Note No: 191/2020

The Permanent Mission of the Republic of Zimbabwe to the United Nations Office and other International Organisations in Geneva presents its compliments to the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and has the honour to forward herewith communication from the Parks and Wildlife Management Authority of Zimbabwe regarding implementation of Resolution Conf. 11.20 on definition of the term 'Appropriate and Acceptable Destinations' in Zimbabwe.

The Permanent Mission of the Republic of Zimbabwe to the United Nations Office and other International Organisations in Geneva avails itself of this opportunity to renew to the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) the assurances of its highest consideration.

21 September 2020

**CITES Secretariat
Maison Internationale de l'Environnement
15 Chemin des Anémones
1219 Châtelaine-Genève,
Switzerland**

Ref: 154/36/ICA/CITES

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13 May 2020

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Dear Sir/Madam

SUBJECT: IMPLEMENTATION OF RESOLUTION CONF. 11.20 ON DEFINITION OF THE TERM 'APPROPRIATE AND ACCEPTABLE DESTINATIONS' IN ZIMBABWE

The abovementioned matter refers.

This letter is a response to your letter dated 17 April 2020, in which you requested information on how Resolution Conf.11.20 has been implemented in Zimbabwe, in particular how the role and responsibility of the State of export in Article IV of the Convention and Resolution Conf. 16.7 (Rev. CoP17) on *Non-detriment findings* has been considered.

I hope you recall that Zimbabwe entered into reservation with respect to "the update of the references to the Resolutions mentioned in annotation 2 relating to the populations of its African Elephant *Loxodonta africana* as notified in paragraph 4 of Notification to the Parties No. 2019/052 of 3 October 2019. Zimbabwe further reserved its right not to be bound by Resolution Conf. 11.20 (Rev. CoP18) on the definition of the term 'appropriate and acceptable destinations.'

Nevertheless, we noted that the information being requested covered the period before Zimbabwe entered into reservations as above. The export of elephants to China started in 2012 and subsequent exports were done in 2015 2016,2018 and 2019. A total of 115 elephants were exported to China since 2012. All the elephants were captured in Hwange National Park and exported through

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Robert Mugabe and Victoria Falls International Airports. The purpose of the exports was to generate revenue for conservation without any detriment to the source population where the range area is experiencing ecological carrying capacity issues. In the framework of Zimbabwe's Elephant Management Plan for 2015-2020, Zimbabwe endeavours to reduce the elephant population and density in northwest Matabeleland. Some revenue was channelled towards conservation education and awareness in both the sending receiving country. The exports were done following international (CITES and IATA for transportation) and national laws and regulations. The procedures followed by Zimbabwe when exporting live wildlife including elephants are in line with Conf 11.20 on the determination of Appropriateness and Acceptability of the destination

i. Assessments of the suitability of the destination's facilities were done by the Zimbabwe CITES Scientific Authority.

ii. Assessments of the sustainability of the source elephant population were done by the Zimbabwe CITES Scientific Authority

iii. Roles of the Zimbabwe CITES Management Authority
    o The capture of the elephants
    o Boma management
    o Translocation within the country and to the final destination
    o Security in Boma
    o Issuing of Trade Permits
    o Due diligence of trade partners and background checks
    o Upholding animal welfare issues

iv. Roles of the Government Veterinary and Capture Unit
    o Capturing
    o Disease screening, vaccination and treatment
    o Management and monitoring of animals during transportation within and outside the country

v. Role of Society for Prevention of Cruelty to Animals (SPCA) – SPCA Collaborates with the Zimbabwe CITES Management Authority on animal welfare issues

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vi. All exports were accompanied to China by Zimbabwe Parks and Wildlife Management Authority and Veterinary personnel after Zimbabwe received confirmation from the relevant Authorities of countries involved.

Please find attached to this letter, *Non-Detriment Findings (NDF) Report for Hwange National Park* where live African Elephants were captured for export to China.

As a country, Zimbabwe remains committed to ensuring that the elephants exported to China are humanely treated through continued engagement of the CITES Management Authorities and Scientific Authorities of the respective country that is housing and caring for them.

We are grateful for the work being done by the Secretariat in ensuring effective implementation of the decisions and resolutions adopted by the Conference of Parties. It is through implementation that we can make sure the tools and applicable mechanisms of CITES remain useful.

As the global community is battling the corona virus pandemic, it has shut-down tourism and negatively affected our revenue projections for this financial year. Having international trade options in our toolbox of options for conservation financing is important for Zimbabwe and of course the survival of the African Elephant as a keystone species in our biodiverse savanna ecosystems.

Conservation regards,

F. U Mangwanya
DIRECTOR GENERAL

CC: *Ministry of Foreign Affairs and International Trade, Zimbabwe*
Ministry of Environment, Tourism and Hospitality Industry, Zimbabwe

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ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY

A NON-DETRIMENT FINDING FOR AFRICAN ELEPHANT IN HWANGE NATIONAL PARK

MAY 2019

TABLE OF CONTENTS

1.0 Species Biology

1.1 Taxonomy

Class	Mammalia
Order	Proboscidea
Family	Elephantidae
Species	*Loxodonta africana* (Blumenbach, 1797)
English	African elephant (The Savanna species)
Shona	Nzou
Ndebele	Indlovu

1.2 Global status

The African elephant (*Loxodonta africana*) is listed on the IUCN Red List of Threatened Species as Vulnerable. It is listed on Appendix I of the Convention on International Trade in Endangered Species of wild flora and fauna (CITES) except populations *of Botswana, Namibia, South Africa and Zimbabwe (listed in Appendix II).* At the National level, the African elephant (*Loxodonta africana*) is not listed on the list of Specially Protected Animals.

