TÍTULO

UNDERSTANDING DEMAND AND SUPPLY DYNAMICS FOR INTERNATIONAL TRADE IN ENDANGERED VULTURES IN KANO AND JIGAWA STATES, NIGERIA

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Master's Thesis:

Understanding Demand and Supply Dynamics for International Trade in Endangered Vultures in Kano and Jigawa States, Nigeria

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DEDICATION

I dedicate this work to my three effects late parents, my biological father Late Idris Mukhtar Zarewa, his brothers Late Bashir Mukhtar Zarewa and Late Husseini Mukhtar Zarewa, may Jannatul Firdaus (eternal garden) be their final abode, amin.

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ABSTRACT

As man estimates the exponential growth in his fellow human species populations, in contrast he calculates the speed of wildlife species disappearance and extinction. Wildlife (including plants and their derivatives) are exploited to meet demands in illegal markets that are both domestic and international. There are well documented literatures on conservation, ecology, habitat distribution, population, and trade of vultures in Nigeria. however, most of the previous literatures on vulture trade in Nigeria overlooked the extent to which demand for international trade in vulture specimen matches supply and efficacy of the trade control at both domestic and international level. This work reviewed the available published literature in the scientific journals, technical reports including thesis and dissertations on African-Eurasian vulture species which affirmed the ambiguous nature of the west African vulture catastrophic decline because of factors that included trade in the species specimen to satisfy several traditional and belief-based systems at both domestic and international level. The primary data of this work was gathered using semi structured interviews and structured (questionnaire or predetermined questions) organized based on the research objectives, the Excel, Special Package for Social Sciences (SPSS) and R Project for Statistical Computing (R-PSC) software were used to arrange and analyse the data respectively. Information collected from 50 selected local community stake holders indicated that hunters, wildlife traders and traditional herbalist constituted 50% of the category of people in demand for vulture specimen The findings shows that trade in vulture trade specimen is very high with 68% of the respondents directly or indirectly engaged in supply and or prescribing vulture specimen, it was also discovered that about 80% of the interviewee refused to categorically disclose the actual cost of vulture specimen, only few 20% disclosed the range of the cost of the whole live vulture falling between 200,000 and 500,000 naira. The traditional hunters reported that apart from the body parts specimens, anything associated with vultures including nest and freshly laid eggs are being used either alone or as important ingredients in traditional medicine. The result further indicated that 34% of the respondents expressed the fact that the cost of vulture specimen is dynamic, the prices per specimen varies ranging from two hundred thousand naira to as high as three million naira depending on the intensity of the demand and the availably of specimen in need, 60% were on believe that meeting the demand in vulture specimen is not easy. The result also found out that vultures have disappeared in the study area, about 40.6 % of the specimen are however either sourced elsewhere in the countries geopolitical zones like north central and southern Nigeria while 21.8 % from cross borders like Benin, Niger and Burkina

Faso. Traders and hunters accounted for 23.4%, the demand and supply are not species specific and the respondents were on the believe that vulture and wildlife trade is not sustainable. The result generally revealed mismatch in the supply and demand for transaction in vulture specimen across the research area. Further data collected from 45 heterogeneous relevant enforcement agencies also revealed a strong effect (SW= 0.880, AIC = 724) of the enforcement organizations on the level of knowledge of stakeholders' ability to control trade in vultures which indicated that relevant agencies for wildlife enforcement and Airport/border control law enforcement organizations needs to be prioritizing the training of their personnel to improve their understanding of the importance of vultures as well as overall wildlife conservation and trade regulations, the findings showed that irrespective of locations or organizations, the importance of Nigerian domesticated CITES regulations (ESA) for wildlife conservation received strong perceptive support from the associated law enforcement agencies in Kano and Jigawa States, Nigeria (SW= 0.895, AIC = 494.4). However, the conservation priorities and trade control of vultures showed a non-significant pattern with locations in Kano State, which may indicate the peculiarity of vulture trade and conservation across Northern Nigeria. Though the management and intervention level of vulture conservations revealed a strong effect (SW= 0.880, AIC = 724) of organizations on the intervention levels for vultures' conservation, suggesting that border control law enforcement organizations might be prioritizing different protection levels for vultures' conservation status other than the one contained (Schedule I) in the Nigerian domesticated CITES regulations (ESA).

Key words: CITES, Demand, Supply, Dynamics, Trade, Endangered, Vultures

ACRONYMS

AWF. African Wildlife Foundation

CBD. Convention on Biological Diversity

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

CMS. Convention on Migratory Species of Wild Animals

CoP . Conference of Parties

EFCC. Economic and Financial Crimes Commission

GDP. Gross Domestic Product

IUCN. International Union for Conservation of Nature

KSSMB. Keystone Plastic Surface Mount Box

MsAP Multi-species Action Plan to Conserve African-Eurasian Vultures

NAQS Nigerian Agricultural Quarantine Services

NCF Nigerian Conservation Foundation

NCS Nigerian Customs Service

NDF Non-Detriment Finding

NDLEA National Drug Law Enforcement Agency

NESREA National Environmental Standard Regulations and Enforcement Agency

NIS Nigeria Immigration Service

NSAIDs Non-steroidal anti-inflammatory drugs

NSCWFC National Strategy to Combat Wildlife and Forest Crime

SAHCO Skyway Aviation Holding Company

SC Standing Committee

SON Standard Organization of Nigeria

SSC Species Survival Commission

TAG Technical Advisory Group

T&CM	Traditional and Complementary Medicine
UNEP-WCMC Monitoring Centre	United Nations Environment Programme-World Conservation
UNTOC	United Nations Convention on Transnational Organized Crime
USAID	United States Agency for International Development
VCF	Vulture Conservation Foundation
VSG	Vulture Specialists Group
WABiLED	West African Biodiversity and Low Emissions Development
WASCWC.	West African Strategy to Combat Wildlife Crime
WHO	World Health Organization

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

As man estimates the exponential growth in his fellow human species populations, in contrast he calculates the speed of wildlife species disappearance and extinction. According to Worldometer (2023), global human population is currently projected to about 8.012 billion. On the other hand, the International Union for Conservation of Nature (IUCN) barometer of life, indicates that over 42,100 wildlife species which accounts 28% of the 150,388 accessed species are threatened with extinction now (IUCN, 2023).

As human population grows, demand for necessity of life increases (John, 2019). The world's biological diversity is facing an unprecedented crisis, and one of the principal causes of its loss is the international wildlife trade (Abayomi, 2017). One of the main causes of biodiversity loss apart from habitat destruction is wildlife trade (Wahab *et al.,* 2020). Wildlife (including plants and their derivatives) are exploited to meet demands in illegal markets that are both domestic and international (Federal Deparment of Forestry, Government of Nigeria , 2022).

The commercialization of biological resources often has important conservation implications for heavily exploited species (Buij et al., 2016). There is a large international trade in live birds, which could affect wild bird populations at both national and global scales. It is thus crucial to understand the temporal and geographical dynamics of international trade in wildlife periodically to inform management (Wang et al., 2021).

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. States and regional economic integration organizations adhere voluntarily`. States that have agreed to be bound by the Convention are known as Parties. Although CITES is legally binding on the Parties which means the Parties have to implement the Convention, it does not take the place of national laws. It provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level. CITES has a membership in 2022 of 184 Parties. Today CITES accords varying degrees of protection to more than 37,000 species of animals and plants (CITES, 2022). The CITES convention was adopted on 3rd March 1973, Nigeria joined CITES 9th May 1974 and entered into force 1st July 1975 making the country one of the pioneer parties to the Convention (CITES, 2023)

In an effort to avoid species loss, scientists have focused their efforts on the mechanisms making some species more prone to extinction than others (Machado & Loyola, 2013). The explosion in elephant poaching in the early 2000s drew international attention and condemnation, but elephant poachers also killed enormous numbers of vultures (Weidensoul, 2021). Vulture population have generally declined as human population densities have increased (Bamford *et al*., 2009). The vulture serves as an important and specialized scavenger in human societies, of developing countries, in particular, helps clean the environment and prevents diseases (Manigandan et al., 2021). They constitute an important functional group in many ecosystems, providing crucial ecosystem services both in natural and humanized environments. These scavengers are facing massive declines worldwide (Henriques et al., 2018). IUCN Vulture Specialists Group (VSG) also recognizes vultures as one of the most endangered group of birds in the world. (Ogada *et al*., 2015). they are globally in a decline and many species are considered as either endangered or critically endangered (Thompson & Blackmore, 2020).

Across Africa, vulture populations have catastrophically decline over the last 50 years, with over role decline of up to 97%, today 7 out of 11 African-Eurasian vulture species are at risk of extinction (BirdLife, 2021). Diurnal raptors have declined in West Africa since 1960s (Buij et al., 2016). By the end of October 2015 most species were listed as Critically Endangered in the IUCN red list status, the highest category of threat, indicating a very high risk of extinction in the wild (Botha *et al*., 2017). All the16 Old World (African-Eurasian) vulture species were listed in CITES Appendix II in 1979 as part of the order listing for Falconiformes (UNEP-WCMC, 2021).

The commercial trade of wildlife-based medicinal products is often performed in traditional markets, where many animals, including threatened vultures, are freely sold (Divittorio *et al*., 2018). Nigeria had seven species of vultures, but most of them have been hunted and extirpated across the country's ecological zones owing to belief systems and trades in their body parts (Manja *et al.*, 2021). The Nigeria's CITES regulation, the Endangered Species (Control of International Trade and Traffic) Amendment Act, (Nigerian Endangered Species Act, 2016) placed all vultures in Schedule I indicating that trade in vulture and their parts is strictly prohibited. Despite this, the Critically Endangered hooded vulture (*Necrosyrtes monachus*), the Endangered lappet-faced vulture (*Torgos tracheliotos*), the Critically Endangered white backed vulture (*Gyps africanus*), and the Endangered Egyptian vulture (*Neophron percnopterus*), all of which are in dramatic decline across West African region, have been found to be openly traded in Nigerian markets (Federal Department of Forestry, Government of Nigeria, 2022).

Human pressure from poisoning, hunting, and trading for traditional medicine are key factors leading to decline of vulture population in northern Nigeria (Muhammad & Mustapha, 2020).

1.2. Problems statement

African vulture populations are in steep decline and will require governments to act now to avoid the environmental and social consequences of losing what are arguably nature's most important scavengers (Ogada et al., 2016). Decline in vulture populations have seriously been reported in Nigeria as in other habitats around the world (Muhammad & Mustapha, 2020). Vultures are subject to direct persecution for the trade of products used in traditional medicine (Divittorio *et al*., 2018). The trade in vulture parts is widely practised in northern Nigeria, where 93% of traditional medicine dealers had vultures, or their parts, on offer, with 15% of traders selling vulture heads or complete carcasses (Saidu & Buij, 2013).

A survey by the Nigeria Conservation Foundation (NCF) in 2017 revealed that Kano, Ibadan and Ikare are the hubs of vulture sales where a head could sell for up to N15,000 and whole body could cost as high as N30,000 (Muhammad & Mustapha, 2020).The demand for African vulture and its parts is extremely high which is driven by belief-base use. The cost of parts required by herbalists varies with the demand and the severity of the ailment to be treated, rising prices may stimulate Nigerian traders and hunters to source vultures from neighbouring countries (Saidu & Buij, 2013).

The decline in vultures' population is becoming alarming and dangerous, as approximately 500 tonnes are trafficked monthly ending up as derivatives used in traditional medicine. The bird is widely sourced from Northern Nigeria to meet the demands in Southwest Nigeria for traditional medicinal purposes (Akingboye, 2017)

1.2.1 Research questions

- To what extent does supply of vulture specimen for international trade in Nigeria matches demand?
- Does interborder agencies and other law enforcement agencies have adequate knowledge required to combat vulture trade in Nigeria?
- How will the local communities contribute to vulture conservation and effective CITES implementation in Nigeria?

1.3. Justification of the study

There are well documented literatures on conservation, ecology, habitat distribution, population, and trade of vultures in Nigeria. For example, Saidu and Buij (2013), Akingboye

(2017), Muhammad & Mustapha (2020) and Owolabi *et al.* (2021) among other researchers made an account on people's perceptions as well as the trade in live vulture and its carcases mainly for belief base systems from pettish and stall markets in both Southern and Northern geopolitical zones of Nigeria. however, the above mentioned and other previous literatures on vulture trade in Nigeria overlooked the extent to which demand for international trade in vulture specimen matches supply and efficacy of the trade control at both domestic and international level.

Nigeria has emerged as a leading source and transit point for a booming global wildlife trade. Attracted by its porous borders, high levels of corruption, transport links to Asia, and poor law enforcement (Ekott, 2022).

This study therefore intends to understand the demand and supply dynamics for international trade in endangered vultures and its parts across Kano, and Jigawa states of northern Nigeria with the aim of identifying key actors and motivation of the supply chain, analysing the local drivers of the trade, review the driving factors that gives rise to the trade as well as determining role of local communities in the trade regulations and efficacy of enforcement action by enforcement agencies like National Environmental Standard Regulations and Enforcement Agency (NESREA), and other associated enforcement agencies i.e. Nigerian Customs Service (NCS), Nigerian Immigration Service (NIS) etc. across International Airport and Nigerian Land borders, with Kano and Jigawa States as case study. The information could therefore be used to inform management of further strategic development to vulture conservation as well as increasing public awareness of the essential ecosystem services vultures provide to the environment.

1.4 Aims and objectives:

This research aimed to:

Identifying the key actors and motivation of supply chain in the international trade in vulture specimens

1.4.1. Specific objectives of the study are to:

- Analyse the extent to which supply of vulture specimens for international trade in Nigeria matches demand;
- Assess the level of awareness and efficacy of trade control in vultures among relevant enforcement agencies;
- Determine the role of local community participation in reducing vulture trade and effective CITES implementation.

CHAPTER TWO

2.0 LITERATURE REVIEW

Nigeria's domesticated CITES regulation, the Endangered Species (Control of International Trade and Traffic) Amendment Act, 2016 (Nigeria's Endangered Species Act, 2016) prohibits hunting, capture and any other national or transnational transactions in all Vulture specimens, however, trade in vulture specimen mainly for belief-based purposes is largely observed in Nigeria (Saidu & Buij, 2013; Muhammad & Mustapha, 2020; Manja et al., 2021; Awoyemi, 2021).Vultures are known to be an important component of traditional medicine throughout West African region (Buij *et al*., 2016). It is prescribed by traditional healers for various ailments, including headaches (McKean *et al*., 2018).

African vulture species function as a scavenging guild with each species providing unique adaptations necessary to find and dispose of carrion collectively. As such, it makes more sense to focus conservation efforts on a suite of African vulture species rather than a single species (Kendall et al., 2018). Analysing the extent to which supply of vulture specimen for international trade matches demand will help in outlining the role of the supply chain actors involved, to map out effective management plan for conservation of this iconic species.

