransberg breeding success (fledglings produced per occupied site) spanned 37-61% (mean 50%) per annum. The generation time of the species is unknown but has been estimated at 16 years.</p> <p>The Cape Vulture seems to have foraged, at least ancestrally, across all of the characteristically more open vegetation types, i.e. fynbos, Karoo, Kalahari, grassland and open woodland. It is essentially excluded from forest and dense woodland likely due to difficulties in locating and accessing suitable carcasses in such habitat. Gyps vultures are unique among extant vertebrates in being obligate scavengers. They feed, typically in large groups, on large mammalian carcasses, both wild and domestic, favouring the soft internal organs and muscle tissue. These vultures typically search for food communally, fanning out to search for carcasses on the wing and responding to cues from one another. Recent research has emphasised the important ecological role played by these birds in carcass removal, e.g. related to disease control.</p>
Hooded	<p>The age of first breeding is probably 5-6 years with about 80% of pairs reported to breed each year. A generation length of 17.8 years and the species is monogamous. Nests are typically solitary in southern Africa but sometimes loosely colonial where the species occurs at densities higher than those usually found in southern Africa. Unlike the conspicuous nests of most other vultures in the region, Hooded Vulture nests are typically well hidden high up in densely foliated trees, often along watercourses. Nests are often re-used. The main egg-laying period spans June-July (May-October) with the clutch comprising of a single egg. Females may re-lay after early failure. Incubation is by both sexes and spans 50-51 days. The nestling period is 100-120 (90-130) days. The post-fledging dependence period is up to a further four months. Breeding success is reported at about 46%. The species is single brooded.</p> <p>The Hooded Vulture is a species of woodland habitats. It is scavenger and regularly attends both large and small carcasses; other small offal such as lion droppings are also consumed. Like the Lappet-faced and White-headed vultures, it is usually outnumbered at large carcasses by Gyps vultures but gatherings at some large carcasses can be substantial. Adults are thought to be largely sedentary and juveniles and immatures to wander more widely.</p>
White Headed	<p>The age of first breeding is probably at least six years. At Hwange National Park, Zimbabwe, 17-61% (35%) of pairs failed to breed in any given year. The species is monogamous. It is believed to be territorial and nests are typically solitary and spaced well apart, i.e. typically 11-29 km apart in suitable habitat but occasionally as close as 1-2 km. Nests are situated in the crowns of trees, and are built of sticks and usually lined with grass. They are often re-used. The main egg-laying period spans June-July (May-October). The clutch comprises a single egg. Females may re-lay after early failure. Incubation is by both sexes and spans 55-56 days. The nestling period is 115 days. The post-fledging dependence period is up to a further five months. Breeding success is reported at about 44%. The species is single brooded. Natural causes of breeding failure include predation of nestlings by Verreauxs' Eagle.</p> <p>The White-headed Vulture is a species of woodland habitats. It sources its food through a combination of scavenging, kleptoparasitism and direct predation on small animals. This vulture, like the Lappet-faced Vulture, typically occurs in fairly small numbers, especially when compared with Gyps vultures, at large carcasses but is also regularly found at smaller carcasses and indeed may be more reliant on these for its regular food supply than the large carcasses which attract big numbers of Gyps vultures. Adults are thought to be largely sedentary and juveniles and immatures to wander more widely. Like other vultures, the White-headed Vulture drinks and bathes regularly.</p>