2. Background of Hwange National Park

2.1 Overview

Hwange National Park is the largest park in Zimbabwe occupying an area of about 14 600km². It is the oldest park and was established in 1928. It lies on the North-west border of Zimbabwe, on Kalahari sands. It is divided into three main administrative units Main Camp (with a substation Makona), Sinamatella and Robins (Figure 1).
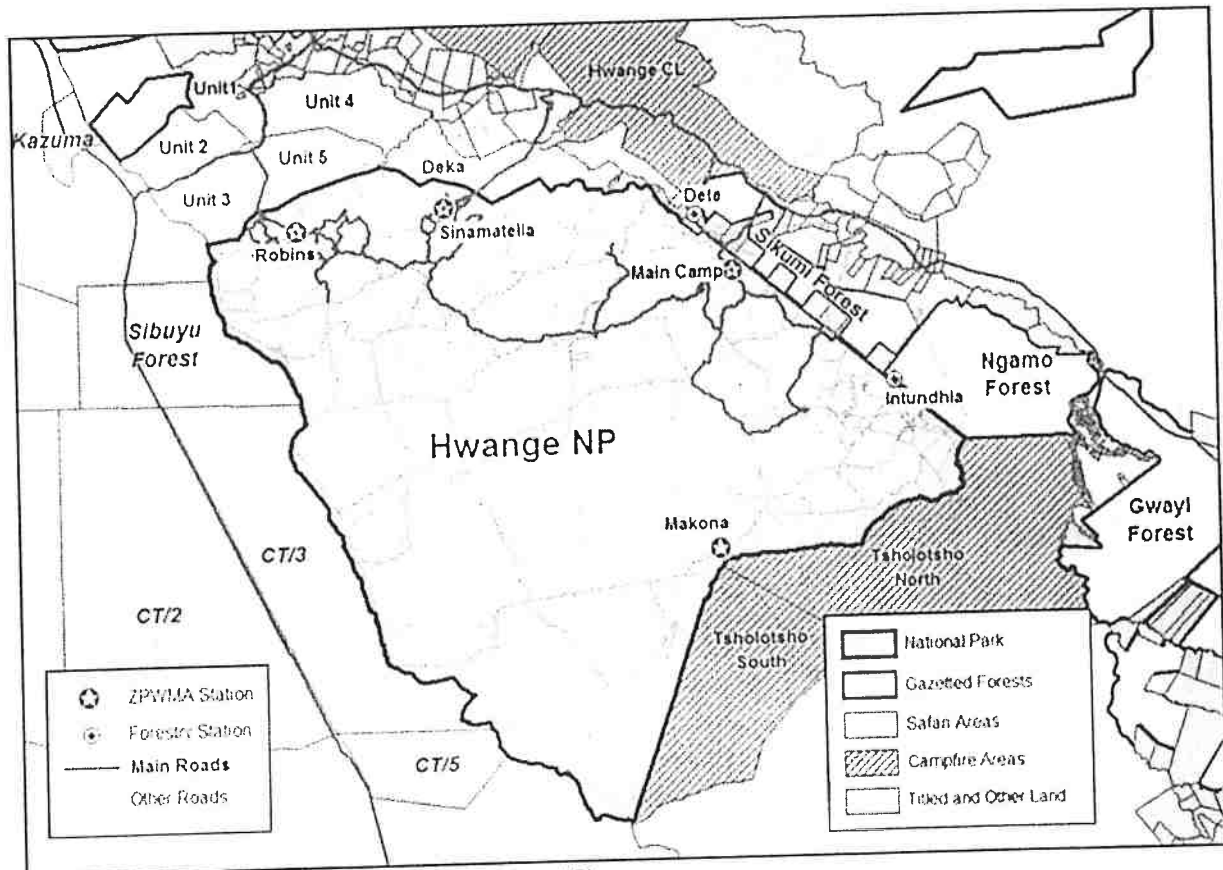
Figure 1: Hwange National Management Zones

The park is located in an arid area (annual precipitation 606 mm) and has two perennial rivers (Deka and Bumbusi) restricted to the North Western Section of the Park. The greater part of the park is sustained through artificial water provision with a total of 104 boreholes. The Park has experienced frequent erratic rainfall leading to intense drought which have been largely attributed to Climate Change.

The park holds the largest elephant population in Zimbabwe with estimates of 45 846 elephants (Dunham et al., 2014). This number represent more than 50% of Zimbabwe's total elephant

population. The 2014 National Aerial survey results in Zimbabwe indicated an increase in the numbers of elephants in the park since 2001 using similar method.

Given the large numbers of elephants, as well as the eminent threat of drought, climate change, disease and a growing population there is need for an efficient system for manging elephant numbers in the park which is largely achieved through a general management plan.

The Hwange National Park General Management Plan (2016 to 2026) outlines a strategy for the park over the next 10 years based on a park purpose, and comprehensive zoning scheme. All activities are separated into four programmes, each with its own purpose which is supported by a set of objectives and targets.