The positive effect of the communities on biodiversity was undermined and modernization erodes these traditional norms and their role in biodiversity conservation is not well known and documented, With the active involvement of all stakeholders collaboratively, opportunities can be undertaken and the challenges can be minimized; ultimately achieving sustainable development through community-based biodiversity communication (Ahmed, 2022)

2.1 Overview of Vulture Ecology and Conservation

There are 23 species of vultures altogether however they are categorized based on whether they are Old world vultures (i.e16 species found typically in Africa, Asia and Europe) or New world vultures (7 species found across Americas and Caribbean) (fig 1) (Mayntz, 2019)

Figure 1 Map of the world showing all 16 old world vultures and 7 new world vultures in cute Birdorable style, with arrows to the areas where they live **live** adopted from https://www.birdorable.com/fun/view/vultures-of-the-world-map/, 2/10/23, 6:28 PM

The ecology and sociality of vultures make them vulnerable to various risks, including environmental changes, poisoning and bioaccumulation of toxic substances from agricultural products, pesticides, and veterinary drugs used in cattle livestock. In addition, these birds are subject to direct persecution for the trade of products used in traditional medicine (Divittorio et al., 2018). They are the most threatened group of terrestrial migratory birds on the planet. Unless effective conservation action is implemented or expanded across the range of these birds, there is a significant likelihood that several of these species will indeed become extinct soon. The main reason for this is major population declines driven by poisoning, both intentional and otherwise. However, several other threats have been identified (Botha *et al.*, 2017; Prichard, 2020).

Presently, 14 of 23 (61%) vulture species worldwide are threatened with extinction, and the most rapid declines have occurred in the vulture-rich regions of Asia and Africa (Ogada et al., 2012). The IUCN Red List status of African-Eurasian vultures has seen drastic changes for the worse (Botha *et al*., 2017)

The IUCN Red List identifies two species, the Egyptian vulture, and the lappet-faced vulture, as endangered. Four species are critically endangered: the hooded vulture, the white-headed vulture, Rüppell's vulture, and the white-backed vulture. https://www.iucnredlist.org/species/22695238/205352949 (fig 2-7) 2/10/23, 6:30 PM

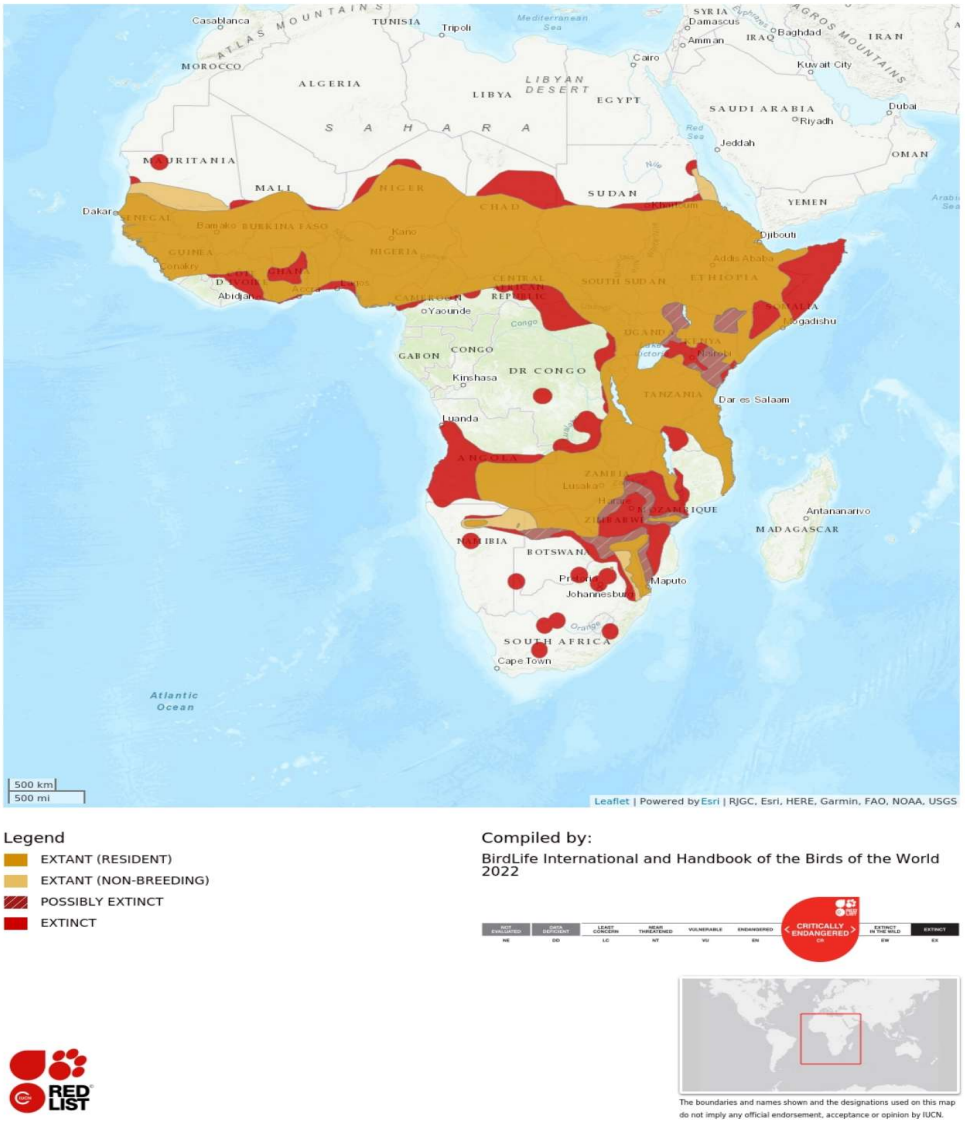

Figure 2 Distribution map of the critically endangered hooded vulture Necrosyrtes monachus © The IUCN Red List of Threatened Species: Necrosyrtes monachus – published in 2021. Accessed from https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22695185A204974761.en 2/10/23, 6:30 PM

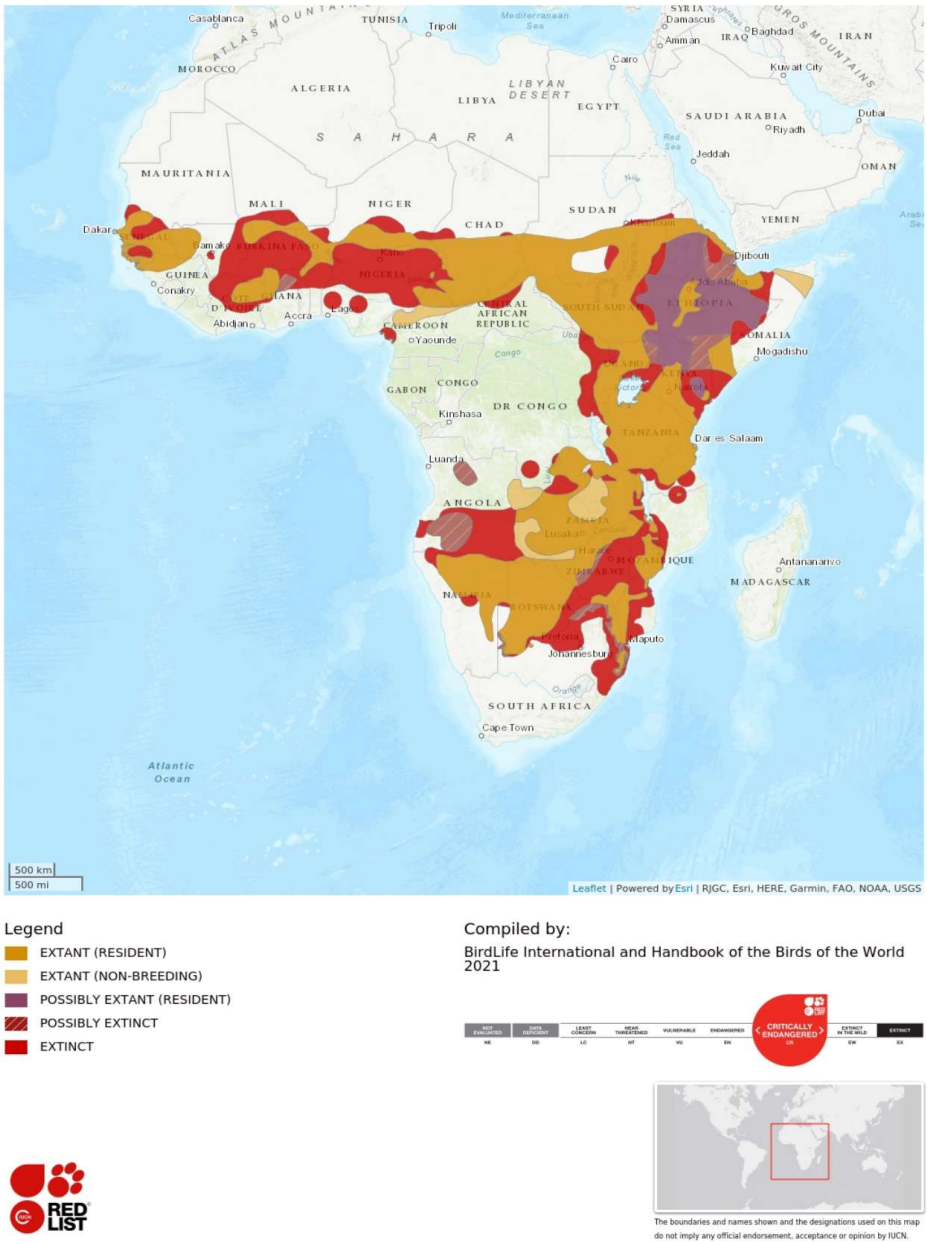

Figure 3 . Distribution map of Critically endangered White-headed vulture Trigonoceps occipitalis. © The IUCN Red List of Threatened Species: Trigonoceps occipitalis – published in 2021. Accessed from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22695250A205380033.en 2/10/23, 6:30 PM

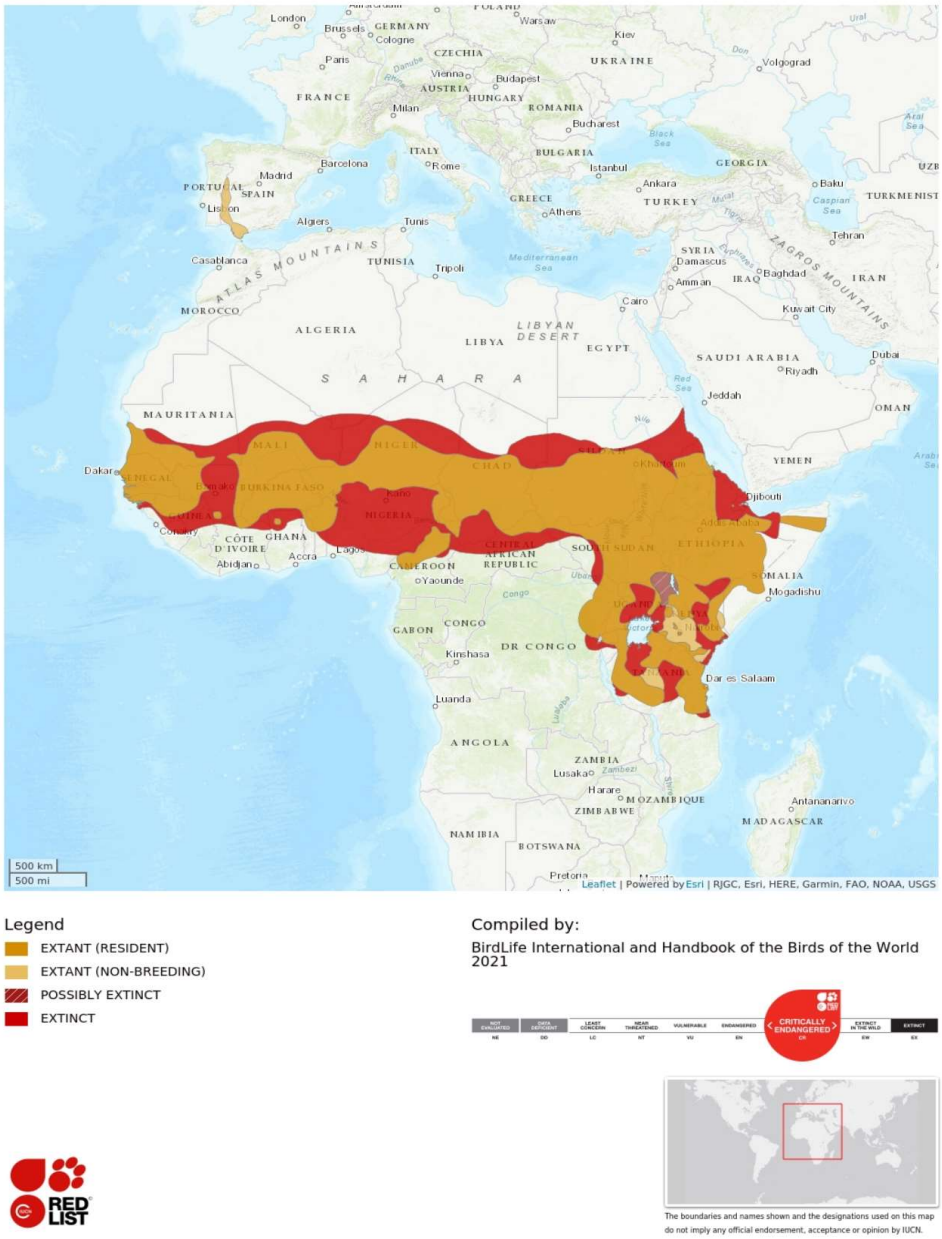

Figure 4 Distribution map of Critically endangered Ruppell's Vulture Gyps rueppelli © The IUCN Red List of Threatened Species:– published in 2021. Accessed from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22695207A204723468.en 2/10/23, 6:32 PM

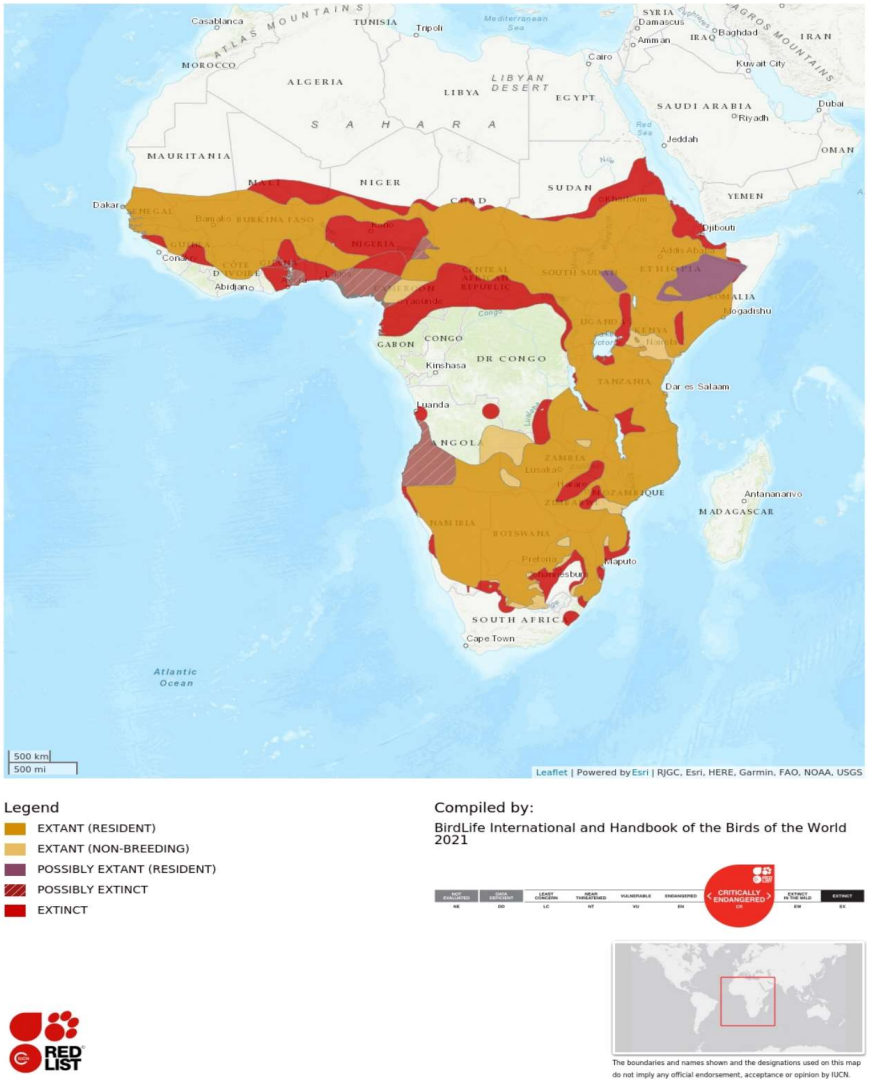

Figure 5 Distribution map of critically endangered white backed vulture Gyps africanus © The IUCN Red List of Threatened Species: Gyps africanus – published in 2021. Accessed from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22695189A204461164.en 2/10/23, 6:32 PM