Table 17: General ecology of the five main Zimbabwean vulture species

Species	General Ecology Notes
Lappet Faced	<p>The species is monogamous. The age of first breeding is at least six years. The generation length is 15 years. Nests are typically solitary in the region but in other areas where the species is common (or suitable breeding sites rare and localized) nests may be loosely clustered, i.e. sometimes as close as 700 m apart. The gigantic nests are situated in the crowns of trees, are built of sticks and usually lined with grass and are often re-used. The egg-laying period spans May-July in the region with the clutch comprising a single egg, very rarely two eggs. Females may re-lay after early failure. Incubation is by both sexes and spans 55 days. The nestling period is 120-128 days. The post-fledging dependence period is up to a further 170 days. Breeding success is reported at 44%. The species is single brooded. Natural causes of breeding failure include predation of nestlings by African wild cat, the secretary bird and possibly leopard</p> <p>The Lappet-faced Vulture currently inhabits the woodland regions of South Africa and Swaziland, with an apparent preference for drier woodlands, although it likely extended into other biomes in the region, e.g. the Karoo, ancestrally. In the region, this vulture, like the White-headed Vulture, typically occurs in fairly small numbers, especially when compared with Gyps vultures, at large carcasses but is also regularly found at smaller carcasses and indeed may be more reliant on these for its regular food supply than the large carcasses. It dominates other vulture species at carcasses and is a regular kleptoparasite. The Lappet-faced Vulture, with its huge beak, seems to feed mainly on skin, meat and skin on jaw bones, tendons and ligaments at large carcasses as well as a special liking to the head of an animal, items other vultures are less well equipped to deal with. Lappet-faced Vultures are known to kill small animals outright but the true extent of this active predation is still unknown. This vulture is capable of long-distance movements, but is not migratory. Like other vultures, the Lappet-faced Vulture drinks and bathes regularly.</p>
White Backed	<p>The age of first breeding is four years, although birds only acquire full adult plumage in their 7th year. The species is monogamous. Unlike most other Gyps species, White-backed Vultures typically nest in tall trees and not on cliffs. Nesting on steel pylons has been recorded regularly in parts of South Africa. Nesting is typically loosely colonial, with pairs breeding within sight of one another, but usually with only one or sometimes two nests in a single tree. Where available, nests are typically concentrated in tall trees along watercourses. Nests are built of sticks and usually lined with grass. They are often re-used. The egg-laying period spans April–September, mainly April–July. The clutch almost invariably comprises a single egg, only very rarely are two eggs recorded. Juveniles are partially dependent on their parents for food for 5-6 months after fledging. Breeding success is 43-87%. Nesting success is negatively correlated with nest density. The species is single brooded. Natural causes of breeding failure include predation of nestlings by leopard, serval and honey badger.</p> <p>Annual survival in one South African study was found to be at least 85% in second-year birds to just less than 100% in adults, although the sample size (n=7) was small for the latter and overall the study was compromised by the fading of patagial tags after about 4-5 years. Natural sources of mortality include birds killed by lion at carcasses and by black-backed jackals while drinking and bathing.</p> <p>The White-backed Vulture inhabits the woodland regions of southern Africa. Its feeding and foraging habits are similar to those of the congeneric Cape Vulture and it relies primarily on large mammalian carcasses and feeds communally. It is reported to very occasionally take live prey, e.g. young Springbok and Warthog. This vulture is capable of long-distance movements. Movements can be on a sub-continental scale and GPS-GSM tracked immatures made daily movements up to about 200 km. White-backed Vultures typically roost in trees and on pylons. Like the Cape Vulture, the White-backed Vulture drinks and bathes regularly.</p>

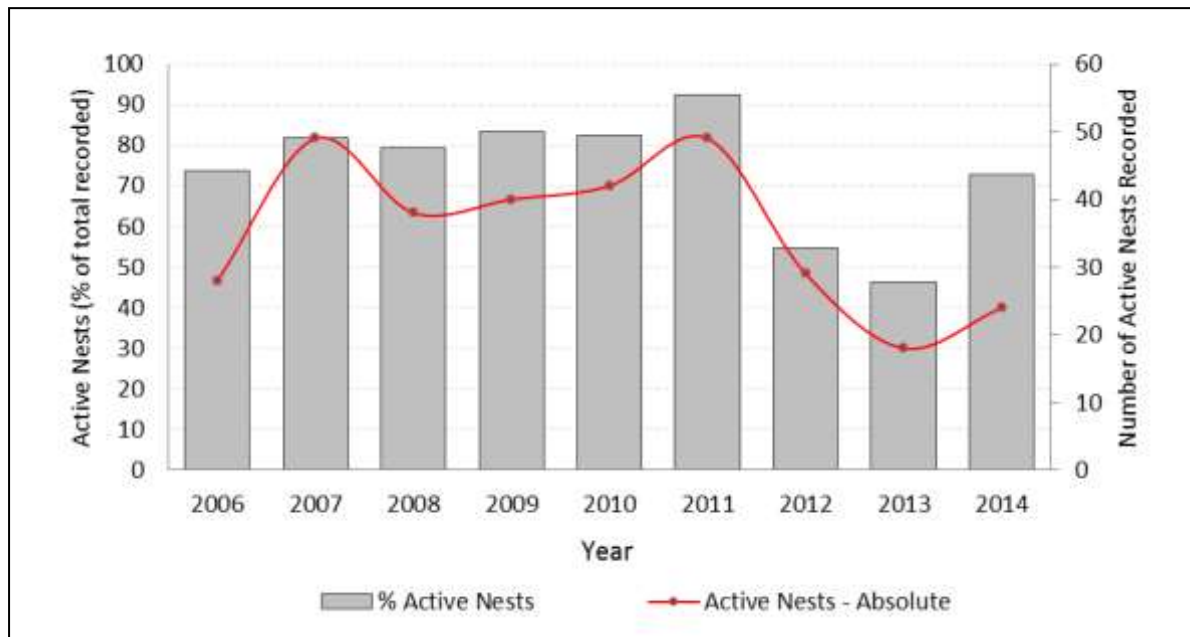


3.8.2: Nesting Data

As with many aspects of vulture knowledge in Zimbabwe the nesting database is a little thin. There was a successful nesting site for the Cape Griffon (a communal nester) at Wabai Hill near Gweru but this now seems to have been abandoned.