2.2 Relief and Drainage and Rainfall

The park varies in altitude between 1,153 m. asl. and 835 m. asl. The highest point is Bumbusi Hill overlooking the Deka drainage. The lowest point is the where the Deka river exits from the park. There are three main drainage systems, all of which have their sources in the park – the Deka, Lukosi and Inyantue. Much of the central park has a poorly defined drainage system on the Kalahari sands. There are seasonal pans and will dry up prior to the rains. However, in order to maintain the game populations a significant number of these pans are artificially supplemented. A total of 104 boreholes are being pumped for artificial water provision (figure 2). These maintain the wildlife, and specifically the elephants, during the late dry season (August to December).
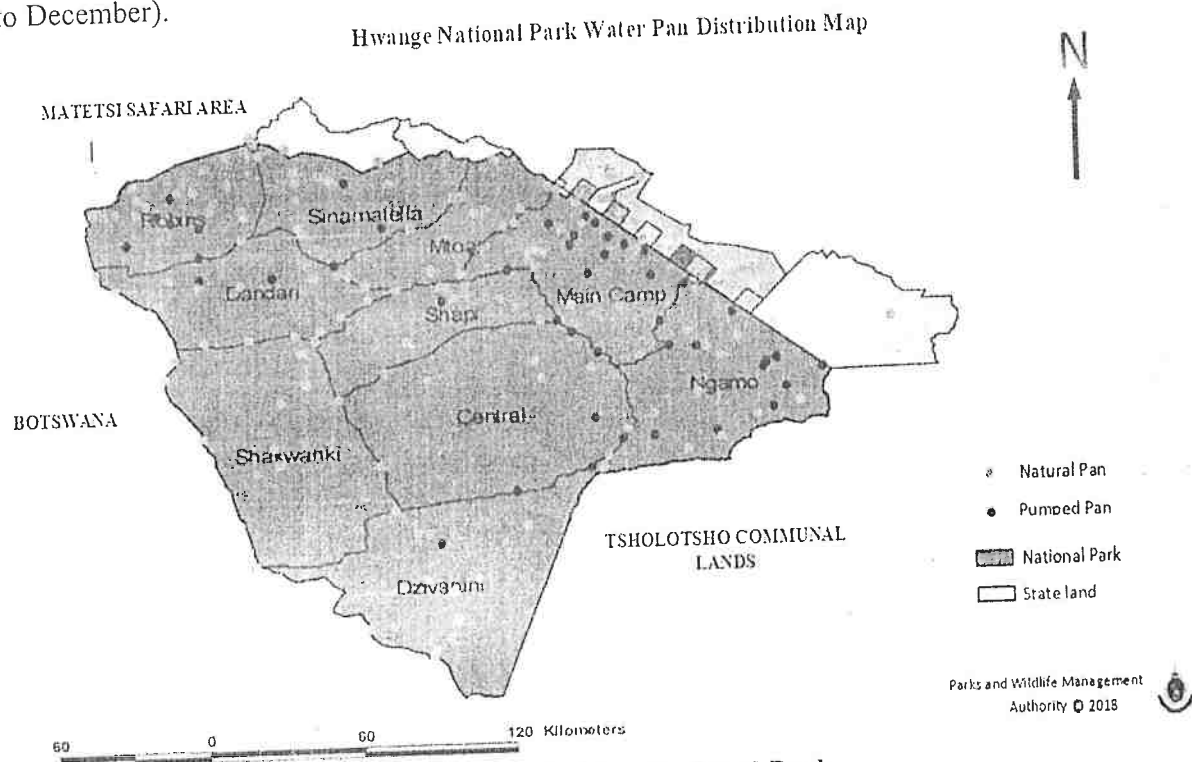

Figure 2: Artificial Water Provision in Hwange National Park

In Hwange National Park, there is artificial provision of water for elephants and other wildlife species. There are a total of 104 boreholes in the park. Most of the boreholes are solar powered with a few electric, diesel and wind powered engines (Table 1). Private stakeholders in the park are assisting with maintenance, procurement of spare parts and general servicing of some of the boreholes.

Table 1: Status of Boreholes in Hwange National Park

Area	Working	Solar Powered	Diesel Powered	Windmill Powered	Electric powered
Main Camp	74	60	13	0	1
Robins	12	12	0	0	0
Sinamatella	18	14	1	2	1
Total					

When the Authority received some funding through live trade of elephants from the park and some donations, a total of 60 boreholes were solar powered, shifting from diesel power which has become very costly to run and maintain. Some of that funding also benefitted Zambezi National Park as a way of attracting elephants there, to 'de-congest' Hwange National Park vis the Kazuma Pan National Park Corridor. Zambezi National Parks was put on 100% solar and all waterholes were fixed. The ecological effect of that investment is yet to be evaluated

2.4 Climate

This is the driest region in the country with an annual rainfall total of 606mm (Valeix et al. 2007). There have been variation in mean temperatures with ranges for 24°C - 40°C.

Climate studies indicate frequent droughts being experienced in the park. With increasing drought it is likely that more water will need to be pumped to compensate less rains. Climate change is expected to threaten the conservation status of Hwange.