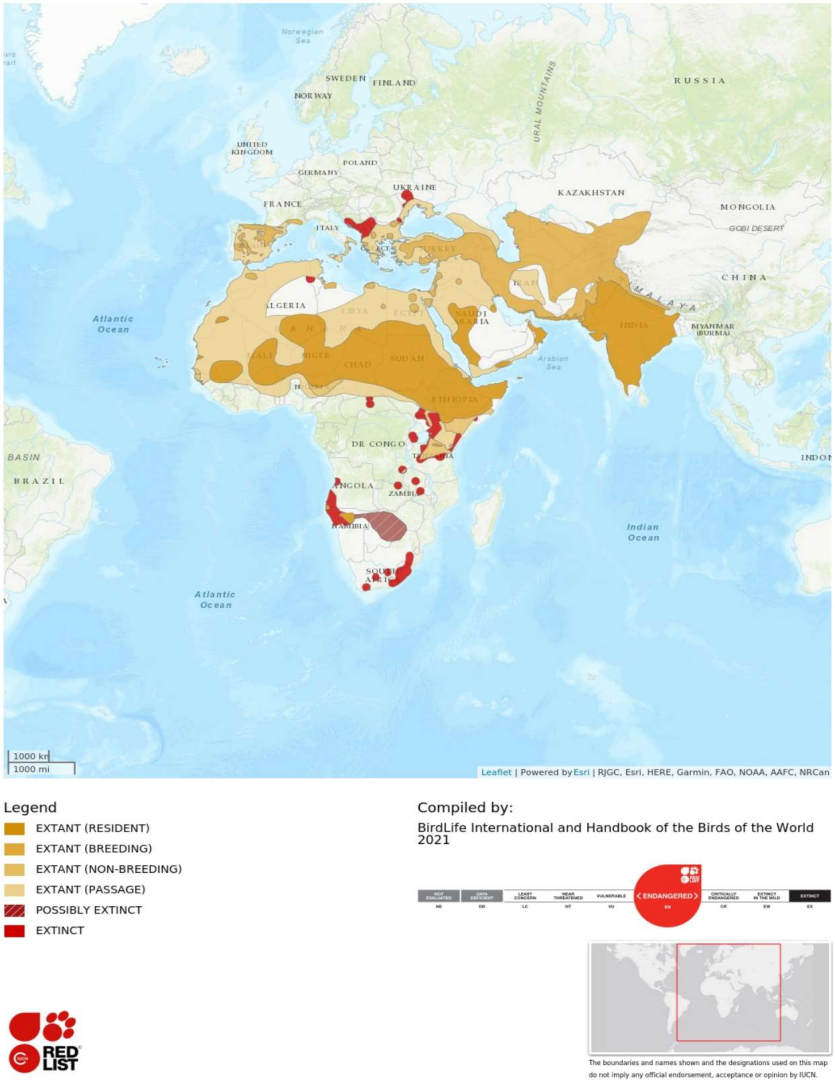

Figure 6. Distribution Map of Endangered Egyptian vulture Neophron percnopterus © The IUCN Red List of Threatened Species: Neophron percnopterus – published in 2021. Accessed from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22695180A205187871.en , 2/10/23, 6:35 PM

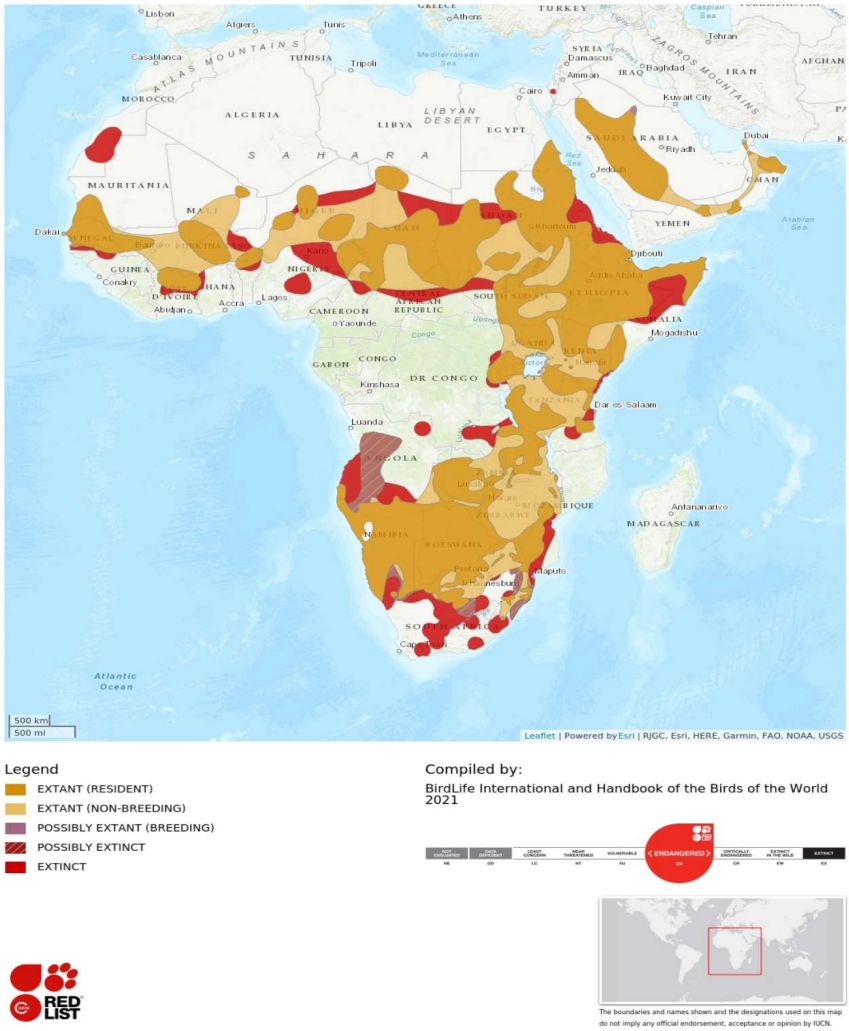

Figure 7 Distribution map of Endangered Lappet faced vulture Torgos tracheliotos © The IUCN Red List of Threatened Species: Torgos tracheliotos – published in 2021. Accessed from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22695238A205352949.en 2/10/23, 6:35 PM

2.1.1 Ecological importance of Vultures

Carrion consumption, scavenging, is a type of detrital feeding that should have widespread consequences for the structure and stability of food webs, providing access to high-quality resources (Wilson & Wolkovich, 2011). African vultures play a key role in waste removal and disease control that is critical for the stability of the ecosystems in which they live. In addition to their ecosystem service role, the threats to their survival and their conservation needs also overlap heavily with several other key species, such as African elephants and lions, and they are thus an ideal species to focus on for wide-reaching, landscape-level conservation efforts (Kendall et al., 2018).

Vultures are key component to maintaining healthy ecosystem especially in developing countries (Manigandan *et al*., 2021). Because of their role as nature's garbage disposers, they are able of keeping our environment clean (Phibbs, 2015). Vultures scavenging ways help to prevent spread of zoonosis, their highly acidic stomach allow them to eat dead and decaying animal without getting sick, thereby making our environment free of contagious diseases, hence, they are often referred as "nature's clean-up crew" (Pariona, 2017). According to African Wildlife Foundation (AWF) Vultures clear up to 70 percent of all the carrion in their ecosystem. By preventing the spread of disease from these carcasses, they help protect other species, including humans and their livestock. Unique adaptations make these birds one of the most successful scavengers in Africa. Soaring on updrafts allows them to cover great distances, while strong eyesight enables them to easily detect potential meals. Low pH levels in their stomachs help digest rotting meat quickly and without issue. (https://www.awf.org/wildlife-conservation/vulture). 2/10/23, 6:36 PM

Illegal wildlife trade continues to cause significant, and in some cases irreversible, damage to biodiversity, ecosystems, communities, and economies (Federal Department of Forestry, Government of Nigeria). Wildlife scientist have therefore discovered that unprecedented decline in vultures is a big scar to our ecosystem and responsible for spreading zoonosis (https://www.getaway.co.za/travel-news/the-essential-role-of-vultures-in-our-ecosystem/#). 2/10/23, 6:36 PM 2.2

2.2 Belief-based system and traditional medicine as drivers of high demand in vulture's specimen in Nigeria and West African region.

The analysis of traditional beliefs in different cultural models around the world has confirm that practices associated with the beliefs in the supernatural play a significant role in structuring societies and dictating their behaviour (Militaru, 2020). Animals (and their derived products) are essential ingredients in the preparation of many traditional remedies (Alves et al., 2011). Few regional or continent-wide assessments of bird use for traditional medicine have been attempted anywhere in the world. Africa has the highest known diversity of bird species used for this purpose (Williams et al., 2014). it would be useful to increase the social aspect of research into vulture conservation to understand attitudes and behaviours of communities living in the area that are likely to have both positive or negative impacts on their survival (Manigandan et al., 2021).

Apart from Nigerian religions, traditional beliefs with ancient roots also exist in the area. These beliefs intermingle the population with the primordial spirits of the ancestors of a particular

site (Bayero-Jimoh, 2020). Ethno-ornithological data collected in north central Nigeria (Manja *et al.*, 2021) revealed many people believed that vultures are evil, hence they are often persecuted on sight. However, research confirms that vultures are used in the traditional medicine industry for a wide range of purposes (McKean et al., 2018). In south western Nigeria for example, (Owolabi *et al*., 2021) reported that the brain is the most used part of the Hooded Vulture, it had the highest frequency of use across the study area, followed by bones, legs, beak, feather, neck, skull, wings and hearts. Throughout Nigeria, a host of literatures discovered that vulture specimens are openly traded for belief-based systems (Saidu & Buij, 2013; Muhammad & Mustapha, 2020; Williams et al., 2021) etc. reported vulture trade from northern Nigerian markets. Awoyemi, (2021) also confirmed that vultures and their body parts are routinely traded in open wildlife markets In southwest Nigeria, however the report of Akingboye, (2017) demonstrated that vultures are widely sourced from Northern Nigeria to meet the demand of the Southwestern part of the country for traditional medicinal purposes. The domestic and international wildlife markets fuel one another (Federal Department of Forestry, Government of Nigeria, 2022). Depending on the cultural group in power and their alignment with other stakeholders, unsustainable demand for traditional medicine purposes or belief-based uses could increase even as vulture populations continue to decline (Yee *et al.*, 2021). Urgent steps are required to stop the unsustainable trading of vultures in Nigeria and between Nigeria and neighbouring countries (Saidu & Buij, 2013). Understanding demand and supply chain actors involved in this transaction will therefore help in curtailing the situation.

The practice of Traditional and Complementary Medicine (T&CM) is defined by World Health Organization (WHO) to be the sum of knowledge, skill and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness and the management of patients, as well as the provision of services to communities (WHO, 2022). The belief systems fall within the spiritual aspects. Indigenous knowledge as natural conservation systems are also known as traditional, community or customary management systems (Nwosu & Anwana, 2013). Fetish markets are important to the culture of Nigerians because people still prefer to solve their health problems through traditional medicine (Muhammad & Mustapha, 2020). The implementation of indigenous system in wildlife management and conservation is easier because it rest with the resource users themselves (Nwosu & Anwana, 2013). An indicator that changing the belief system of people is not an easy task, however it can be used as an essential tool in the management and

conservation system depending on the approach or perception people may have towards the targeted natural heritage.

Illicit trade in vulture parts accounts for 29% of reported vulture deaths in Africa (Ters, 2020). The ongoing vulture decline in west Africa is linked to the belief-based system of the people (Williams et al., 2021). The birds are subject to direct persecution for the trade in products used in traditional medicine (Divittorio et al., 2018), investigations further revealed that the endangered hooded vultures were intentionally poisoned with the deaths linked to belief-based in Guinea Bissau and Gambia (Birdlife, 2021). In Ghana (Boakye et al., 2019) reported ethnomedicinal use of vultures by traditional medical practitioners. Thompson, (2022) had also recently discovered that the number of vultures killed by poisoned baits was higher closer to the borders than elsewhere in Burkina Faso arguing that these recent intentional vulture poisoning events in Burkina Faso were intended to meet the growing demand for vulture body parts in West Africa. This assertion agrees with (Saidu & Buij, 2013) that rising prices may stimulate Nigerian hunters and traders to source the vulture specimen from neighbouring countries. A clear indicator that Traditional belief system may be one of the common risk factors in West Africa which determines demand and supply dynamics for both domestic and cross-border trade in vulture specimens.

In northern Nigeria, 'Yan-shimfida is the name in dominant Hausa dialect commonly given to the people who source, prepare, and dispense remedies made from plants, animals, and minerals. In addition, they often give advice to individuals and Traditional Healers on herbal remedies and alternatives to certain remedies (Ibrahim et al., 2010). Knowing the key actors involved in sourcing, supplying and other transaction of vulture specimens will bring about better understanding of the conservation strategy and control measures. As demonstrated by (Bowerman et al., 2010) that further research will need to include working with the healers and users of the medicinal trade if sustainable harvest is to succeed. This underlines the importance of further engaging the relevant demand and supply chain actors to guide in drafting policy and control or enforcement action.

2.3. Overview of the Multispecies action plan and World Conservation Monitoring Centre (WCMC) Technical report.

The Multi-species Action Plan to Conserve African-Eurasian Vultures (Vulture MsAP) is the result of extensive consultation with stakeholders, conservation, and species experts, aims to rapidly halt current population declines in all the 15 of the 16 African-Eurasian vulture species. This includes bringing the conservation status of each species back to a favourable level and

providing conservation management guidelines applicable to all Range States (Botha *et al*., 2017).