Data on nests of the other vultures have been collected from Gonarezhou and from the next-door Malilangwe Wildlife Reserve and both show significant declines in recent years (see Figure 3 for Malilangwe data). The Lappet-Faced vulture nests in Gonarezhou and again significant declines have been noted since 1975.

Figure 3: Percentage and absolute number of active vulture nests observed during the annual aerial census at Malilangwe Wildlife Reserve from 2006 to 2014.



3.9 Threats

The development of the Action Plan used thematic areas both for the identification of threats and the development of objectives, projects and activities (see listing below).

1. Poisoning
2. Education & Awareness
3. Research and Monitoring
4. Habitat & Land Use
5. Policy & Legislation
6. Infrastructure

3.9.1 Identified Threats

A threat analysis is an important step when developing a species action plan. A clear understanding of the threats facing vultures in Zimbabwe can help to define the intervention that need to be undertaken. At the Action Planning Workshop the following threats to vultures were identified by participants.

There is a great deal of argument about the importance of threats and also the importance of the thematic areas with respect to threats. However, poisoning was agreed to be the most immediate threat facing vultures in Zimbabwe and the one where it could be possible to mitigate. Education/awareness and research/ monitoring are also areas in which results are possible within the time frame of the action plan and hence they are listed high up in the table. Although policy and legislation changes are vital in



the long-term they are difficult areas in which to achieve results within the time frame of the action plan and hence appear lower down the listing. Land use changes are longer term threats and are very serious but they are also areas where it will be difficult to achieve meaningful results within the three year time frame.

Table 18: Threat summary by thematic area	
Poisoning	<p>DELIBERATE POISONING</p> <ul style="list-style-type: none"> • Ivory and horn • Bushmeat • Detection avoidance <p>DIRECT PERSECUTION</p> <ul style="list-style-type: none"> • Muthi (including snares) • Stock protection • Pet trade/zoo • Nest disturbance <p>ACCIDENTAL / INADVERTENT POISONING</p> <ul style="list-style-type: none"> • Problem Animal Control • Veterinary drugs • Lead
Education & Awareness	<ul style="list-style-type: none"> • Inadequate awareness in Government • Poor awareness in general public • Poor awareness in rural communities
Research and Monitoring	<p>DATA DEFICIENCY</p> <ul style="list-style-type: none"> • Population Status (Increasing/Declining)? • Distribution • Quantify Ecosystem Services (\$?) • Causes of decline • People's (Public) knowledge, perceptions and attitudes? (across all categories of the society). • Uncoordinated conservation/ communication efforts
Habitat & Land Use	<p>HABITAT CONVERSION</p> <ul style="list-style-type: none"> • Conversion to agriculture – increasing area of land under subsistence agriculture • Wild habitat to pastoral land • Urban area increase <p>SHIFTING FOOD SOURCE/AVAILABILITY</p> <ul style="list-style-type: none"> • Changing husbandry methods • Changing livestock distribution • Livestock mortality rates <p>OTHER</p> <ul style="list-style-type: none"> • Bush encroachment (Reduced visibility, take-off distances) • Veld fires (Reduce trees, nesting sites) • Wildlife distribution • Climate change (4) • Deforestation (5) • Mining – Habitat fragmentation • Infrastructure development