2.5 Geology, Soils and Vegetation

The underlying geology is an important determinant of the character of the park, with nearly 60% being covered by the waterless Kalahari Sands. The park has diverse vegetation and these include dense stands of *Baikiaea* woodland on parts of the Kalahari sands, the pure stands of mature mopane woodland in the northern regions, the old growth *Acacia* and *Acacia/Baikiaea stands* near the Kennedy Vlei and in other areas and the palm savannah found in the east of the park (Mbiza, Back Pan) (figure 3).
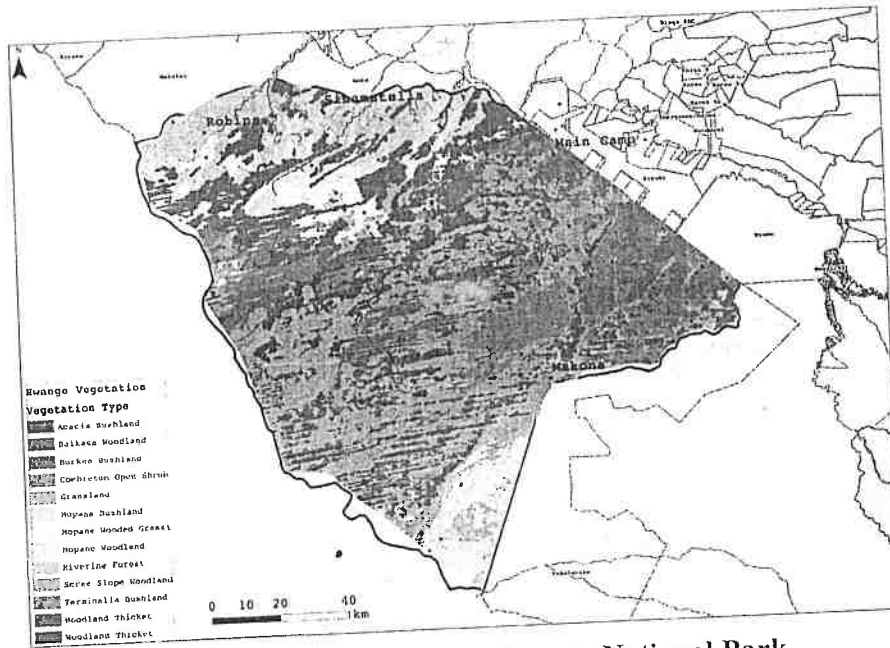
Hwange Vegetation
Vegetation Type
- Acacia Bushland
- Baikaea Woodland
- Burkea Bushland
- Combretum Open Shrub
- Grassland
- Mopane Bushland
- Mopane Wooded Grassl
- Mopane Woodland
- Riverine Forest
- Scree Slope Woodland
- Terminalia Bushland
- Woodland Thicket
- Woodland Thicket

0   10   20   40
|____|____|_____|1 km

Figure 3: Vegetation types found in Hwange National Park

3. Population Status and Trends

3.1 Overview

Hwange implements standardized processes to conduct elephant population censuses. The primary objective of aerial surveys is to provide precise estimates of the number of elephants in a region. Secondary objectives include determining the spatial distribution of elephants, estimating the number and distribution of elephant carcasses and estimating the numbers and spatial distribution of other herbivores.

Abundance indices in the park are also derived from surveys which include, water-hole, road strip, visitor observation reports and ranger-based monitoring.

3.2 Survey Methodology

Hwange's elephant population is surveyed through aerial transect surveys. The method used is technically robust and are identical to those used in previous surveys for comparability during analysis of results. Elephants and other large herbivores in all land tenure categories are surveyed from the air in the dry season from August to September. Fixed wing aircraft are used to conduct sample surveys flying transects and in hilly areas, block count techniques are conducted. In order to maintain uniformity and comparability in the surveys over different years, MIKE Standards for aerial surveys are used (Aerial Survey Standards for the MIKE Programme Version 2.0, 2012).

3.3 Elephant Population Trend for Hwange

The elephant population in Hwange National Park was approximately 2000 animals when it was first declared a Game Reserve in 1928. Elephant impacts reached alarming levels by 1964 and a representative of WWF-US advised the then Minister of natural resources to act on what was perceived to be an over-population of elephants. The first major cull of elephants took place in the park in 1965. The increase in elephant numbers was seen as a threat to the biodiversity in the park and nearly 17 000 elephants were removed. This management strategy kept the elephant population at around 15 000 to 20 000 animals. However, when culling ceased in 1986, there was a rapid increase in elephant numbers to around 35 000 to 40 000.

Following the large culls of the 1980s the elephant population of Hwange National Park grew rapidly from 13 000 in 1986 to about 35 00 in the early 1990s. However, the 2001, 2007 and 2014 dry season estimates between 35 000 and 45 000 suggest that the elephant population in the park may now have stabilised and with a density of 3 elephants/km². 11% of the Global population and 55.5% of Zimbabwe's national population.

It is evident that elephant populations are regularly surveyed but with varying frequencies due to budgetary constraints and other factors such as inadequate equipment and technical support. A steady increase in elephant populations have been observed were the surveys have been carried out in the period after 2001.

A major factor contributing to the growth of the elephant population and other species was the provision of artificial water supplies through the dry season as water availability is a limiting factor.

Table 2: Elephant population trends in Hwange National Park (1980 to 2014)

REGION	1980	1983	1989	1993	1995	2001	2014
Population size	19 505	21 668	23 493	22 548	22 761	44492	45846
95% Confidence intervals	34	25	23	20	18	13	14

Source: Aerial Survey Reports: KM Dunham et al, 1980, 1983, 1989,1993,1995,2001,2014.

Zimbabwe is jointly monitoring the status and distribution of the elephants with regional counterparts through the Trans-Frontier Conservation Areas (TFCA) initiative. Hwange National Park is part of the Kavango-Zambezi (KAZA) Trans-frontier Park with neighbouring countries that namely Angola, Botswana, Angola, and Zambia.