MsAP evolved at the eleventh meeting of the Convention on Migratory Species of Wild Animals (CMS COP11) in 2014, where Parties adopted a Resolution on a Programme of Work on Migratory Birds and Flyways included a mandate to develop a Multi-species Action Plan to Conserve African-Eurasian Vultures (Vulture MsAP), under the auspices of the Coordinating Unit of the Raptors Memorandum of understanding (MOU) (Prichard, 2020). At the same time the Meeting of Signatory (MOS) tasked the MOU's Technical Advisory Group (TAG) with facilitating the development of a Vulture MsAP to encompass all 16 species of Old-World vultures that are obligate scavengers (except the Palm-nut Vulture which was not recognized as fulfilling the CMS definition of 'migratory'). In February 2016, following consultation with the IUCN Species Survival Commission (SSC) Vulture Specialist Group (VSG), Birdlife International, the Vulture Conservation Foundation (VSF) and other specialists, the MOU Coordinating Unit published a proposal for developing the Vulture MsAP, with the overall aim of rapidly halting current population declines in the 15 species concerned, reversing recent population trends to bring the conservation status of each species back to a favourable level, and providing conservation management guidelines applicable to all Range States covered by the Vulture MsAP (Botha *et al*., 2017). The subsequent development of the Vulture MsAP was overseen by the Coordinating Unit in partnership with Birdlife International, the VCF and the IUCN SSC VSG, supported by members of the Vulture Working Group, its Vulture Steering Group and in particular the Overarching Coordinator and three Regional Coordinators covering Africa, Asia (excluding Central Asia) and Europe. Following its endorsement by the Sessional Committee, the Vulture MsAP (covering the 12- year period 2017-2029) was formally adopted by the CMS Parties at COP12 in October 2017 Covering all 15 species of Old-World vultures that are obligate scavengers. After describing the policy context and the biology of the species, the Plan reviews all known threats to vultures at regional and species levels, and the drivers behind these threats are considered (Prichard, 2020).

It is important to note that according to a report of Seventy-fourth meeting of the Standing Committee SC74 Doc. 63 held in Lyon (France), 7 - 11 March 2022, submitted by the Animals Committee to the CITES Secretariate, on the species-specific matters, concerning West African Vultures (Accipitridae Spp.). The Committee took intersessional decisions including the establishment of an intersessional working group on West African Vultures (Accipitridae Spp). as per 18th Conference of Parties (CoP18), 2019. Regarding the issues related to illegal trade

in vulture body parts, the Animals Committee referred to the study "West African vultures – a review of trade and sentinel poisoning" (2021), for its deliberations. This study was compiled by the United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC) and commissioned by the European Union, and the CITES and CMS Secretariats, with funding from UNEP (CITES, 2022).

At the 18th Conference of the Parties (CoP18) to CITES, Burkina Faso, Niger and Senegal presented a document highlighting significant vulture declines across Africa, as well as the prominent role that belief-based use and sentinel poisoning had played in causing these declines. As both issues have close links to international trade, the document called for the adoption of several decisions, with the aim of increasing understanding of the threats posed to West African vultures, as well as establishing a way forward to stop declines and allow population recovery (UNEP-WCMC, 2021).

West African range States for Gyps africanus (Whitebacked vulture), Gyps fulvus (Griffon vulture), Gyps rueppelli (Rüppell's vulture), Necrosyrtes monachus (Hooded vulture), Neophron percnopterus (Egyptian vulture), Torgos tracheliotos (Lappet-faced vulture), and Trigonoceps occipitalis (White-headed vulture) are urged to: a) integrate illegal vulture trade considerations into their implementation of the West Africa Strategy on Combatting Wildlife Crime (WASCWC) and any decisions relating to Wildlife crime enforcement support in West and Central Africa adopted by the Conference of the Parties at its 19th meeting; b) ensure that national laws to protect vultures and control trade in vulture parts and derivatives are effectively implemented, and ensure that penalties for non-compliance are sufficient to deter illegal trade; c) ensure that any international trade in West African vultures is not allowed except in accordance with CITES requirements, and if international trade is found not to be in accordance with CITES requirements, consider implementing a zero export quota; d) follow Resolution Conf. 16.7 (Rev. CoP17) on Non-detriment findings, and, in cases where there is an interest in exporting globally threatened vulture species, consider submitting non-detriment findings for the export of vulture specimens to the Secretariat for inclusion on the CITES website and review by the Animals Committee; e) identify any trade-related issues associated with the implementation of the Multi-species Action Plan to Conserve African-Eurasian Vultures (Vulture MsAP) 2017-2029 of the Convention on the Conservation of Migratory Species of Wild Animals (CMS); f) work with relevant experts and organizations for implementing demand reduction strategies for vultures and their parts and derivatives including for belief-based use and consumption and, where appropriate, expand the implementation of

strategies that have been successful; g) work with relevant organizations to initiate wide-scale public awareness campaigns at regional, national and local levels about the impacts of trade in these species, including the importance of vulture species to ecology and human health, the negative impacts of belief-based use of vulture body parts, and existing national and international legislation that protects vultures; and h) provide information to the Secretariat on the implementation of this Decision to assist it in reporting to the Animals Committee and Standing Committee, as appropriate

2.4 Nigeria's CITES regulation and its application on vulture species.

Despite vultures' importance and the paramount need to conserve them, there has been little critical review on the relevance and content of laws protecting vultures (Thompson & Blackmore, 2020). Nigeria is a signatory to environmental treaties which include the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) and the United Nations Convention on Transnational Organized Crime (UNTOC) (Federal Department of Forestry, Government of Nigeria, 2022).

CITES is an environmental treaty obliging signatory countries to monitor the global wildlife trade and to act on behalf of threatened species (Rosen & Smith, 2010). CITES regulates wildlife trade primarily through a system of permits and certificates that must be issued by national authorities before specimens can enter or leave countries involved in international trade. The permit system is applied to a three-tiered classification which accords varying degrees of protection to listed species (Abayomi, 2017) Nigeria joined CITES 9th May 1974 and entered into force 1st July 1975 (CITES, 2023).

The good thing about CITES listings is that its regularly updated and species trade are regulated under the Convention even where Parties' national enforcement mechanisms are weak, or species inventories are not carried out (Yatta, 2019). CITES lists species in three categories of protection as Appendices. Appendix I listed species category were accorded higher degree of protection because of their critical conservation status, international trade in all appendix I listed species is therefore strictly prohibited, it can only be allowed in an exceptional circumstance. Appendix II listed species category form a list of relatively better conservation status than Appendix I however international trade in this listed category require sustainability assessment or Non-Detriment Finding (NDF) and export/import permit. while Appendix III listed species are of least concern however transaction in this listed category require certificate of origin to assist the CITES parties in controlling trade in specimen of the listed species (CITES, 2023).

All West African vulture species (Accipitridae) were listed in CITES Appendix II at the CITES second Conference of Parties (CoP2 San José) in 1979 (CITES 2023). With all the regulations in place (Weidensoul, 2021) discovered that seven of Africa's 11 vulture species are now listed as endangered or critically endangered, with some populations falling by as much as 97% in the last few years. This is a quite terrible situation which needs swift response.

The National Wildlife Protection Act (Nigeria's ESA) is the Nigeria's CITES national law (ESA 2016). The Act was first promulgated as Endangered Species Decree no. 11 of 1985 which was subsequently reviewed to the current National Wildlife Protection Act or Nigeria's Endangered Species Act (ESA), 2016. The Act provides for the conservation and management of Nigeria's wildlife and the protection of some of her species in danger of extinction as a result of overexploitation or habitat change as required under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), The Convention on Migratory Species of Wild Animals (CMS) and its daughter Agreements and protocols, and the Convention on Biological Diversity (CBD) to all of which Nigeria is a signatory(National Wildlife Protection Act, (Nigeria's ESA), 2016).

ESA categorized wildlife species in to three schedules based on the degree of protection they require. Species specified in the first schedule or schedule 1 of the Act (being wild animal and plant species that are endemic to Nigeria or otherwise considered to be threatened with extinction) were accorded higher degree of protection, in which the hunting or capture of or trade in the animal and plant species in the schedule is strictly prohibited. Trade in specimens of these species may be conducted only on exceptional circumstances. The Species listed in the second schedule were also protected from hunting, capture, trade or otherwise dealt with (being wild animal and plant species which though not necessarily now threatened with extinction may become so threatened unless trade in respect of such species is controlled) the species in this schedule can only be traded with a licence issued under the Act (CITES import/export permit). The third schedule covers all other Nigeria's Wildlife species (being wild animal and plant species which are not listed in the First and Second Schedules) in which international trade in the animal and plants species specified is also prohibited unless in possession of a certificate of origin issued under the Act (National Wildlife Protection Act, (Nigeria's ESA), 2016).

The ESA declared no specimens of species naturally occurring within the geographical boundaries and territorial waters of Nigeria, including their parts (or trophies) and products thereof (or derivatives) which is referred in the Act as natural heritage of Nigeria shall be

considered as personal or household effect unless it is legally acquired and Management Authority of Nigeria is satisfied that the specimen was obtained from not earlier than the second filial generation of a captive-bred population of registered captive breeding facility (National Wildlife Protection Act, (Nigeria's ESA), 2016) .

Despite CITES as international framework for regulating wildlife trade and other national laws on endangered species, reports of illegal trade and widespread confiscation and seizure of wildlife specimens originating from Nigeria is ripe (Abayomi, 2017). In the Nigeria's ESA all vultures were elevated to the first schedule, implying stricter domestic measures on vultures' protection. This application has however not been observed in the enforcement angle. Ekott, (2022) attributed poor law enforcement among other factors like porous borders and high level of corruption to Nigeria's emergence as a leading source and transit point for a booming global wildlife trade. Divittorio et al. (2018) also reported that wildlife specimens including vultures are found freely sold in the Nigerian markets, and the submission above was in conformity with earlier findings Akingboye, 2017; Saidu & Buij, 2013; Yee et al., 2021; Muhammad & Mustapha, 2020; Awoyemi, 2021 and Federal Department of Forestry, 2022) who variously affirmed that trade in vultures is widely practiced across Nigeria with domestic and international markets fuelling one another. It is therefore necessary to set conservation actions based on collaboration among scientists, regional governments, donors and the media (Divittorio et al., 2018). Determining the efficacy of trade control in vulture specimens among relevant enforcement agencies will to some extent serve as key measure to proper understanding and coordination of the conservation actions.

Trade in vulture specimen were found to be a common practice across west African region. Nigeria and Benin were identified (Buij et al., 2016) as important drivers of the regional trade in raptors in west Africa with 73 percent of carcase traded in Nigeria, 21 percent Benin and 5 percent elsewhere. The demand for African vulture is extremely high (Saidu & Buij, 2013). However recent finding (Thompson, 2022) identified Burkina Faso as one of the main sources of vulture carcasses in West Africa. This pointed out the need for further coordinated and complementary research cutting across all west African states to understand the true nature of the situation for effective management and conservation strategy in the region.

Despite recent recorded development in wildlife enforcement especially on elephant ivory, pangolin scales and African Gray parrots. Recent literature has not disclosed any report on confiscation and seizure or arrest regarding transactions in vulture specimens in Nigeria, a clear pointer that Nigerian enforcement agencies are either not fully aware of the regulations or may

not have recognized trade in vulture specimen as a crime. Ekott, (2022) reported an investigation by Nigeria's premium times and Mongabay which was based on extensive analysis of government and court record and other public data going back to 2010, as well as a review of hundreds of pages of law enforcement reports covering five wildlife reserves in the country between 2012 and 2021 discovered evidence of systematic failure by Nigerian Law enforcement and judicial system to hold wildlife poachers and traffickers accountable. Wildlife laws are therefore generally poorly enforced in Nigeria.

The implication for people using or trading in vultures is that the benefits currently enjoyed will not be available in 15 to 30 years' time (McKean et al., 2018). The government is obliged to exercise its fiducial duties to bring into force legislation and exercise multilateral environmental agreements that provide for the protection of vultures (Thompson & Blackmore, 2020). This can only be achieved by making Law enforcement officials alive to their responsibilities through consistent training, adequate sensitization and awareness creation on vultures and other wildlife related regulations.as further stressed by Thompson, (2022) on need for awareness campaigns, improved policy, legislation, and stronger commitment from governments in West Africa, to halt the trade in vultures and prevent their extirpation. The political and economic implications of not being able to prevent and control crime has far reaching consequences, such as triggering the Convention on International Trade in Endangered Species of Wild Fauna and Flora's (CITES) penalties that can prohibit trade, which can negatively impact economies(Federal Department of Forestry, Government of Nigeria 2022). In this regard, determining the knowledge and efficacy of trade control among enforcement officials on the domestic and international transactions in vulture specimen is necessary.

2.5 National Strategy to Combat Wildlife and Forest Crime in Nigeria (NSCWFC)

Nigeria launched the National Strategy to combat wildlife and Forest crime 2022-2026, on April 11, 2022.The Strategy is the Nigeria's first National Strategy on Wildlife and Forest Crime, developed to complement the West African Strategy to Combat Wildlife Crime WASCWC. Nigeria will lay the foundations for systemic change to tackle wildlife crime, in collaboration with regional counterparts, all of whom must be networked to combat wildlife crime. Given the broader regional dynamics and impacts of wildlife crime.

The strategy is a significant tool for Nigeria's efforts in tackling these issues, in a holistic evidence-based manner and in conformity with international best practices as well as the relevant Treaties and Conventions to which Nigeria is a signatory which include the

Convention on International Trade in Endangered Species of Fauna and Flora (CITES) and the United Nations Convention on Transnational Organized Crime (UNTOC). The Strategy document has been developed through multi-sectoral engagements and collaborations and would likewise, require a multi-sectoral approach in its implementation. It sets out Nigeria's Vision for eradicating wildlife crime: "A Nigeria Free of Wildlife Crime (Federal Department of Forestry, 2022).

The strategy sets out the objectives as described below:

1. Enhance institutional capabilities:

2. Strengthen the legal framework.

3. Increase collaboration.

4. Honour commitments.

5. Remove enablers of crime.

6. Raise awareness of wildlife crime.

7. Provide alternative livelihoods

By achieving the defined objectives, Nigeria will have the institutional commitment, necessary organisational structures (fig 8), and capabilities to effectively address both transnational and domestic wildlife crime.

Figure 8 Figure 8. Organizational structure of the Nigeria's NSCWFC © Nigeria's NSCWFC 2022

Importantly, these strategic objectives all provide the necessary foundations for change. By achieving these objectives, Nigeria will have the commitment, necessary structures, and capabilities to effectively address both transnational and domestic wildlife crime.

However, the strategy stressed that local poverty or providing alternative livelihoods only will not prevent wildlife crime; greed, criminality, cultural practice, opportunism, and other incentives will continue to drive illicit trade. At a national institutional level, inconsistent laws and regulations, or a weak legal framework to tackle wildlife crime leave countries vulnerable to exploitation. In addition, insufficient law enforcement capacity, limited detection and reporting of wildlife crime, weak governance, corruption risks, or a lack of coordination across the organisations that comprise the enforcement chain (Figure 9) further exacerbates the effectiveness of law enforcement actions as adopted from (Federal Department of Forestry, 2022).