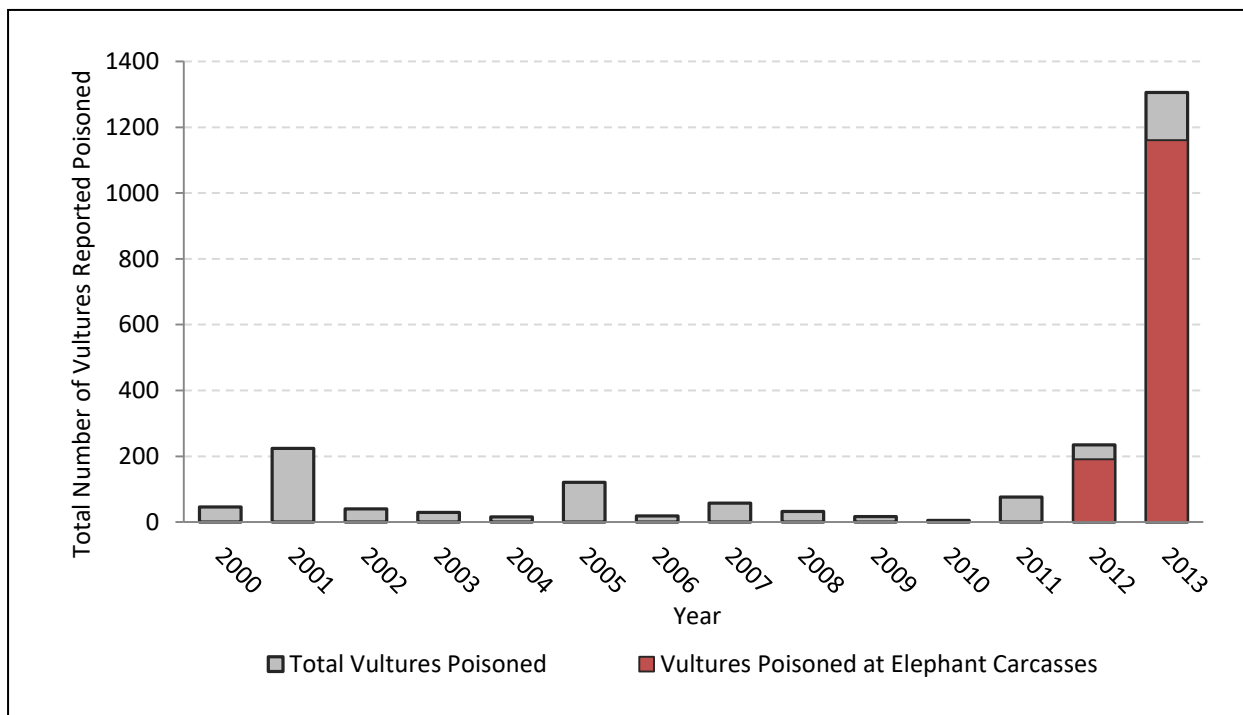
Table 18: Threat summary by thematic area	
Policy & Legislation	<ul style="list-style-type: none"> • Weak enforcement of existing policies and legislation • Little collaboration at national and regional level • Fines/Punishment levels not punitive • Lack of political support • Toxic chemicals being smuggled in • Toxic chemicals legal in industry/agriculture • Economic situation in Zimbabwe • Lack of resources for EMA / Ministry of Agriculture / National Parks to enforce policies • Subsistence farming encouraged by Govt • Poor funding for vulture rescue centres
Infrastructure	<ul style="list-style-type: none"> • Powerlines (electrocution) • Windfarms (Collisions) • Farm reservoirs (Drowning) • Railway • Roads

3.9.2 Poisoning

The primary drivers of vulture poisoning are varied and related primarily to problem animal control, the traditional medicine/muthi trade, ivory and rhino poaching and indirect/ unintentional poisoning from veterinary and other drugs.

Poisoning of vultures is not a new phenomenon and has been ongoing for some time at relatively low levels. However, there has been a worrying spike in the numbers of vulture poisoned in recent years, both in Zimbabwe and elsewhere. The Figure below (From Capon) shows nearly 700 reported poisonings over an 11 year period and then over 1,300 cases in 2013 alone in Southern Africa. Most of these recent poisonings are directly linked to poisoned elephant carcasses.

Figure 4: Southern African vulture poisoning cases 2000 to 2013





The motivation for poisoning takes several forms but they are primarily listed as being

Deliberate Poisoning

- Concealment of poaching
- The traditional medicine trade
- Direct poisoning (vultures believed to be predators in their own right)

Inadvertent poisoning

- Killing of wildlife for trophy parts (ivory, horns)
- Killing of predators as a danger to livestock

Table 19 below shows some recent cases related to ivory poaching where significant numbers of vultures died.

Table 19: The number of vultures found and the motivation of vulture poisonings relating specifically to ivory poaching in Southern Africa in 2012 and 2013. (From Capon, 2014)					
Year	Area	Species	# Dead	“Bait”	Reason
2012	<i>Gonarezhou National Park, Zimbabwe</i>	White-backed	176	African Elephant	Suspected - <i>Muti trade</i> - Upper beaks of 57 WBV & 8 LFV had been removed.
		Lappet-faced	15		
2013	<i>Gonarezhou Area, Mozambique</i>	White-backed	62	African Elephant	Suspected - <i>Muti trade</i> - Heads removed.
		Lappet-faced	17		
	<i>Kwando Concession, Botswana</i>	White-backed	320	African Elephant	Suspected - <i>Poachers attempting to hide the poached carcasses.</i>
		Lappet-faced	6		
		Hooded	2		
<i>Bwabwata National Park, Namibia</i>	<i>Suspected - White-backed</i>	600	African Elephant	Suspected - <i>Poachers attempting to hide the poached carcass.</i>	
<i>Hwange National Park, Zimbabwe</i>	White-backed, Cape & Other unidentified species	219	African Elephant	<i>Non-target species but poisoned through watering holes & poisoned carcasses.</i>	