Current initiatives include a KAZA TFCA wide Aerial survey initiative to synchronize elephant surveys across the 5 nation KAZA TFCA landscape.

The elephant density of elephants in Hwange National Park is currently at about 3 elephants per square kilometre.

4. Impacts of elephants on Hwange Ecological System

4.1 Overview

Hwange National Park does not have perennial natural surface water supplies and depends on artificial supplies over most of the dry season. Water hole counts have been conducted annually in Hwange National Park. This method gives an index of abundance of elephants in the area. Results from the waterhole counts indicate a growing elephant population.

There is no doubt that the increased elephant numbers have changed the vegetation in the park. At the same time the effect of the elephants on the now stressed vegetation is likely increase and this will have a knock-on negative effect on other herbivores. Most of the herbivores in the park are declining in numbers as evidenced in aerial and water-counts reports for example buffalo, giraffe, wildebeest, and sable).

Analysis of Hwange's rainfall showed that the area is moving towards a drier phase. The park is experiencing less rainfall and frequent droughts. The effects of climate change are now being felt in the park. This will have an effect on the park given the artificial water situation. Increasing

4.2 Plant species loss and secondary vegetation

Failure to manage elephant populations is detrimental to the country's ecological productivity. High densities of elephants in a landscape commonly transform the habitat in which they exist. They can impact composition, diversity and structure of vegetation. Damage caused by elephants of woody vegetation has been recorded in Hwange national park.

Elephant damage caused mortality of at least 13% of the trees with 67% mature trees being heavily damaged had been recorded in the park. Recruitment of *B. plurijuga* in Hwange national park was recorded to be at 0.2 of the rate required to maintain the species present in the area.

Elephant impacts are particularly evident around waterholes where high densities of elephants are prominent and have resulted in the formation of piosphere reserves. Vegetation cover in Hwange national park close to water points have been greatly disturbed by elephants, leaving open areas and parklands. Vegetation surrounding water sources are known to be diverse and sensitive, yet the aggregation of elephants in these areas continue to modify these diverse and sensitive habitats.

4.3 Habitat Manipulation

The elephant population in Hwange is under threat due to habitat manipulation. Habitat manipulation is exacerbated by the fact that Zimbabwe is not able to cull due to pressure from

animal rights groups and inadequate funding. Habitat manipulation is more severe in Hwange National Park where the population has exceeded the carrying capacity and there is need to provide artificial water supplies since there are no perennial rivers in the park. This has led to habitat loss and decline of species such as giraffe.

Until 1989, in order to conserve elephant habitat and to maintain biological diversity, the then Department of National Parks and Wildlife Management continually tried to reduce elephant densities in protected areas to levels not exceeding 1 elephant per square kilometre. These targets were based on models of elephant woodland interactions. Since no population reduction exercises were conducted since 1992, most protected areas now severely overstocked with elephants (Dunham et al 2002).

4.4 Impacts on other wildlife species

Habitat loss resulting from elephants has inevitably affected other wildlife species existing in the same ecosystem as elephants. The combination of high elephant densities, climate change and human encroachment; has contributed to biodiversity loss in protected areas.

Elephants as dominating herbivores have simplified ecosystems with loss of other wildlife species through encouraging bush encroachment, loss of sensitive grazing species such as the roan, sable, tsessebe; replacing them with increased numbers of impala and kudu.

In Hwange national park, giraffe populations have been noted to decline as a result of altered habitat, as the species proliferates in habitats with tall trees. Distribution of populations of shy species that prefer low visibility is also affected by habitat modification by elephants. This also affects reproduction of these species.

Species such as birds can also be affected through suppression of canopy cover by elephants, resulting in woodlands turning into shrublands. Competition for resources such as water has resulted in other species such as buffalos and zebras, being out-competed and forced to drink at different times.

The uprooting of shrubs, felling of trees and breaking of twigs by elephants also increases fuel load in the environment, acceleration the impact of wildfires. In the event of a wildfire, a larger number of species is indirectly affected.

Impact of Elephant on Communities

Human Elephant Conflicts

Human-elephant conflict is increasing due to the high elephant population in the park. As both human and elephant populations are increasing, human-elephant conflict is resulting in continuous increase in the number of elephants killed protecting crops of poor rural farmers. This has also negatively affected the livelihoods of people and loss of lives. Table 3 below indicates the extent of human elephant conflict for the period 2016 to 2019.

Table 3: Human Elephant Cases in Hwange National Park (2016 to 2019)

Year	Reports received	Reports attended	Humans killed	Humans injured	Crops damaged cases
2019	27	22	1	2	15
2018	47	34	2	0	24
2017	73	62	2	0	37
2016	56	47	2	0	38
Total	203	165	7	2	114

It is important to note that not all incidences of human elephant conflicts are reported as CAMPFIRE staff lack the capacity to attend every report due to limited resources. The ZPWMA is always called to assist with problem animal control (elephant, lion and crocodile) in communal areas.

In addition to the loss and injury to human life communities adjacent to wildlife areas suffer the following: -

- Destruction of crops which affects both the quality and quantity of harvests and impacting negatively on food security;
- Destruction of property;
- Destruction of water infrastructure
- Loss of opportunities to carry out other activities due to time spent guarding crops and property.

The Zimbabwe Policy for Wildlife (2000) provides guidelines on how to manage human elephant conflicts. In cases were wildlife including elephants pose a threat to human life they are removed however the impact of this form of problem animal management is very insignificant on the national elephant population (Zimbabwe Policy for Wildlife, 2000).