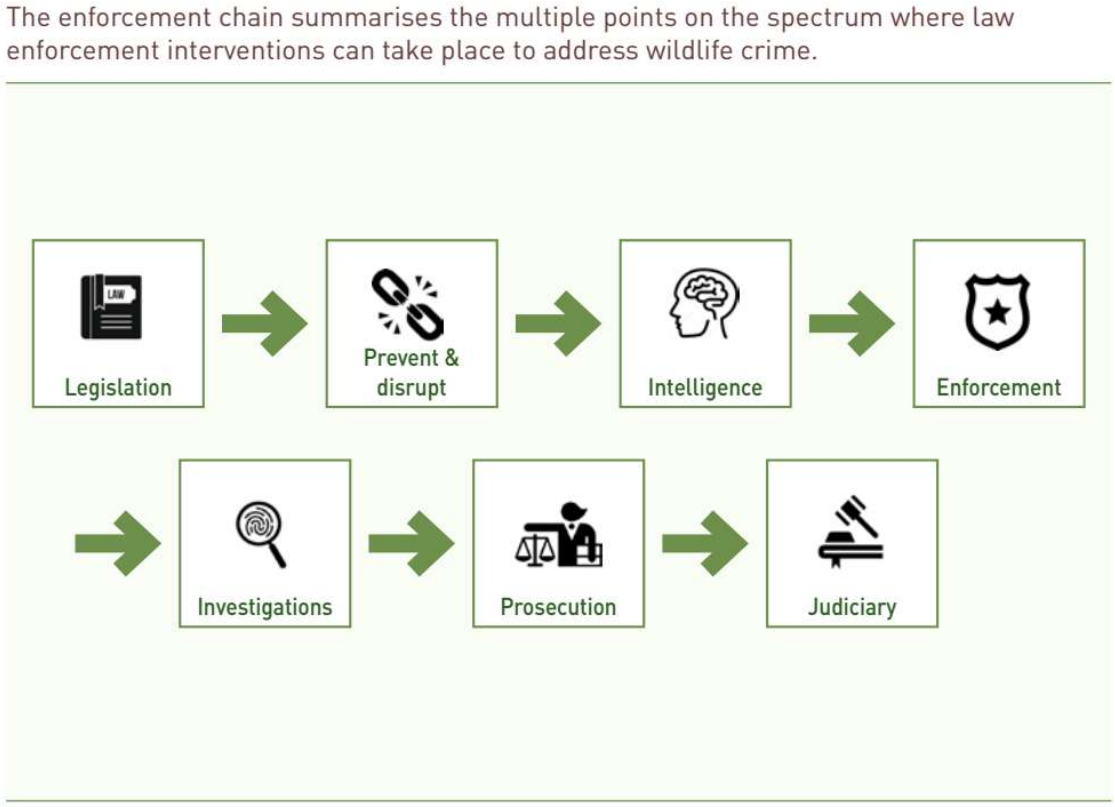

Figure 9 Enforcement chain summary. (Source: developed during the national stakeholder's workshop as adopted from the Nigeria's NSCWFC 2022)

2.5.1 Strategic Goal

The strategy has defined the following goal:

By 2026, Nigeria has made demonstrable progress in reducing wildlife crime, while its law enforcement and criminal justice system has the requisite capabilities and a fit-for-purpose legal framework to tackle wildlife crime effectively and collaboratively.

To elevate the status of wildlife crime as a serious crime, Nigeria must adhere to its various national and international commitments related to legal trade and wildlife crime. Honouring these commitments is a clear demonstration of Nigeria's willingness to tackle wildlife crime as an enabling condition for success. However, there is a need to go beyond addressing enforcement challenges: Nigeria needs to reduce the pressures, and remove the enabling conditions that allow wildlife crime to flourish (Federal Department of Forestry, Government of Nigeria, 2022).

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1. Study Area

The study area has covered Kano and Jigawa states in northern Nigeria where vulture trade is practiced specially to supply traditional medicine industry.

Kano State, was formed in 1967 from Kano province and in 1991 its north-eastern portion was split off to form **Jigawa State**, land area of present Kano State is about 20,130 sq km. It is bordered by the states of Jigawa to the northeast, Bauchi to the southeast, Kaduna to the southwest, and Katsina to the northwest https://www.britannica.com/place/Kano-state-Nigeria 2/10/23, 19:46. **Geography of Kano State**

Kano State of the Federal Republic of Nigeria lies between latitude 13^0N in the North and 11^0N in the South and longitude 8^0W in the West and 10^0E in the East. Kano State is made up of the following forty four local government areas: Ajingi, Albasu, Bagwai, Bebeji, Bichi, Bunkure, Dala, Dambatta, Dawakin Kudu, Dawakin Tofa, Doguwa, Gabasawa, Garko, Garun Mallam, Gaya, Gezawa, Gwale, Gwarzo, Kabo, Karaye, Kibiya, Kiru, Kumbotso, Kura, Kunchi, Madobi, Makoda, Minjibir, Kano Municipal, Nassarawa, Rimin Gado, Rogo, Shanono, Sumaila, Takai, Tarauni, Tsanyawa, Tudun Wada, Tofa, Warawa and Wudil. The total land area of Kano State is 20,760 sq kilometers with a population of 9,383,682 (2006 provisional result). Some Local Government areas of Jigawa State were part of Kano Emirate before the creation of that state. The people of Kano State who have no other hometown call themselves Kanawa. https://www.nigeriagalleria.com/Nigeria/States_Nigeria/Kano/Brief-History-of-Kano.html 2/10/23, 19:46

EconomyKano State is a major route of the trans-Saharan trade, the commercial and investment hub of Northern Nigeria and the largest non-oil and gas economy in Nigeria, with a Gross Domestic Product (GDP) of approximately US$12 billion. The economy is driven by commerce, manufacturing, and subsistence agriculture – the dominant activity, with up to 70% of the population engaged directly or indirectly. The informal sector is strong and diverse The State has historically been a major commercial and manufacturing center in the West African sub region even before the incorporation of the country into the European System of global commerce. It has been a major entry port and southern hub of the trans Saharan trade route for centuries https://kanostate.gov.ng/economy/ 2/10/23, 20:56Kano city, the state capital, is a

manufacturing centre producing processed foods, textiles, furniture, cement, rolled steel, and light trucks. Most of the state's inhabitants are Hausa or Fulani, but there are also Nigerians from other parts of the country, Arab traders, and Europeans. Kano city, Rano, and Wudil are its chief market centres. The state is crossed by the main (Lagos-Nguru) railway and by highways that link it to Kaduna and Bauchi states. Kano city has an international airport https://www.britannica.com/place/Kano-state-Nigeria 2/10/23, 20:58**Jigawa State**, was created from the northeastern half of Kano state in 1991 with land area of about 22,410 sq. km. The economy is dependent on agriculture. Most of the state's inhabitants are Hausa or Fulani. Dutse (the state capital), Gumel, Hadejia, Kazaure, and Birnin Kudu are the chief market centres. Jigawa state is crossed by the main (Lagos-Nguru) railway and by roads that link it to Kano and Bauchi. https://www.britannica.com/place/Jigawa 2/10/23, 21:04.

The state is situated in the north-western part of the country between latitudes 11.00°N to 13.00°N and longitudes 8.00°E to 10.15°E. Kano State and Katsina State border Jigawa to the west, Bauchi State to the east and Yobe State to the northeast. To the north, Jigawa shares an international border with Zinder Region in The Republic of Niger, which is a unique opportunity for cross-border trading activities. The government readily took advantage of this by initiating and establishing a free trade zone at the border town of Maigatari in Niger. https://en.wikipedia.org/wiki/Jigawa_State 08/03/2023, 13:02

The study sports in Kano state are: National Environmental Standard Regulations and Enforcement Agency (NESREA), North-Western Zonal Headquarters Kano, Malam Aminu Kano International Airport. Kurmi Market, Dawakin-tofa, Kura, Kiru Tudun wada and Doguwa

The study spots in Jigawa State are: Gujungu, Gumel, Babura, and Maigatari open access border.

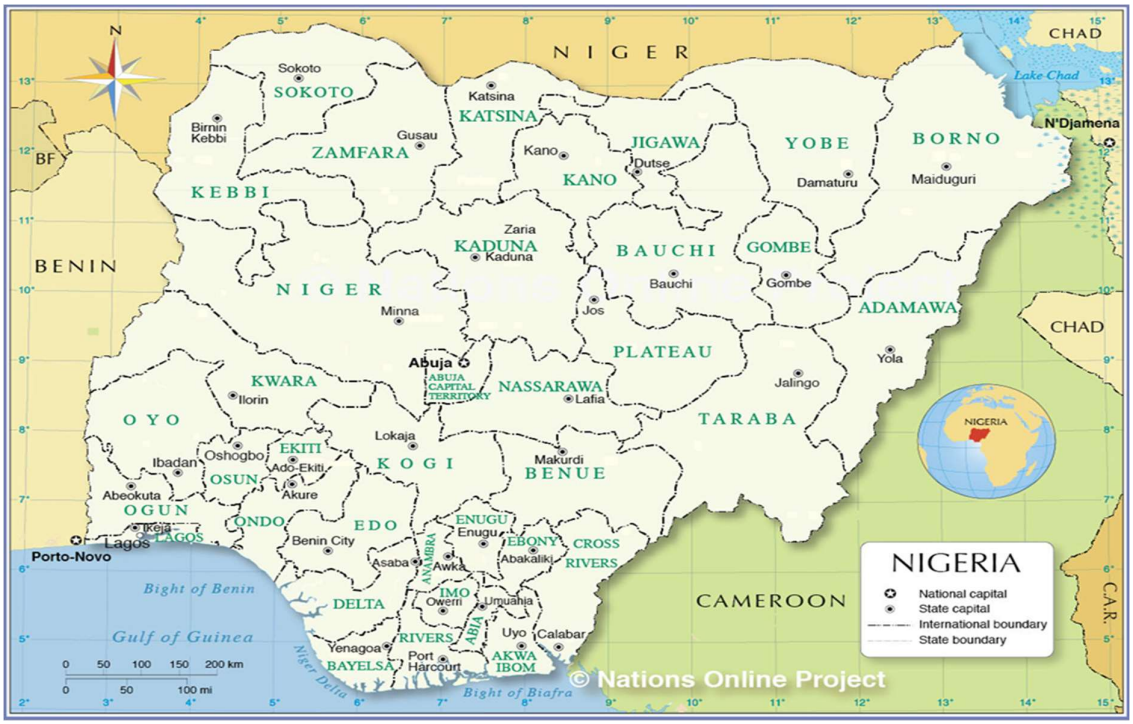

Figure 10 Administrative map of Nigeria showing all 36 States, with states and National boundaries (c) Nations Online Project retrieved on 10/02/2023 from https://www.nationsonline.org/oneworld/map/nigeria-administrative-map.htm

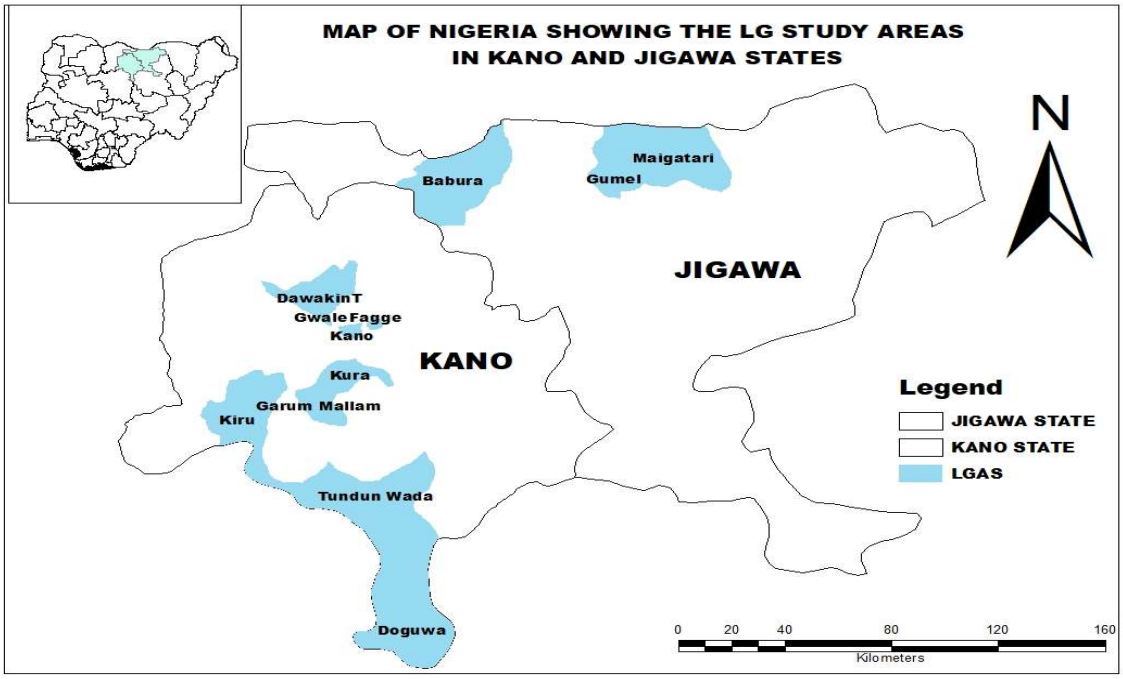

Figure 11 Map Kano and Jigawa states with Local Government Areas covered during the research © Umar Idris Mukhtar 2023

3.2 Data collection technics

The data for this study was obtained in several area as primary data and secondary data

Purposive sampling method was used to collect the primary data based on the traditional background and activities of the selected locations, the areas selected for an interview represents communities with popular hunting and wildlife professions and trade in the parts in the study area, while on the other hand Airport and Land border were the strategic places chosen in addition to environmental and wildlife policing organizations for the questionnaire. The main goal of purposive sampling is to identify the cases, individuals, or communities best suited to helping you answer your research question. For this reason, purposive sampling works best when you have a lot of background information about your research topic (Nikolopoulou, 2022).

3.2.1 Primary data

The primary data was obtained in phases as follows.

Field visit research to the selected local government areas of Kano and Jigawa states where direct Semi-structured interviews was conducted with local wildlife stakeholders who were predominantly hunters and wildlife traditional medicine traders, that have directly or indirectly partaken in wildlife harvest and transactions to analyse the supply chain actors and local drivers of the demand in vultures and its parts in and outside Nigeria. A semi-structured interview is a qualitative research method that is good at revealing people's knowledge, views, understandings, interpretations, and experiences, especially their situational aspects (UKEssays, 2018). The interview questions therefore focused on Vultures based on harvesting/hunting and demand by the relevant actors that included traditional medicine traders for their trade activities and individuals with specific needs, the questions covered all the body parts supplied or sold, source country/region, destination customer type and amount.

Another survey research through administration of questionnaires to enforcement officials which involved; the Nigeria's designated CITES enforcement authority, the National Environmental Standard Regulations and Enforcement Agency (NESREA), North western zonal headquarters located in Kano and other associated enforcement agencies at Aminu Kano international Airport which included Nigeria Customs Service (NCS), Nigeria Immigration Service (NIS), National Drug Law Enforcement Agency (NDLEA), Keystone Plastic Surface

Mount Box (KSSMB), Standard Organization of Nigeria (SON), Skyway Aviation Holding Company (SAHCO), and Nigerian Agricultural Quarantine Services (NAQS). In Jigawa State, international land border associated agencies were interviewed they included, the NCS, NIS, and NDLEA to assess the level of awareness and efficacy of control measures (enforcement action) regarding international trade in vultures and other wildlife specimens. The questionnaire contained a structured interview where there was a predetermined list of questions, which do not completely permit deviations from the sequence of questions, or the language used as described by (Militaru, 2020). Brief introduction to CITES was always carried out to the targeted stakeholders including both local hunters, traders and enforcement officials which educated them about CITES and its regulations, sensitization awareness and education materials were distributed to the stakeholders and the public. The details of the interview and questionnaire are provided in the list of appendices.

3.2.2 Secondary data

Secondary data involved review of previous research papers, thesis, published journals and technical reports. The Literature review focused mainly on domestic and international trade in vulture specimen for traditional medicine and belief-based use, Multispecies Action Plan to Conserve old word vultures. as well as the review of the Nigeria's CITES regulation and its application on vultures and efficacy of trade control. This data is regarded as a secondary data.

3.3 Data analysis

An excel software was used to arrange the collected interview and questionnaire data and generating of statistical charts. R Project for Statistical Computing (R-PSC) and Statistical Package for Social Sciences (SPSS) software was used to synthesised and analyse the Interview generated data while only R Project for Statistical Computing (R-PSC) software was used to analyse the data generated out of the questionnaire.