Two main poisons have emerged as posing major threats to biodiversity conservation in Africa through misuse and intentional poisoning, Aldicarb and Carbofuran. In Zimbabwe, a further two substances have been used in poison poaching cases in recent years – Cyanide (Hwange Incident) and Monocrotophos (Malilangwe). They are briefly summarized below.

Poison	LD-50	Common source
Cyanide	3 mg / kg	Mining
Aldicarb	1 mg / kg	Pesticide
Carbofuran	10 mg/kg	Pesticide
Organophosphates (e.g. Monocrotophos)	20 mg/kg	Pesticide
Bradifacoum	1 mg/kg	“Papiol” Anticoagulant used to control Baboons
Fenthione	4 – 25 mg/kg	“Queleatox”

The legislative framework for the control of the use, storage, transport of poisons is relatively strong in Zimbabwe with several Act and regulations in place (see below). However, the enforcement of these regulations is weak and prosecutions are few.

- Chapter 20:14 – Parks and Wildlife Act of 1975 –
- Chapter 20:21 – Trapping of Animals (Control) Act –
- Chapter 18:12 – Fertilizers, Farm Feeds and Remedies Act
- Chapter 15:05 – Hazardous Substances and Articles Act
- Chapter 20:27 – Environmental Management Act (Act 13 of 2002)

Act	Comments
Parks and Wildlife Act of 1975	All vulture species in Zimbabwe are listed as ‘Specially Protected’, affording them the same level of protection as Rhino. Section 45 of the Parks and Wildlife Act covers offences relating to specially protected animals.
Trapping of Animals (Control) Act –	The use of poisoned bait to capture or kill an animal is classified as a Class II Trap and offences relating to this are listed under section 6 of the Trapping Animals (Control) Act of 1973.
Fertilizers, Farm Feeds and Remedies Act	Restrictions on the sale of fertilizers, farm feeds and remedies
Hazardous Substances and Articles Act	Control of specified hazardous substances
Environmental Management Act	Water pollution Storage, transport and inappropriate use of toxic substances



3.9.3 The *umuthi* Trade

In order to supplement the information base for the use of vulture parts in the *umuthi* trade in Zimbabwe a study was carried out by Josephine Mundava at the National University of Science and Technology. The results of this study are summarised below.

1: Methods

- Information was gathered through interviews with traders and traditional healers at the Bulawayo Makokoba market and Harare Mbare market.
- We also interviewed traditional healers registered with the Traditional Medicine Practitioners Council (Ministry of Health).
- Also interviewed ZINATHA leadership, and TMPC representatives.
- Adults >18years
- Ethnicity – non-discriminating
- Interviewing time not limited
- No stratification by age or sex – interviews dependent on individuals' willingness to participate

2: Results

- Vulture products are traded in and used in traditional medicine in Zimbabwe.
- There are no discriminations by species in use: a vulture is a vulture, regardless of the species.
- Prime parts include heads, brains, beaks, feathers, claws and bones
- Other raptors (eagles, owls) are also used for various purposes.
- Smaller birds like the Fork-tailed Drongo and the Grey Go-away Bird are also for various purposes.

3: Summary of Uses

Use is linked to the behaviour of the bird in the wild. Vultures seem to 'know' where the carcasses are – foretelling/clairvoyance powers for the user; they are able to see from afar – same ability transferred to user – foretelling, gambling etc.

- **Clairvoyance & Foretelling** – feathers mixed with herbs and smoked
- **Feathers** mixed with herbs also used in treating ailments such as **nosebleeds** and **hiccups**.
- **Heads/heart** - 'traditional healer' initiation rituals to **enhance contact** with ancestors.
- **Brains** used to enhance dream accuracy (brains prescribed/sold to both traditional healers and regular clients (to aid in gambling, thieving etc...)).
- **Bones** used as ornaments by healers as part of their trade, bone types used are individual specific – per ancestor dictate.