5.0 Elephant Utilization: Legal Harvesting

5.1 Overview

African elephants are used for both consumptive and non-consumptive purposes. Apart from trophy / sport hunting, other uses include photographic safaris, research and educational purposes. Consumptive utilization of the African elephant in Zimbabwe is mostly in the form of trophy hunting. Sport / Trophy hunting contributes to the conservation of elephant through generation of revenue which is ploughed back into conservation. The revenue generated is also used for local community rural development programmes. Local community support for wildlife conservation is related to the level of benefitting from conservation and participation in decision making on wildlife conservation matters.

The ZPWMA has a comprehensive system to monitor off-takes from the elephant population. All field stations report on a monthly basis using CITES MIKES standards. Safari operators surrounding the park are required by law to submit returns to the ZPWMA of all the animals taken through a Tourism Hunt Return Form (TR2). All elephants killed through Problem Animal Control (PAC) and recreational hunting are considered as part of the annual off-take quota to ensure that the offtakes are sustainable. Trophies taken on PAC cannot be exported.

5.2 Exports of Live Elephants from Hwange

115 live African elephant have been exported from Zimbabwe since 2012 which is 0.0025% of the Hwange population.

Table 4: Elephant exports to China

Name of importer	Address	Permit Number	CITES Seal	Quantity		
				Male	Female	Total
Tai Yuan Zoo	Add Dong Shan Ma Road, Tai Yuan P.R OF China	ZW/0680/2017	1525397	1	3	4
Urumqi Zoo	W 122 Xin Hua Road, Urumai, Xin Jiang ,P R China	ZW/0681/2017	1525394	2	2	4
Jiang su ling Yan Cheng Safari Park	No 588 Wuyi Zhong Road Wu Jin District Chang zhou, Jiang Su Province P R China	ZW/0682/2017	1525395	2	4	6
Hohhot Zoo	Hu Wu road 415km, Hulmin Dis Hohhot, Inner, Mangolla, P R China	ZW/0683/2017	1526186	2	2	4
An ji Zhong Nan Bai Cao Yuan Zoo	San Guan Village, Di Pu Towan An Ji, Hu Zhou, Zhe Jiang, P R China	ZW/1023/2017	1526185	1	1	2
Erdos Zoo	No 1 Tie Xi San Yuan District Erdos, Inner Mangolia, P R	ZW/1024/2017	1525731	2	2	4

	China.					
Pu yang central zoo	No. 140 Ren Qui Road Hua long Dstrict Pu yang, He nan, P R China	ZW/1131/2017	1525834	1	1	2
Bao Ji Zoo	206 Gang Yaun Road Wei Bin District, Bao Ji Shan Xi, PR China.	ZW/1025/2017	1525750	1	1	2
Shen Yang Forest Zooligical Garden	Qi Pan shan International Scenety Development zone, Shen yang, Liao Ning, P R China.	ZW/1130/2017	1525853	2	4	6
Shangayi Wild Animal Park	No 178, Nalluuiu Road, Pudong New Area, Shanhai, China.	ZW/1089/2016	1297738	5	0	5
Shangayi Wild Animal Park	No 178, Nalluuiu Road, Pudong New Area, Shanhai, China.	ZW/1091/2016	1297736	0	4	4
Shangayi Wild Animal Park	C/O Beijing Wildlife Park Yufa Town Daxing District, Beijing, China	ZW/1092/2016	1297734	5	7	12
Shangayi Wild Animal Park	No 178, Nalluuiu Road, Pudong New Area, Shanhai, China.	ZW/1093/2016	1297737	0	8	8
Hangzhou Safari Park	Jiulong Revenue No 1, Hanfu Road, Fuyang District, Hangzhou City, Zhe Jiang Province, China.	ZW/1094/2016	1297735	2	4	6
Guangzhou Chimelong Group Co. LTD	Panyu Avenue, Panyu District, Guangzhou Cityu, P R China	ZW/0893/2015	1291459	7	20	27
Quin Zhou Hai Safari Park	Xi nan village, Ma Jia Town, Luo Jiang District, Quan Zhou, Fu Jian, P R China	ZW/1525/2016	1298224	4	7	11
Umurqi Zoo	Att: Ding Xinmin, No 122 Xin Hua Road, Urumqi, Xin Jiang P R China.	ZW/1738/2012	1038970	1	1	2
Chang Sha Zoo	Att:Yan Xiahui Mu Yuan Town Hu Nan Province, P R China	ZW/1739/2012	1038969	2	2	4
Tai Yan Zoo	Att: Li Hongyan Dongs Hanma Road Taiyaun, P R China, No 42-3-302 Xiangyanglou Dedong District	ZW/1740/2012	1038972	1	1	2

NB: Some specific client information remain confidential

6.0 Legislation and Policy

6.1 Legal and Policy Framework

Park operations are guided by a full range of national legislative and administrative measures needed to effectively implement all aspects elephant management and internal agreements such as the Convention on Trade in Endangered Species of wild flora and fauna (CITES) and related Resolutions and Decisions of the Conference of Parties.

The African elephant is a species whose conservation is regulated through a national policy and legal framework and regulations which include, Parks and Wildlife Act; Chapter 20:14 (1996) as amended in 2001, Environmental Management Act; Chapter 20:27, Forest Act; Chapter 19:05, Statutory Instrument 362 of 1990 : Parks and Wildlife (General) Regulations, 1990, Statutory Instrument 76 of 1998 :Import and Export of Wildlife Products

6.2 Elephant Management Plan

Hwange National Park has an Action Plan for elephants for 2015 to 2020. The plan has specific aspects of elephant monitoring programs that are being implemented and reviewed on an annual basis.