3.4. Research limitations

The aims and objectives of this research were initially formulated in a broad manner. To improve the level of focus on the research, the formulation of those aims and objectives were narrowed to achieve good results.

The adopted semi-structured direct interview was interpreted in the dominant local language (Hausa) of the study area and it was in most cases conducted one to one, because of which some responses were found to be ambiguous for interpretation, the responses were therefore refined and integrated into a common meaning for easy analysis. UKEssays, (2018) discovered that one to one interviewing has some but limited ability to create a desirable context, particularly, in research looking at people's interactions or how people respond in social context, where group interviewing might be a more powerful approach, interviewees might just say what they want to let us know rather than what we intent to know.

In the questionnaire administered, it has also been observed that some of the respondents have two or more views on a particular question with options, meanwhile questions with two responses were disqualified to a single response to avoid defeating the purpose of this research.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1. Interview

The result of the analysis from the 28 communities and markets visited indicated that hunters and wildlife traders were predominantly the primary supply chain actors of vulture specimen, hunters interdependently source the specimen directly from the wild to meet demand of either the wildlife traders as retailers or prescribed the vulture specimen to people with specific needs in form of traditional medicine. The socio-demographic features of the respondents also indicated that Males constituted 94%, the overall ages of the respondents fall between 37- and 58-years age group 50-52 years were the most active in the profession constituting 30% of the survey see table i and Figure 12

Table i: Age of Respondents © Umar 2023

Age of respondents	Frequency	Percentage (%)
37 – 40	5	10
41 – 43	7	14
44 – 46	6	12
47 – 49	9	18
50 – 52	15	30
53 – 55	3	6
56 – 58	5	10
Total	50	100
Minimum	37	
Maximum	58	
Mean	48	
Standard Error	0.7624	

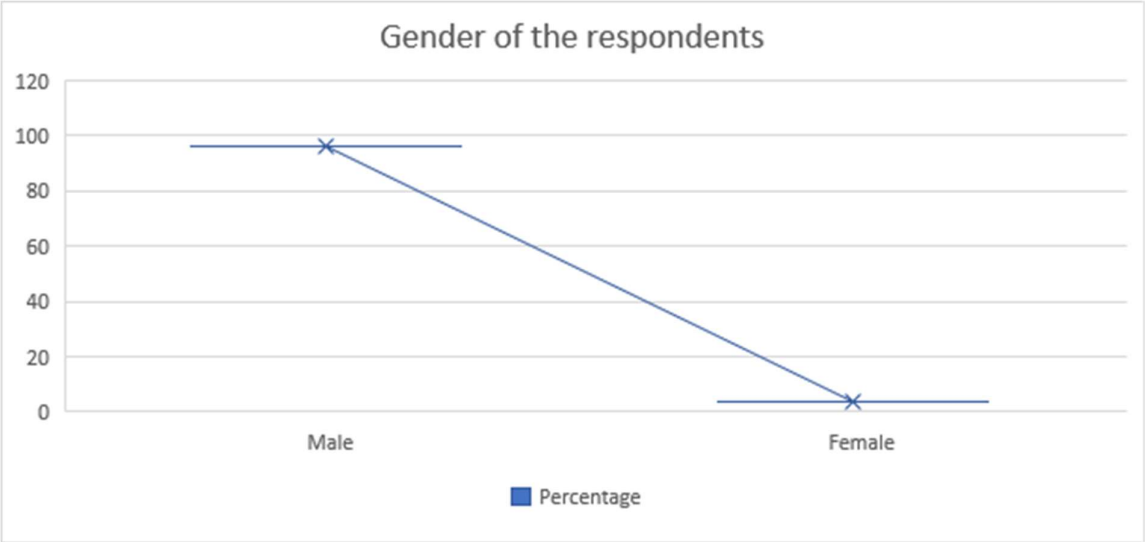

Figure 12 Gender of the respondents © Umar, 2023

4.1.1 Role Played in the wildlife business/profession.

As any other traditional organizations wildlife transaction involves a structure of personnel with collective and individual responsibilities or roles. It was observed in the study area that hunting is a traditional profession engaging different personnel with roles that are integral to operation of the profession from *Sarkin-Baka* (Hausa interpretation of Bow Master) who serves as the overall regional head of hunters to *Baushe* (professional hunter) and *Kaura* (ordinary hunter),

The result of this finding shows that hunters constituted 50% of the respondents, 34% engaged purely on wildlife trade, 10 % played the role of both hunting and prescription of traditional medicine to the people with specific needs, 4% served the dual purpose of hunting and wildlife trading while 2% of the survey represented a wildlife trader who retired from hunting as indicated in table ii

It was also observed across the study area that all the categories of the hunters may in one way, or the other serve the role of '*Yar Mai-ganye* or '*Yan Ina-da-ganye* a common name (in Hausa dialect) attributed to the people who source, prepare, and prescribe traditional medicine to the public in the study area. They are in some cases often referred as 'Yan-Shimfida as demonstrated by (Ibrahim et al., 2010) that in northern Nigeria, 'Yan-shimfida is the name in

dominant Hausa dialect commonly given to the people who source, prepare, and dispense remedies made from plants, animals, and minerals.

Further information gathered from the interview revealed everything associated with vulture is being used or prescribed for a particular specific purpose which is mainly belief-based or superstitious, for instance a hunter who at the same time played the role of '*Yar-mai-ganye'*disclosed that vulture nests is being used as an important ingredient for a traditional medicine prescribed to chase away devils. Evidence of vulture nest crushed with elephant dung and other wildlife parts can be seen in photos (Plate 1) below.

Plates

Plate 1. A hunter/traditional medicine prescriber on display of various wilslife parts including vulture nest at the study site © Umar 2023

Plate 2: Group photos with some of the respondents at the study area including cabinet of Sarkin-Baka (Bow master) of Kura ward at his office on top of the upper left photo. Where he prepares and prescribes traditional medicine as written on the front wall (in Hausa language)

Table ii Role played in the wildlife business/profession. © Umar 2023

Roles played	Frequency	Percentage(%)
Hunter	25	50.0
Hunter/Traditional herbalist/medicine provider	5	10.0
Wildlife trader	17	34.0
Wildlife trader/Former hunter	1	2.0
Wildlife trader/Hunter	2	4.0
Total	50	100.0

4.1.2 Methods of starting the wildlife business profession.

It was also observed in all the communities visited 86% of the respondents expressed that they inherited the profession from their parents or grandparents, 12% runs wildlife business as family profession and 2% partake in the business because of personal interest (table iii). Finding of (Daniel, 2019) also confirmed that many rural communities in Nigeria depend on wildlife for shelter, food, other ecosystem goods and services and the fulfilment of critical ecological functions that are important for the web of life and its associative or supportive systems.

The result had also suggested that significant number 66% of the respondents found themselves in the business since young age (figure 13) with 60% operating the business as their primary source of income see figure 14.

Table iii Methods of starting the business/profession. © Umar 2023

Methods	Frequency	Percentage(%)
Family business/profession	6	12.0
Inherited	43	86.0
Interest	1	2.0
Total	50	100.0

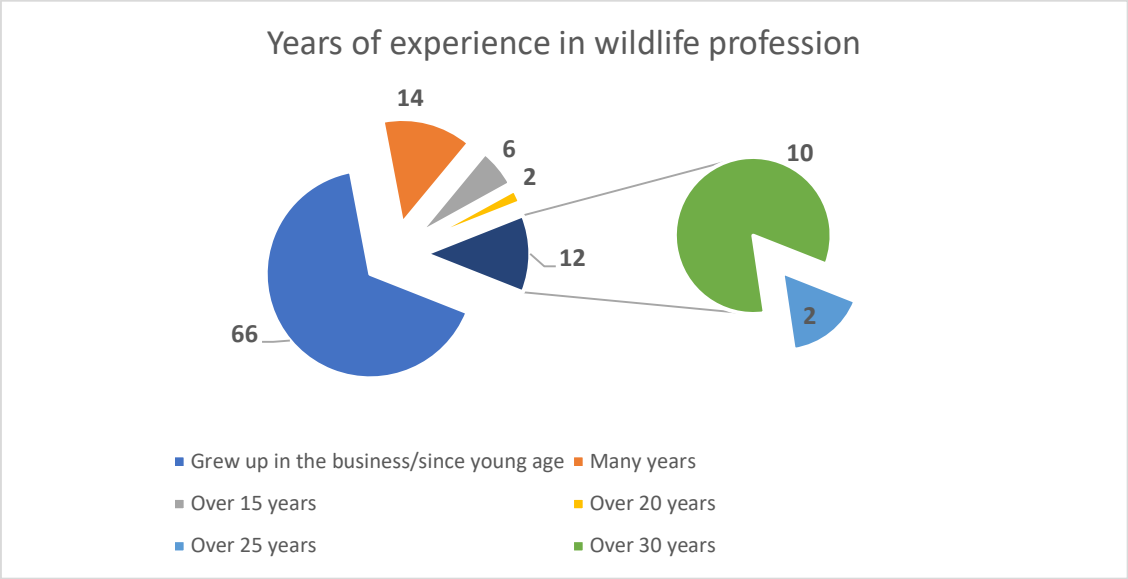

Figure 13 Chart presenting respondent's years of experience in the wildlife business/profession. © Umar 2023

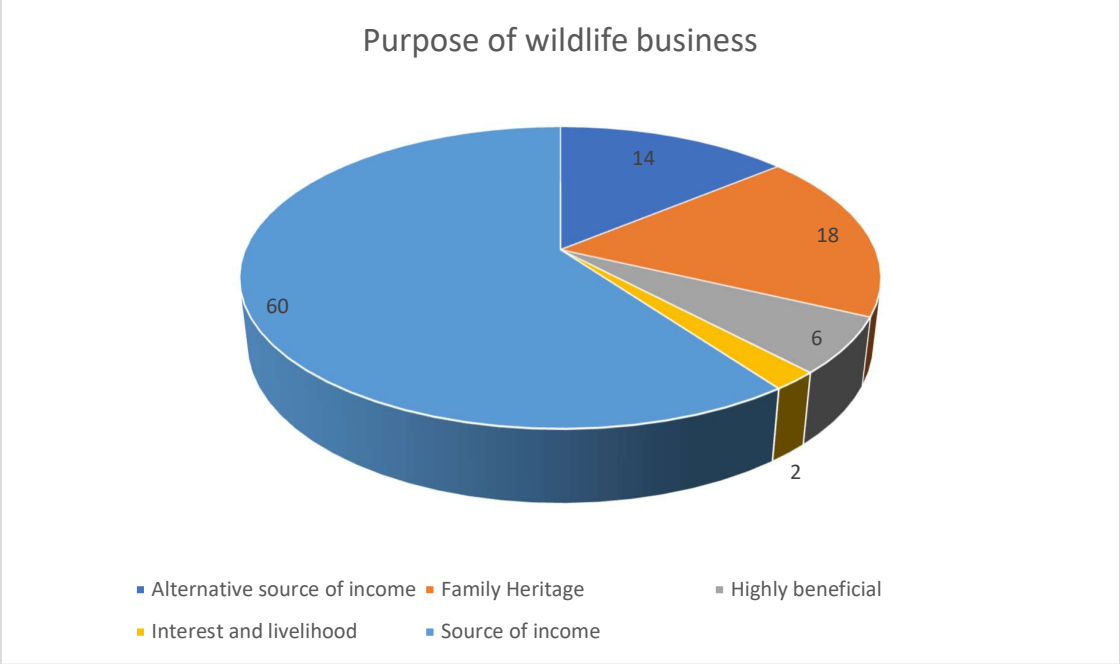

Figure 14 3-D Pie chart displaying proportions of the respondent's purpose of wildlife business © Umar, 2023

Figure 14: 3-D Pie chart displaying proportions of the respondent's purpose of wildlife business © Umar, 2022

The findings showed that trade in vulture trade specimen is very high with 68% directly or indirectly engaged in supply and or prescribing vulture specimen Fig 15a & b, table iv and figure 16 shows frequency and percentages of respondent's use and or supply of wildlife and vulture products respectively.

Table iv Respondent's use/supply of wildlife product

Used/Supplied	**Frequency**	**Percentage(%)**
Used/supplied	50	100
Not used/supplied	00	00
Total	50	100

© Umar, 2023

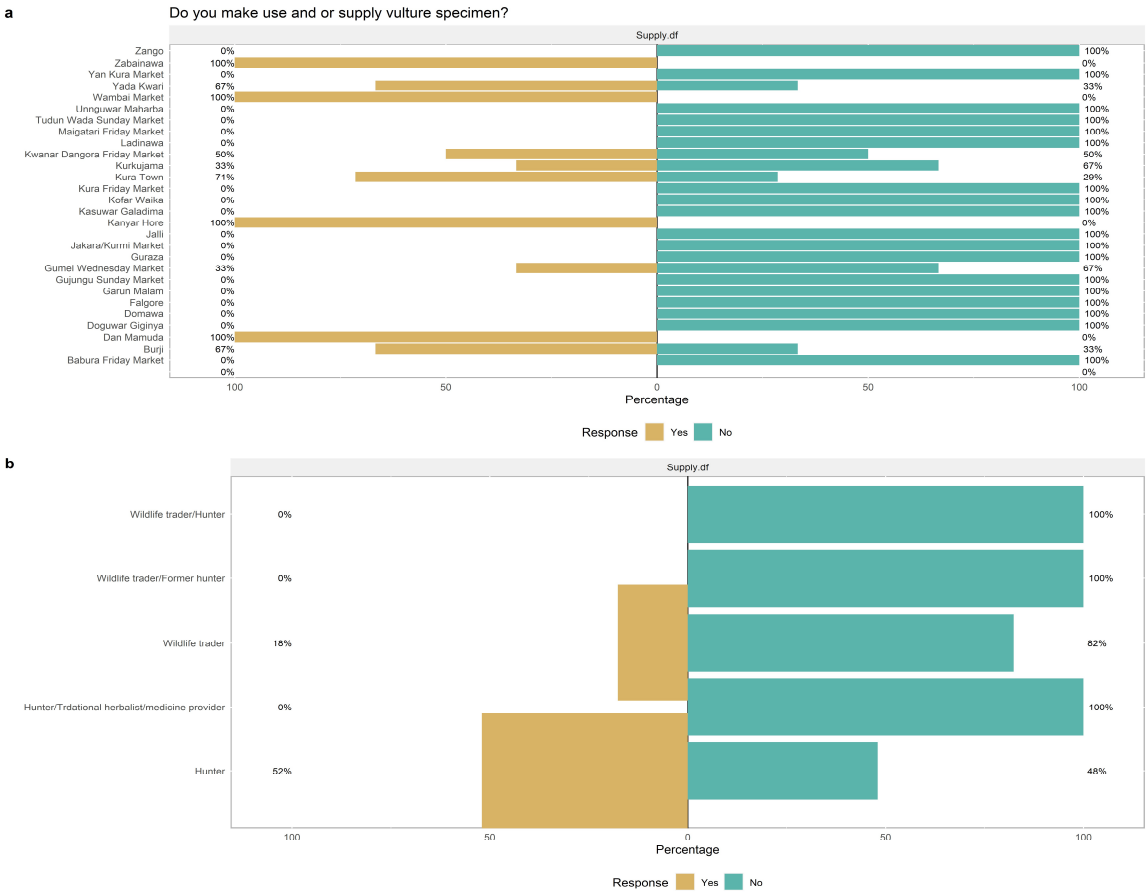

Figure 15 3-D Pie chart displaying proportions of the respondent's purpose of wildlife business © Umar, 2023