4: User Data

- Market traders and traditional healers generally rely on suppliers - they do not catch the birds themselves.
- No idea where the birds they use are from or how they are caught.
- 'No questions' asked policy to avoid spooking suppliers.
- A few who catch the birds themselves use nooses on donkey carcasses in rural areas and also catch engorged birds at carcasses.
- Supplied by rangers.
- **Majority of healers/traders do not mind using poisoned carcasses for their medicine (they believe since the medicine is not ingested then it would not have an effect on the user.**
- Some claim to 'know' if a carcass has been obtained through poisoning, and would avoid use of such.
- There are no clear seasonal trends for both supply and prescription of vulture medicine
- **Each vulture head could fetch between \$150-200 – added value of herbs and other rituals – just a little of the vulture materials are added**



5: Traders and healers standpoint on mass poisoning for *umuthi* extraction

“I need one vulture bone and a feather to conduct my ceremonies”

If genuine/ethical traditional healers do not use large amounts of vulture material – so who is poisoning?

- Loss of traditional controls on use (taboos, fines) – These existed as safety measures to ensure the sustainable use of resources.
- Unregulated commercialisation of traditional medicine – most poachers carry out mass poisoning for **export?**
- Human population increase, economic hardships – more consumers.
- Proliferation of unregistered healers and prophets - activities are difficult to monitor and they probably promote the use of material from mass poisonings.
- Lack of awareness on sustainable use.

3.9.4 Infrastructure

There are several types of infrastructure that can cause vulture mortalities and these are listed below.

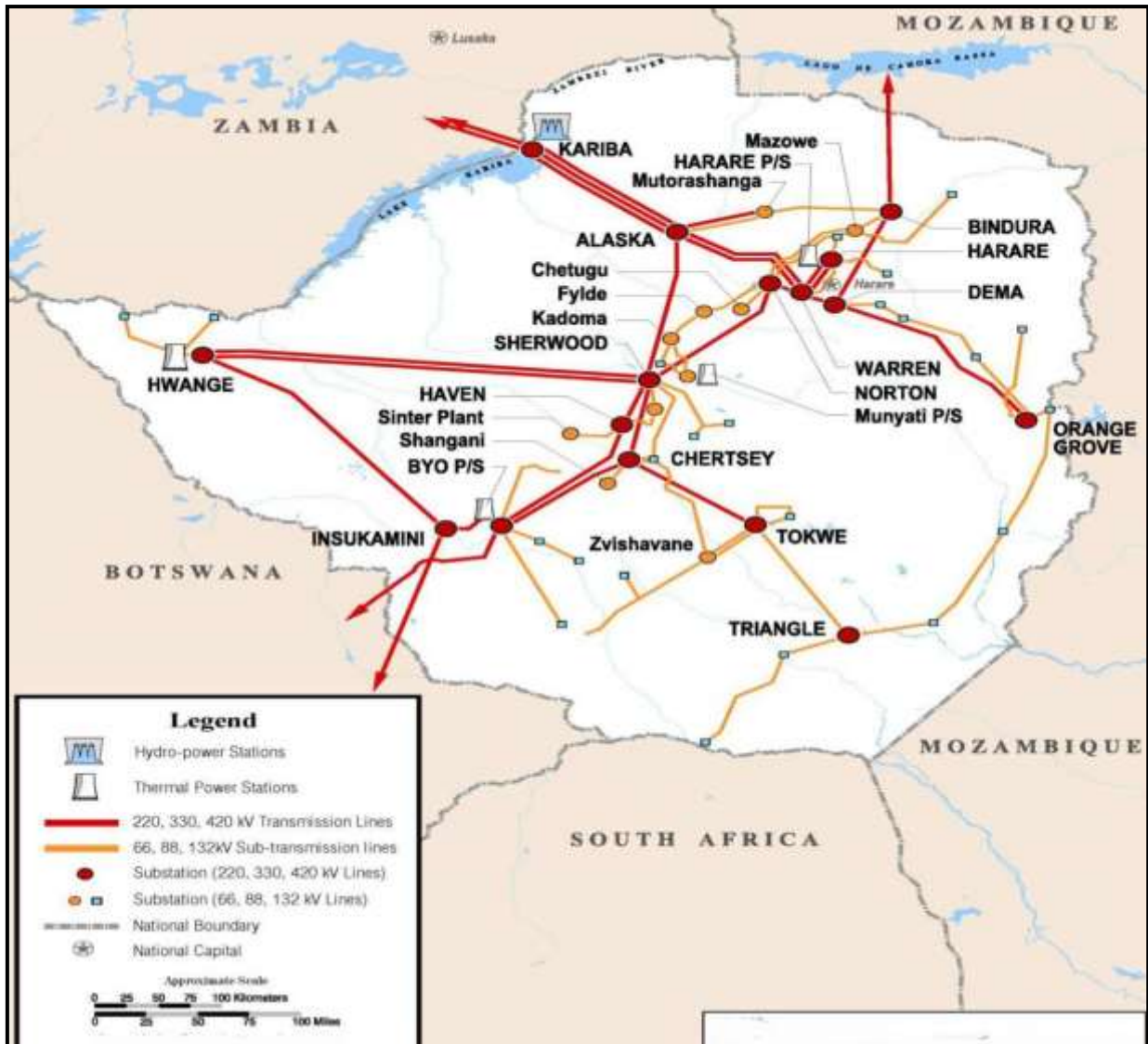
- Powerlines (electrocution)
- Windfarms (Collisions)
- Farm reservoirs (Drowning)
- Railways (esp along Hwange Park boundary)
- Roads