Information on the population status of elephants is derived from surveys which include, aerial, water-hole, road strip, visitor observations /sightings and ranger-based monitoring. The status of elephant poaching is also being monitored using Spatial Monitoring and Reporting Tool (SMART) and the Monitoring of the Illegal Killing of Elephants (MIKE). This monitoring programs has assisted the park in taking proactive action and adaptive management in anti-poaching and resulting in successful arrests, recoveries and prosecutions of poachers.

Hwange National Park is part of the Kavango Zambezi Transfrontier Park (KAZA) which is a Trans-Frontier Conservation Areas (TFCA) initiative, to jointly monitoring the status and distribution of the elephants with other countries that are Angola, Botswana, Namibia and Zambia. The KAZA Regional Strategy Plan strongly interact with the national management plans through shared databases, research and elephant monitoring platforms such as the MIKE Regional Database and the Elephant Trade Information System (ETIS).

Adaptive management of the elephant population is being practiced in Hwange National Park. Aspects of the Elephant Management Plan are reviewed through annual stakeholder consultative national workshops where Government Departments, NGOs, Local Communities, Safari Operators and the private sector participate. Regular reviews are also done in compliance with Resolutions from the relevant Meetings of Conference of Parties of the Convention on International Trade in Endangered Species of wild flora and fauna (CITES) and regional protocols. Zimbabwe is part of the SADC Protocol on Wildlife and Law Enforcement Co-operation, which meets regularly to review the implementation of the protocol. This protocol primarily addresses issues of rhino and elephant management including cross border poaching and joint surveys (Rhino and Elephant Security Group of Southern Africa, 2000).

The Elephant Management Plan recognizes that elephants comprise an important component of Zimbabwe's wildlife and cultural heritage and its goal to conserve elephants at levels which promote the goals of biodiversity conservation while ensuring sustainable use and contribution to national development. The document also reviews the past history of elephant management in Zimbabwe and outline future strategies. The primary focus is to maintain biodiversity through

the conservation of ecosystems, species and ecological processes. The elephant is only one member of a whole complex of species which must be conserved but there is no doubt that elephants have a huge impact on the environment. With a certain level of impact, they may increase the heterogeneity in the structure and species composition of their habitats but when their impacts are so great as to make the habitat uniform(that is, remove all trees and keep all shrubs' pruned ' to a certain height) then the reverse is probably true. Of course, there are different outcomes in different habitats, but the Parks and Wildlife Management Authority of Zimbabwe has decided to take a conservative stand and rather err on the side of caution. Thus, it is preferred to keep elephant populations at densities which are likely to maintain or facilitate the regeneration of woodland and other vegetation including ecosystem functions and processes.

The Elephant Management Plan has specific objectives that are designed to address specific management issues with measurable goals, specific management actions and outcomes and expected impacts. The three major objectives of Zimbabwe's Elephant Management plan are:
- Maintaining at least four demographically and genetically viable populations,
- Maintaining numbers and densities below levels which will not compromise biodiversity
- Maintaining or increasing elephant range at or above the 1996 level.

By adopting the principle of adaptive management, the Authority believes that, with continued monitoring of large mammal populations and vegetation, it is sensitive to changes in the status of either in order to make the appropriate responses. Zimbabwe has since 1980 been carrying out annual scientific aerial surveys in order to monitor populations of large mammals and especially elephants. The results of previous surveys are presented in the Elephant Management in Zimbabwe documents and enclosed Aerial Survey Reports. A vital part of the elephant management program in Zimbabwe is law enforcement. This activity has become increasingly difficult due to high levels of funding required for human resources, equipment for law enforcement research and monitoring. The Zimbabwe Parks and Wildlife Management Authority strictly enforces CITES regulations and keeps tight controls on the trade in wildlife and wildlife products, as part of the country's ongoing commitment to elephant conservation. Currently the Authority is in the process of planning a national aerial survey in the dry season of 2014, the results of which will be availed before the end of 2014. The Authority has been unable to conduct national aerial survey due to severe resource constraints. Allocation of quotas in hunting areas is based on a consultative process that involves ZPWMA authorities, hunters, safari operators, local communities, land owners, researchers, and NGOs. The participatory approach ensures that the quotas allocated for each hunting area are sustainable.

At the regional level, Zimbabwe together with other African elephant range States, is implementing the African Elephant Action Plan through CITES. Within Southern African Development Community (SADC), Zimbabwe is implementing the Regional Elephant Management Strategy through the Trans-frontier initiatives such as the Kavango-Zambezi (KAZA), Great Limpopo Trans-frontier Park, Greater Mapungubwe, Zimbabwe, Mozambique, Zambia Trans-frontier Conservation Area and Mana Lower Zambezi Trans-frontier Conservation Area.

Zimbabwe's Elephant Management Plan is clear testimony of the country's intention to effectively protect the country's elephant population, but its implementation is constrained by lack of resources just like any other Southern African elephant range State. Most of the elephant conservation has been funded by elephant utilization. The Zimbabwe Parks and Wildlife Management Authority does not receive any funds from the Government fiscus hence depends on revenues from sport hunting and assistance from donors.