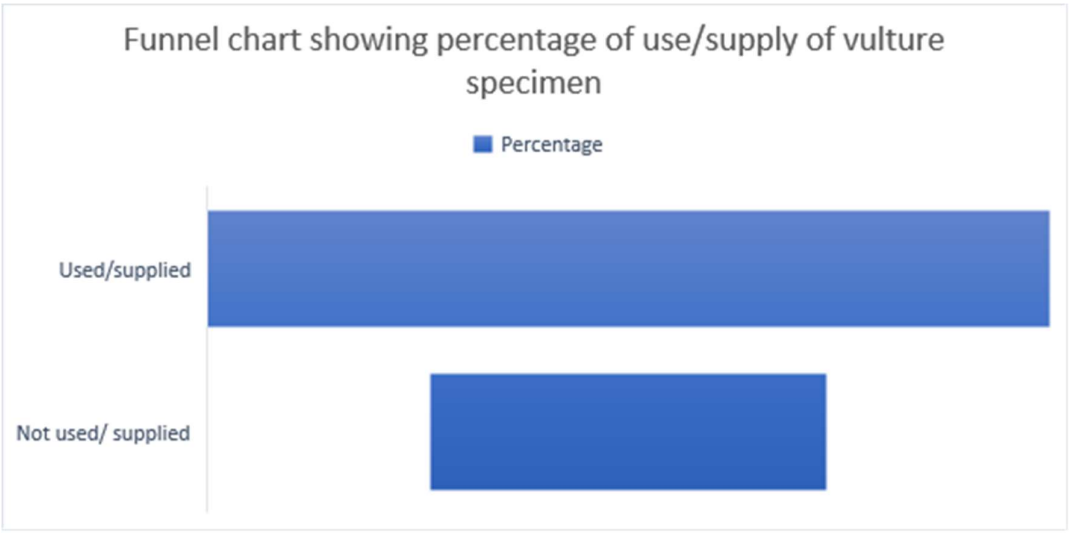

Figure 16 Summary respondent's use and supply of vulture specimen from the 28 local communities including markets © Umar, 2023

4.1.3 Importance of vulture in the business

It was discovered from the results that all the respondent's (table v) believed that vulture specimen is being used in traditional medicine. The results also indicated demand in vulture specimen is mainly occasional figure 16a&b displays the frequency of demand in vulture across the study area with occasional demand displaying stronger effect.

Table v Importance of vulture specimen

Importance	Frequency	Percentage (%)
For medicine	50	100
Total	50	100

© Umar, 2023

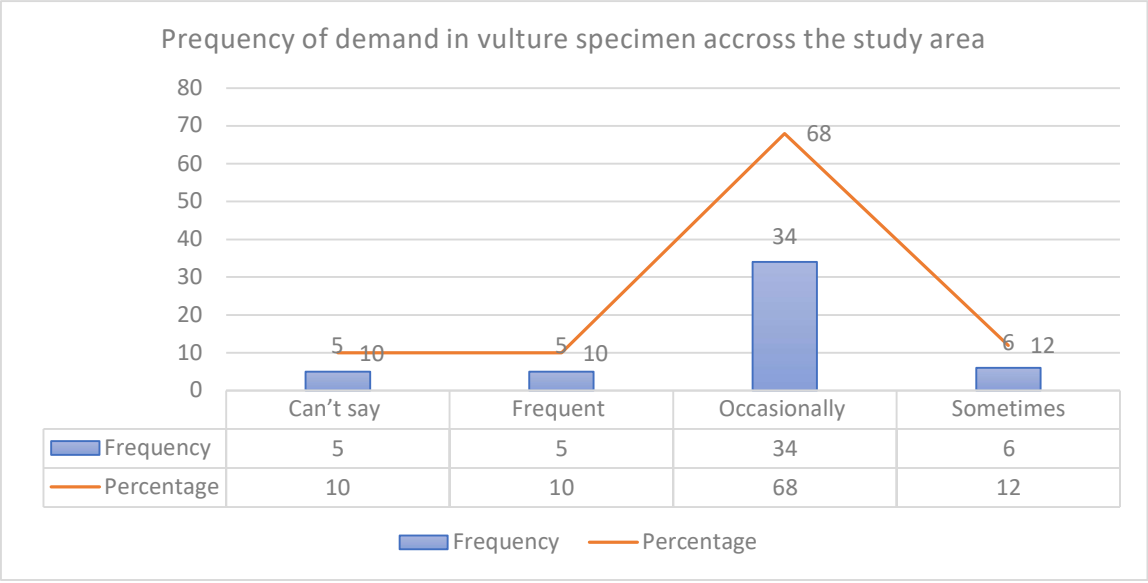

Figure 17 Frequency of demand in vulture specimen © Umar 2023

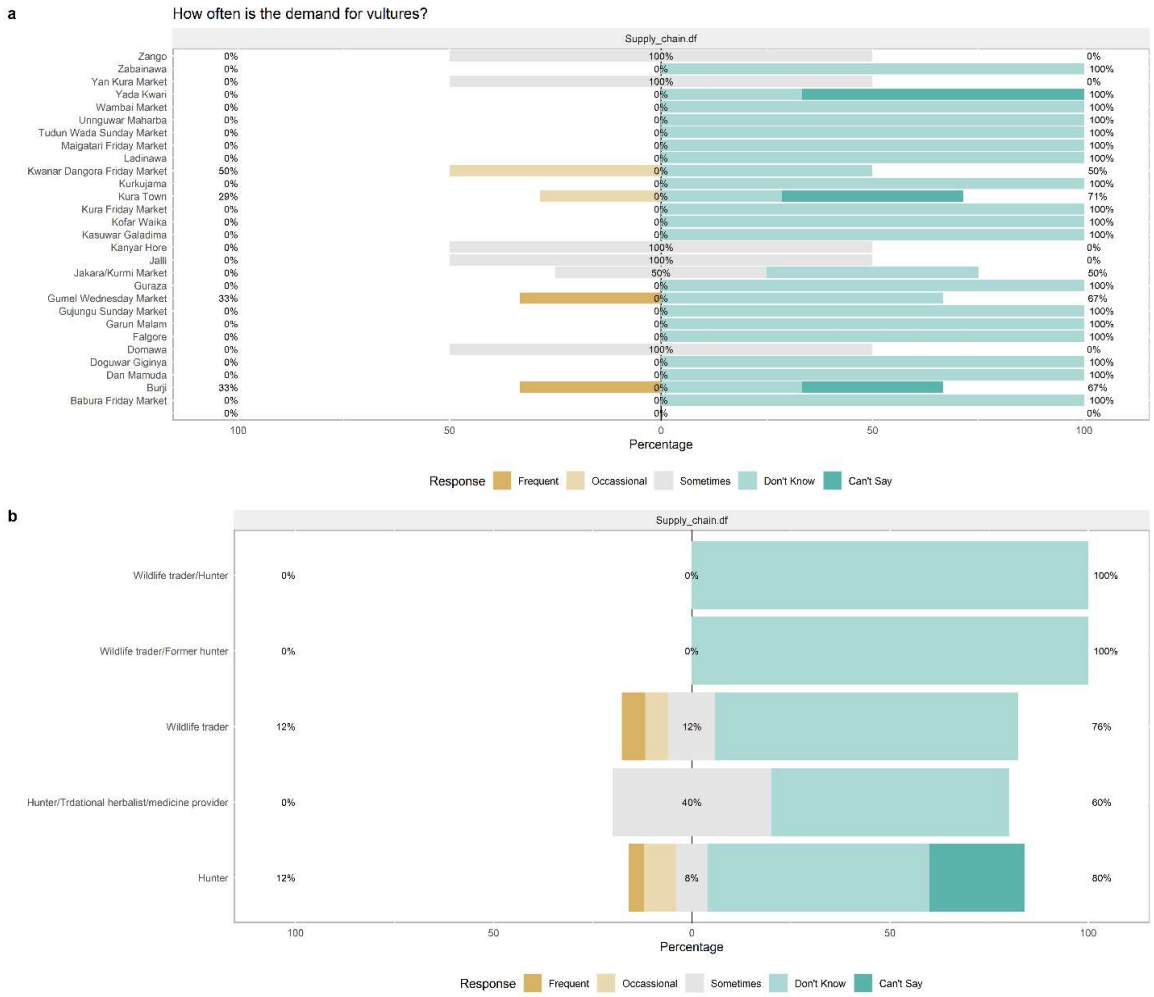

Figure 18 Chart showing demand effect across the study area (Generated from R-PSC). © Umar 2023

4.1.4 Category of people in demand for vulture specimen and places they come.

The overall responses of the stakeholders indicated that hunters, wildlife traders and traditional herbalist constituted 50% of the category of people in demand for vulture specimen, though a significant proportion representing 30% of the respondents refused to disclose demand categories, other 20 % were people with specific need, sick people, pettish traders etc. the results did not provided clear definition of where the demanders come from, 66% of the category were reported to have come from everywhere and the remaining 34% were not disclosed, however the overall data have indicated that frequency of demand in vulture specimen at the study area constituted 90% of the survey as shown in figure 17 above and 66% of category of the people in demand where identified by the respondents to have come from everywhere while the remaining 34% remain undisclosed. Traditional stakeholders refusal to disclose some information's may not be concluded as deliberate action because the submission

of (María & Rubiano, 2021) discovered that in Nigeria, healers belonging to the Nigerian traditional Healers Association don't mind talking openly about their practice, it may however depends on the nature of the research conducted, the targeted audiences and the location. Table vi and vii shows the frequency and percentages of people in demand for vulture specimen and places they come from respectively.

Table vi People in demand for vultures

People in Demand	**Frequency**	**Percentage (%)**
Can't say	15	30
Interested people (Hunter, wild traders & herbalist)	25	50
Men and women	1	2
People with specific need	8	16
Sick people & pettish traders	1	2
Total	50	100

Table vii Places of people that demand for vulture come from

Places	**Frequency**	**Percentage(%)**
Can't say	17	34
Every where	33	66
Total	50	100

4.1.5 Sources and ease of meeting the demand of vulture specimen.

The result regarding ease in demand for vulture specimen is seen in table viii in which 60% were on the believe that meeting the demand in vulture specimen is not easy, the result also found out that vultures were visibly not present at the study area for long however, (Ringim. et al. 2022) have recently submitted that only one vulture was detected during transect surveys in Northern Nigeria. this research therefore discovered that the specimen are either sourced elsewhere in the countries geopolitical zones like north central and southern Nigeria 40.6 %, from cross border like Benin, Niger and Burkina Faso 21.8% or among the traders and hunters 23.4% (see figure 17), previous literature supported that Vulture carcases are sourced from various countries of west Africa including Niger to northern Nigeria (Saidu & Buij, 2013), the birds has loss their strongholds around Katsina (a state sharing border with Kano and Jigawa) hence are sourced from far areas for trading (Muhammad & Mustapha, 2020).This finding however is contrary to the submission of Akingboye, (2017) who demonstrated that vultures are widely sourced from Northern Nigeria to meet the demand of the Southwestern part of the country for traditional medicinal purposes. The result also shows that the demand and supply is not species specific as seen in table ix.

Table viii How easy is meeting the demand in vulture specimen.

Ease of meeting demand	Frequency	Percentage (%)
Can't say	11	22
Easy	9	18
Not easy	30	60
Total	50	100

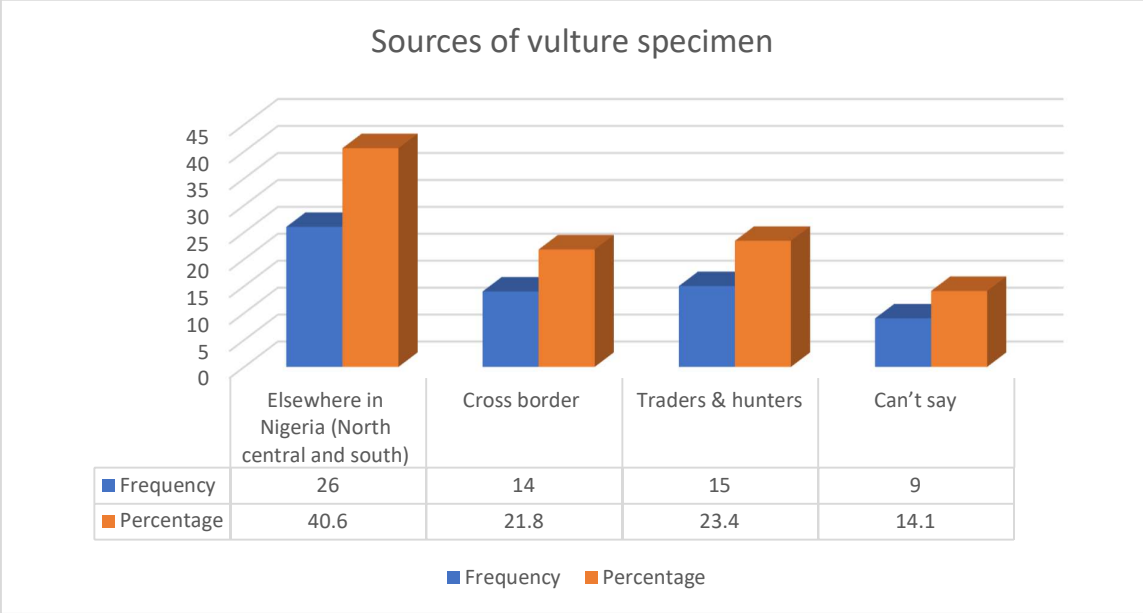

Figure 19 Histogram presenting sources of vulture specimen (multiple responses) *(n=50) © Umar, 2022)*

Table ix Species of vulture that is demanded most.

Species	**Frequency**	**Percentage (%)**
No specie specific	33	66
Don't know	17	34
Total	50	100

© Umar, 2023

4.1.6. Cost of vulture specimen across the study area

Result of this finding revealed that about 80% of the interviewee refused to categorically disclose the actual cost of vulture specimen, only few 20% disclosed the range of the cost of the whole live vulture falling between 200,000, 300,000 and 500,000 naira. Figure 18 is a clustered chart showing responses on the cost of vulture specimen.

The result further indicated that 34% of the respondents expressed the fact that the cost of vulture specimen is dynamic depending on the availability of specimen in need and intensity of demand, for instance a hunter expressed that a person once offered him three million naira to supply freshly laid eggs of vulture, this finding was supported by previous literatures; there

is clear link between the preference for different parts of vultures and prices paid by consumers (McKean et al., 2013) the cost of parts required by herbalists varies with the demand and the severity of the ailment to be treated (Saidu & Buij, 2013).