Linear infrastructure such as roads and railways can result in the death of wildlife which attracts vultures thereby putting them at risk (especially along/ in protected areas), Powerlines are probably the most dangerous of these to vultures and some species use them as nesting sites (South Africa). The advent of windfarms is probably some way off in the future for Zimbabwe and there are no (?) records of drowning in farm reservoirs.

Powerlines could have the potential to cause vulture fatalities and the main transmission lines in Zimbabwe are shown below.



Figure 5: Existing electricity transmission grid for Zimbabwe





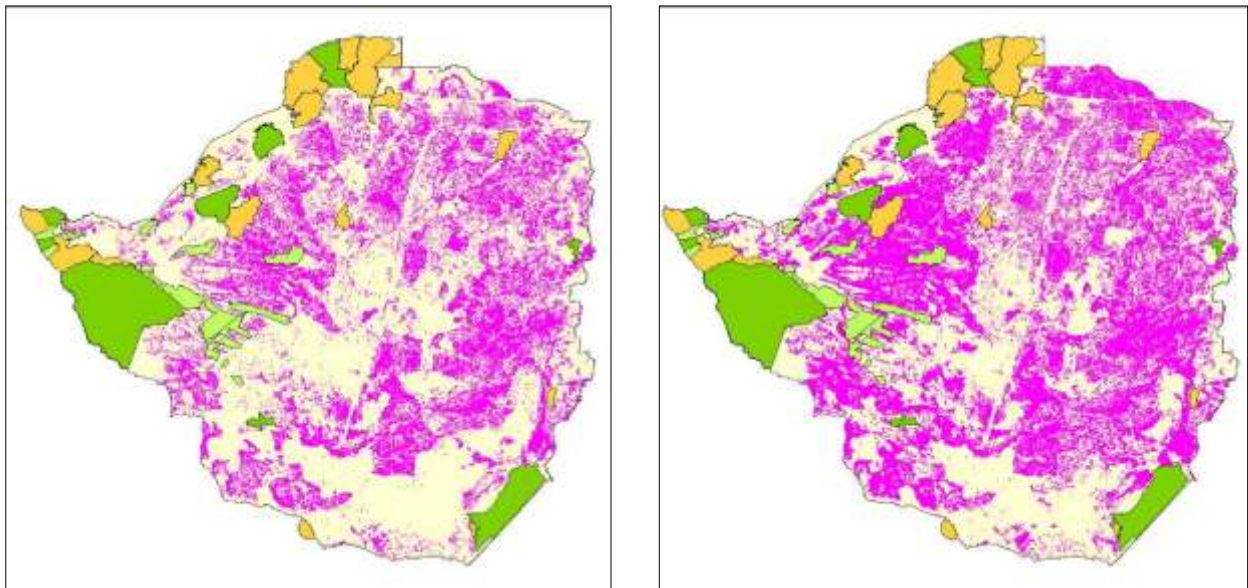
3.9.5 Land Use Change

Land use change will have far reaching effects on vultures. First of all there will be the direct effect of habitat conversion, essentially a gradation from wilderness/wildlife areas to urban areas (Figure 6). Then there will be effects associated with the shifting and change of the food source as livestock management regimes change (examples are the reduction of private sector abattoirs since the inception of the land reform programme in 2000 and the decrease in the size of the national herd). A related effect may be stock losses due to climate change.

Other land use related effects can be caused by bush encroachment, fires, mining, deforestation, infrastructure development and climate change (see Table 22).

Table 22: Threats to vultures resulting from land use change	
Habitat Conversion	<ul style="list-style-type: none"> • Wildlife habitat to pastoral land • Conversion to agriculture • Urban area increase
Shifting Food source/ Availability	<ul style="list-style-type: none"> • Changing husbandry methods • Changing livestock distribution • Livestock mortality rates
Others	<ul style="list-style-type: none"> • Bush encroachment (Reduced visibility, take-off distances) • Veld fires (Reduce trees, nesting sites) • Wildlife distribution • Climate change (4) • Deforestation (5) • Mining – Habitat fragmentation • Infrastructure development

Figure 6: Change of cultivated land/Bare ground 1992 to 2008
Forestry Commission data





3.10 Stakeholders

Stakeholders were identified at the planning workshop and categorised as follows:

1. Zimbabwe Government
2. Zimbabwe Institutions
3. Regional Authorities
4. National NGOs
5. International NGOs
6. Civil Society
7. Private Companies

A detailed listing is shown in Table 23.