7. Threats to Hwange Elephant Population

7.1 Poaching

The elephant population in Hwange National Park is threatened mainly by poaching. Illegal harvesting of elephants is one of the challenges the park face in managing its elephant population mainly due to gunshots and poisoning (table 4). Poisoning in the park is mainly due to cyanide poisoning along the park boundaries and is one of the major threats to elephants. Combined operations with other stakeholders were enhanced with remarkable success to combat poaching. Operation 'Nhaka Yedu' was done in the park in collaboration with police after the 2013 cyanide incident in Hwange to raise awareness on conservation of our wildlife heritage.

7.2 Drought

The park relies solely on artificial water supply through solar pumped boreholes to sustain the wildlife in the park. Of late the park has experienced increased frequency of drought characterised by reduced precipitation, available forage and surface water for drinking by wildlife as well as increased mortality of elephants. Elephants being heat-sensitive animals are susceptible to heat stress and sunburn generated from between 1 and 2 °C in temperature change (Du Toit, 2002b). Temperatures that have been recorded in the park reaches up to 44°C. However, the number of weather stations available in the park are limited looking at the size of the park.

The persistent droughts resulted in elephant die offs such as the 1982-1983, 1991- 1992 and 1995-1996 droughts. During die-offs elephant carcasses accumulate in the vicinity artificial pumped waterholes (Conybeare and Haynes, 1984). Carcass counts from aerial survey indicate that perhaps 5%-9% of the HNP elephant population may have perished during the 1994 dry season (1427 ±285) (DNPWLM, 1996). In 2019 alone an estimate of around 180 elephants died due to drought and stress pausing questions on elephant population management and future strategies.

7.3 Climate Change

Climate change is now an accepted fact. As Hwange is a marginal and low rainfall area, the effects are likely to be severe and significant changes in the ecology could occur. In short, the environment is expected to get drier and extreme events are more likely to occur (droughts etc). Hwange's size and linkage to other conservation areas will help enable the ecosystem and associated wildlife adapt to the projected impacts of climate change. Temperatures in Hwange

have been on an increase ranging up to 44°C most in the drier parts of the season coinciding with major elephant die-offs.

8. Elephant Protection Strategies

8.1 Law Enforcement Manpower

Hwange National Park has a total of 91 rangers that are available for deployment against a field ranger administrative requirement of 266 (table 5). IUCN requirement is 730 rangers which is administratively impossible. Subject to technological support, the current ranger complement can be able to cover hotspot areas.

Currently the park had a total of 3 vehicles for field law enforcement duties. Ideally the park should have 11 vehicles. The park is working in collaboration with the police to increase the number of manpower and other Non-Governmental Organizations are assisting with transport, rations and equipment for deployments of field rangers.

Table 5: Status of Rangers and Vehicles in 2019

	Rangers			Vehicles	
	Ideal	Actual	Available	Ideal	Available
Main Camp	150	66	46	5	2
Sinamatella	72	49	37	4	1
Robins	44	22	08	2	0
Total	266	137	91	11	3

ZimParks has been making a lot of efforts to mobilise resource and securing partnerships for the management of Hwange National Park. This has resulted in more vehicles procured for the protected area.

8.2 Elephant Protection Strategies

a) JOC committees have been activated both at provincial and district levels for effective monitoring of poaching situation on the ground through operation "*Nhaka Yedu*".

a) Following an application in 2019, Hwange is now nominated a voluntary MIKE site. Information on illegal killing of elephants is being compiled according to the CITES MIKE Programme standards.

b) Resources in the form of funds, vehicles and field equipment have been raised for Hwange National Park through the HSBCC Project and KAZA. The manpower level for Hwange has increased through recruitment that was done within the Authority.

c) Community awareness and outreach programs are being carried out in surrounding communities. Conservation education programmes are being carried in schools through Junior Ranger Programs.

d) Hwange has secure ivory stores and continues to implement an upgraded system to minimize risk as guided by Central Ivory Stores standard operations guidelines.

9.0 Elephant Population Management Options

Elephant populations can be managed either directly or indirectly. Indirect options do not target individual elephants or groups, and these include range expansion and manipulation of water sources. Direct option identifies individuals or groups and includes translocation, contraception and culling.

Management intervention may be necessary to achieve management objectives, maintain biodiversity loss and prevent loss of other species of plants and animals caused by an overabundance of elephants.

Management options for Hwange elephants include;

- Population management of elephants within the ecological carrying capacity through management action such as culling and translocation through in-situ conservation to areas within Africa.
- Strategic rotational pumping of some boreholes as this will allow the regeneration of vegetation around waterholes and reduce the piosphere effect.
- Thus, the office does not recommend drilling of new boreholes. Increasing the number of boreholes is likely to compound to siltation going into the future.

12. Conclusion

Hwange National Park is making use of the best available scientific information on the status of the African elephant to produce non-detriment findings. The current offtake levels are not detrimental to the survival of the species in the specified population, not only but also other species in the ecosystem. It is also evident that both quantitative and qualitative data is used in the decision making process. The African elephant population in Hwange National Park has exceed the ecological carrying capacity for the park with consequences on ecological balance and severe habitat conversion. This has serious implications on the broader socio-ecological system, and potential consequences that should be managed. Removal of elephants, in a responsible manner and following the prescribed guidelines and best practices is encouraged as such removal benefits the elephant population, ecologically and also generating the much needed

resources for the implementation of the Range-Specific Elephant Management Plan and within the broad recommendations of the National Elephant Management Plan for Zimbabwe.

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