Table 23: Stakeholders for vulture conservation	
Zimbabwe Government	<ul style="list-style-type: none"> • Relevant Ministries (Environment, Water and Climate, Agriculture, Mechanisation and Irrigation, Justice and Parliamentary Affairs, Education, Mining, Health, Information, Finance – Need to define target ministries) • Zimbabwe Parks & Wildlife Management Authority (ZPWMA) • Environmental Management Agency (EMA) • Wildlife Veterinary Unit (WVU) • Agricultural Services • Rural District Councils (RDCs) • Zimbabwe Revenue Authority (ZIMRA) • Department of Research and Specialist Services (DRSS) • Zimbabwe Republic Police (ZRP) • Livestock Research • Zimbabwe Tourism Authority (ZTA) • Central Statistics Office • Medicines Control Authority of Zimbabwe
Zimbabwean Institutions	<ul style="list-style-type: none"> • Tertiary Education Institutions (National University of Science and Technology, Bindura University, University of Zimbabwe, Chinhoyi University of Technology, other Universities) • National Museums and Monuments of Zimbabwe • Teacher Training Institutions • Research Council of Zimbabwe
Regional Authorities	<ul style="list-style-type: none"> • Neighbouring Countries (South Africa, Botswana, Mozambique, Zambia, Namibia) Wildlife Management Authorities • Environmental Management Authority • Police/Customs
National NGOs	<ul style="list-style-type: none"> • BirdLife Zimbabwe • Environment Africa • Wildlife Environment Zimbabwe • Victoria Falls Wildlife Trust • Zambezi Society • Mukuvisi Woodlands Association • Malilangwe Trust • ZINATHA • SPCA • VAWZ • Tikki Hywood Trust



Table 23: Stakeholders for vulture conservation

International NGOs	<ul style="list-style-type: none">• BirdLife International• BirdLife South Africa• Royal Society for the Protection of Birds• VULPRO• IUCN (Incl. SSC Specialist Groups)• Frankfurt Zoological Society (FZS)• World Wide Fund for Nature (WWF)• Africa Wilderness Trust• CNRS• CIRAD• Endangered Wildlife Trust• Namibia Nature Foundation• AACEM (Moz)• Nam, Bots and Zambia Bird Societies• Vulture Study Group of Namibia• African Wildlife Foundation (AWF)
Civil Society	<ul style="list-style-type: none">• Religious groups• Tourism and Hunting (Zim Hunters Association, ZHGA, SOAZ, ZATSO)• Zimbabwe Farmers Union• Commercial Farmers Union• Rural/local communities• Environmental NGOS? LRT, AWARE
Private Companies	<ul style="list-style-type: none">• Chemical Importers and distributors• Mining Companies• Agricultural Companies



3.11 Factors affecting plan implementation

Table 24: Factors that may affect action plan implementation	
Attitudes	Are there local cultural attachments of the species which can enhance its persecution or protection?
Economic Implications	Vulture body parts are used for medicinal and social purposes. These are traded in informal markets and appear to be quite readily available.
Existing Conservation Measures	All vultures in Zimbabwe are specially protected and killing, capturing and possessing body parts is illegal.
Administration/ Political Environments	The plan being prepared will not change the existing political/administrative set-up. It is therefore crucial that the activities in the plan will fit into existing institutional frameworks.
Species Biology	There are significant gaps in our knowledge about vultures in Zimbabwe. Most distribution information is from card records which are 20 years old. Population estimates are based on sketchy information, as is data on movements. The poor data sets for Zimbabwean vultures are an area of considerable concern.
Local expertise and interest	There is a significant and growing interest in vultures in Zimbabwe
Appeal of species for tourism	Traditionally vultures are not regarded in high esteem by officials and members of the public and this needs to be addressed through this action plan.
Resources	Resources to fund vulture research and conservation are limited in Zimbabwe.



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Approval Page

The Zimbabwe Parks and Wildlife Management Authority Board of Directors and the Director General have approved the implementation of the Zimbabwe Vulture Action Plan (2018 to 2022).

Signature: _____

Date: _____

Mr. Fulton Mangwanyana

Director-General - Zimbabwe Parks and Wildlife Management Authority

Signature: _____

Date: _____

Approved by Board Chair - Zimbabwe Parks and Wildlife Management Authority