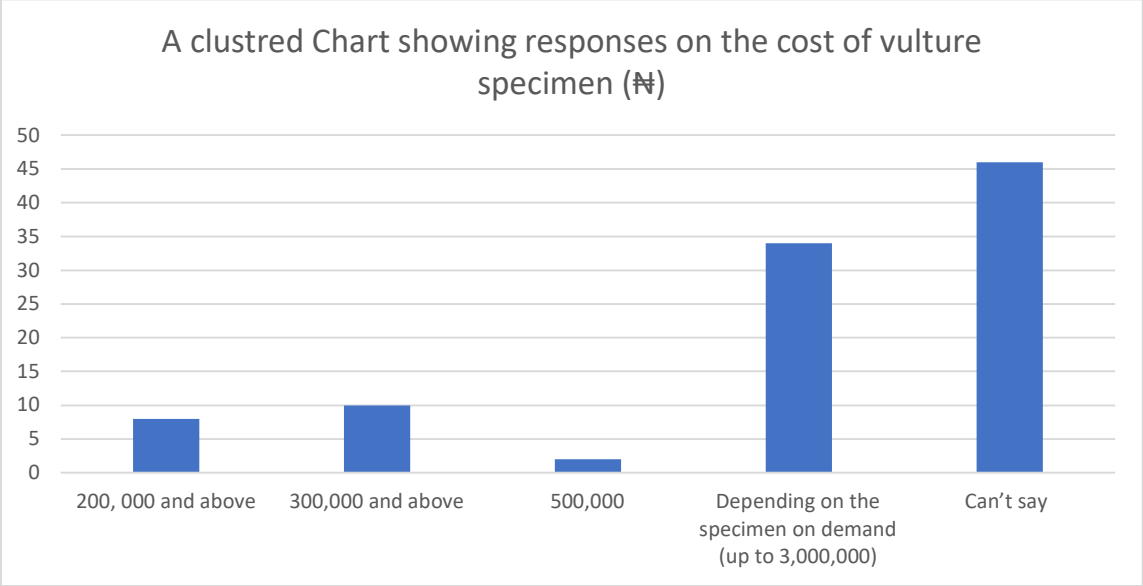

Figure 20 Figure 18: Clustered chart showing responses on the cost of vulture specimen across the study area © Umar, 2023)

From the above results, though the places where people in demand for vulture specimen where not categorically spelt out by the respondents, the high demand in vulture specimen across the research area, in which the demand was generally high 90% (Figure 17), as a result of which the suppliers sourced the specimen elsewhere in the country's geopolitical zones 40.6%, and cross border countries (21.8%) as indicated in figure 19, the variation in cost of the specimen which also depended on the specimen availably and intensity or desire of the people in needs (demand factor) shows that the demand was elastic, this have therefore revealed mismatch in the supply and demand in vultures specimen. A supply and demand mismatch, or imbalance of the amount of supplies with their need in the market, is always an issue and can happen along any sequence of any supply chain. (Olga, 2020). Conversely, the law of supply says higher prices boost supply of an economic good while lower ones tend to diminish it (Fernando 2023)

4.1.7 Sustainability of harvesting/hunting/trading in vulture and other wildlife specimen

As provided in the table 10 below all the respondents were on the believe that vulture and wildlife trade is not sustainable. It was also noted from the result as indicated in table 11 over 90% of the respondents opined provision of alternative livelihood, supporting poor people and

eradication of poverty as the effective way of reducing pressure on vulture and wildlife business see tables below. similar opinion was also seen in Sogbohossou *et al*. (2020) who recognized needs to raise local people's awareness of the opportunities provided by endangered species and promote alternative activities to reduce pressure on endangered species and also encourage collaboration between local and national actors. (Muhammad & Mustapha, 2020) also recommended the need to sensitize the public on the importance of conservation of vultures in order to scale down the rate at which the species and its part are harvested in the study area and Nigeria at large.

Table x Sustainability of vulture and wildlife business

Sustainability	**Frequency**	**Percentage (%)**
Sustainable	0	0
Not sustainable	50	100
Total	50	100

© *Umar, 2023*

Table xi Ways for sustainability of the business by government and public © *Umar, 2023)*

Ways	**Frequency**	**Percentage (%)**
Provision of alternative means of livelihood	2	4
Eradication of poverty	36	72
Support to the people	8	16
Don't know	4	8
Total	50	100

4.2. Statistical Analyses of vultures conservation knowledge and efficacy of trade control among enforcement stakeholders

The generated data of the questionnaire were arranged and refined using excel software and analysed using R Project for Statistical Computing (R-PSC) the results are presented as follows.

4.2.1. Knowledge of stakeholders on the conservation needs for vultures.

This research wanted to understand level of knowledge across organizations and/or locations on the need to conserve vultures. And the result revealed a strong effect (SW= 0.880, AIC = 724) of organizations on the level of knowledge of stakeholders' ability to conserve vultures, indicating that relevant agencies for wildlife enforcement and Airport/border control law enforcement organizations needs to be prioritizing the training of their personnel to improve their understanding of the importance of vultures as well as overall wildlife conservation and trade regulations

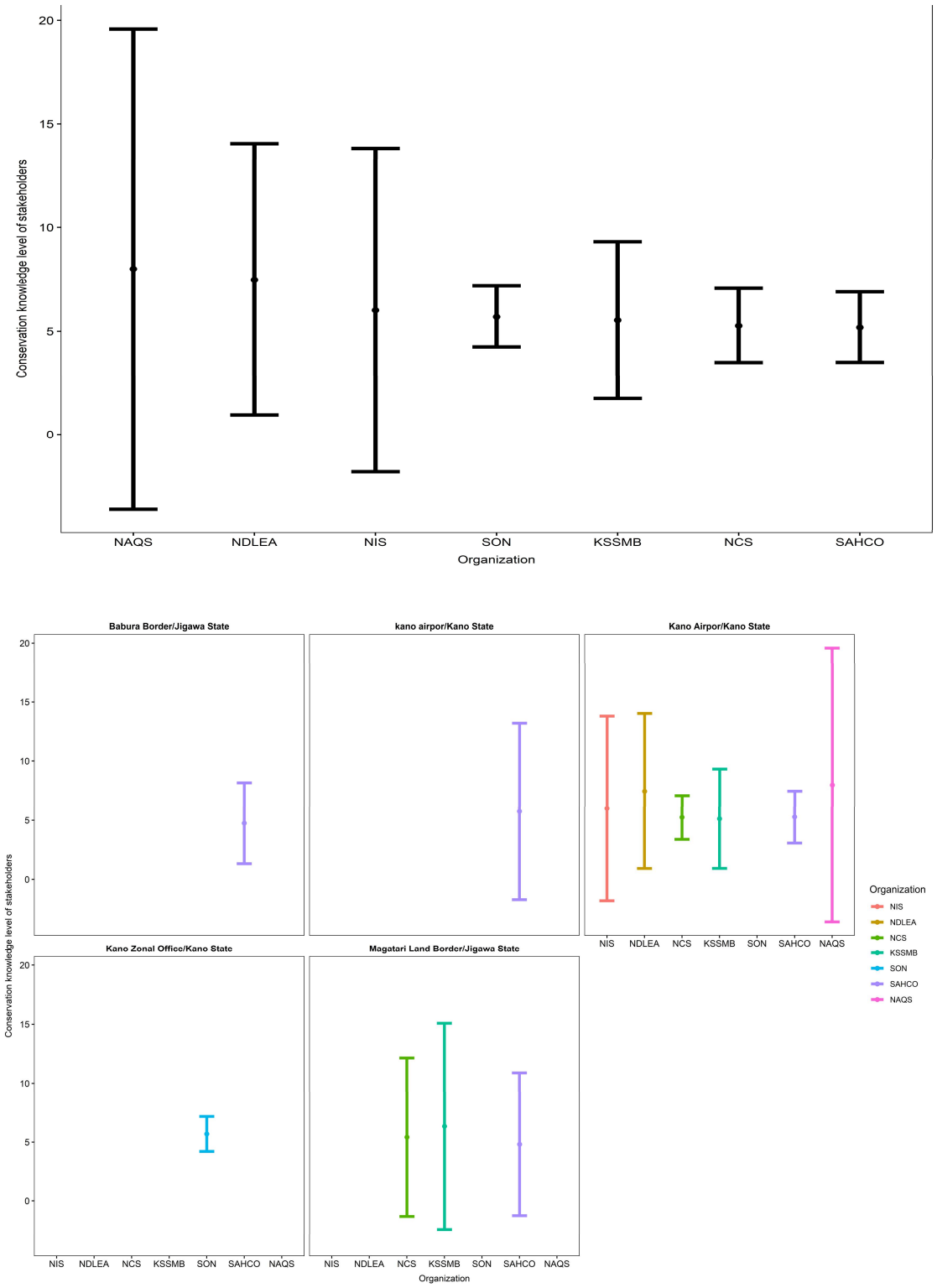

Figure 21 Charts showing level of knowledge across enforcement organizations and/or locations on the need to conserve vultures ©Umar, 2023)

4.2.2. Perception of stakeholders on the importance of local CITES regulations and its effect for the conservation of wildlife.

Result of the above findings showed that irrespective of locations or organizations, the importance of Nigerian domesticated CITES regulations (ESA) for wildlife conservation received strong perceptive support from the associated law enforcement agencies at NESREA Zonal office, International Airport and border control in Kano and Jigawa States, Nigeria (SW= 0.895, AIC = 494.4). However, the conservation priorities and trade control of vultures showed a non-significant pattern with locations (Figure 2) in Kano State, which may indicate the peculiarity of vulture conservation across Northern Nigeria.

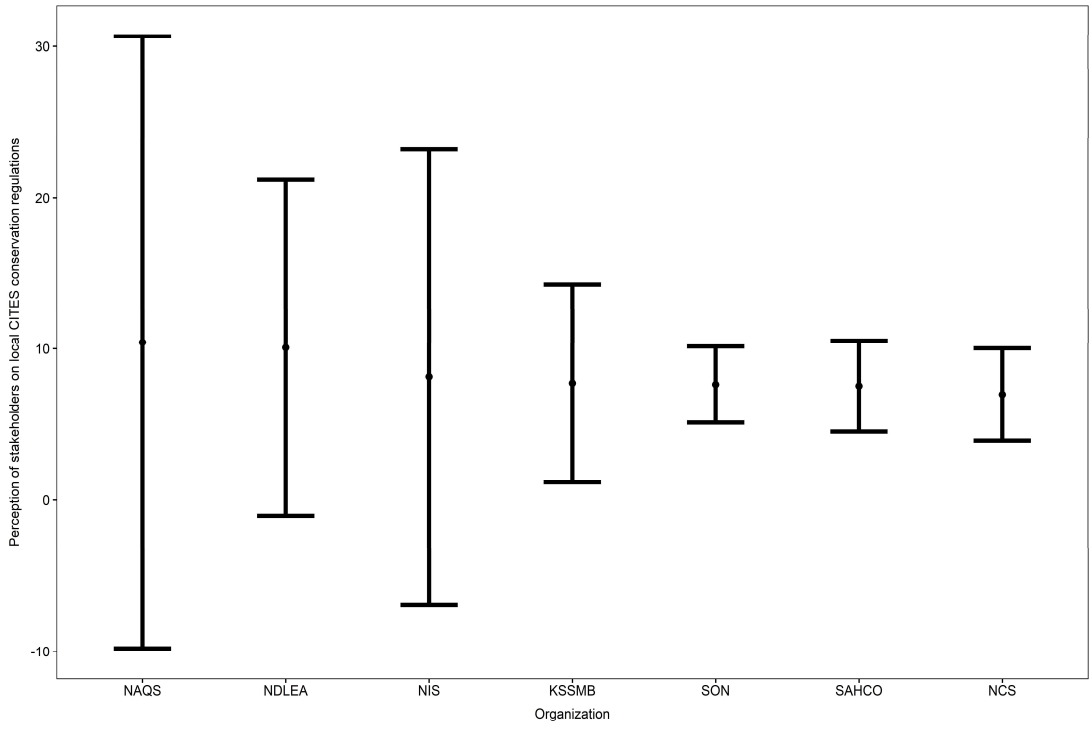

Figure 22 Fig 20a: Chart showing perception of stakeholders on the importance of local CITES regulations and its effect for the conservation of wildlife © Umar, 2023.

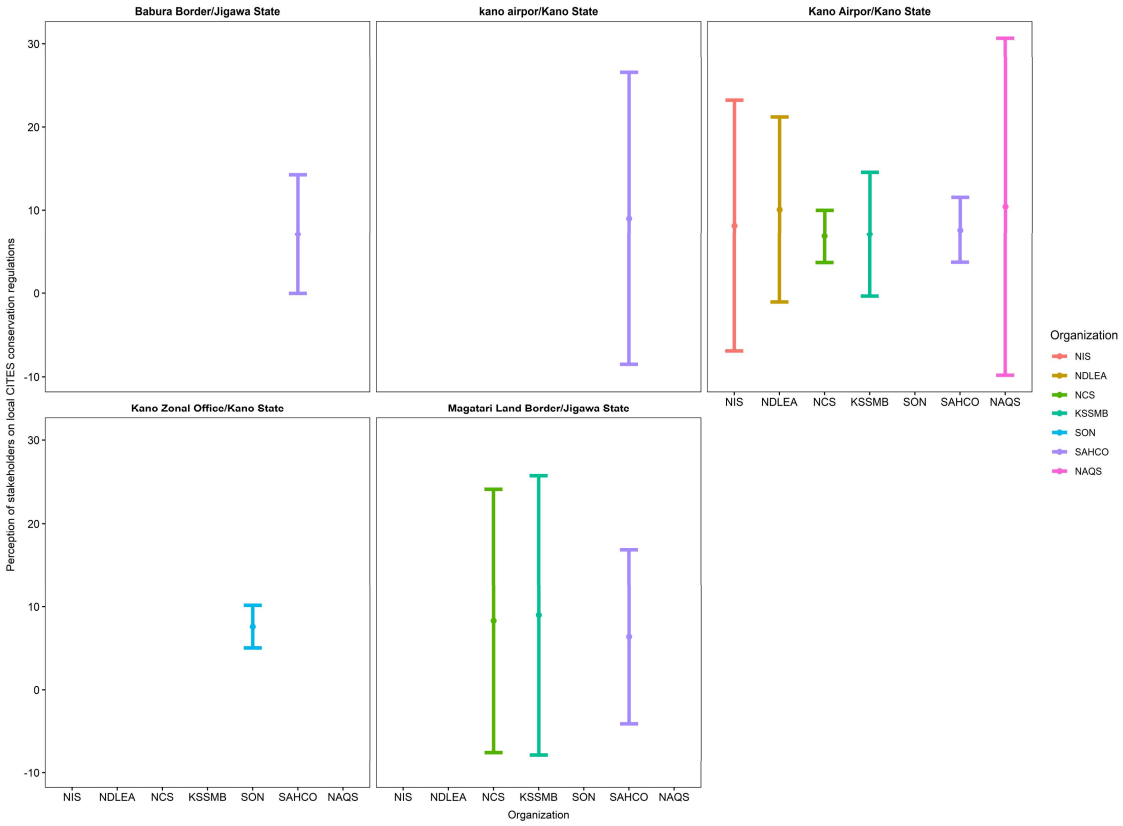

Figure 23 Chart showing perception of stakeholders on the importance of local CITES regulations and its effect for the conservation of wildlife © Umar, 2023.

4.2.3. Management and intervention levels for vultures' conservation

This research work also wanted to understand intervention levels for vultures' conservation in Kano and Jigawa States of the Northern Nigeria. indicated a strong effect (SW= 0.880, AIC = 724) of organizations on the intervention levels for vultures' conservation, suggesting that conservation and border control law enforcement organizations might be prioritizing different intervention levels for vultures' conservation status (degree of protection) as contained (Schedule I) in the Nigerian domesticated CITES regulations (ESA). It is obvious that ineffective enforcement of the national legislation is limiting Nigeria's attainment of CITES compliance (i.e. its national obligations under the Convention). This could be attributed to lack of adequate knowledge and awareness of CITES and the ESA (John, 2019). Nigeria Federal Ministry of Environment, (2019) also discovered that the level of CITES knowledge was generally low at Murtala Mohammed Airport Lagos and suggested a complementary assessment by national authorities at land boundary border posts to collect further data.

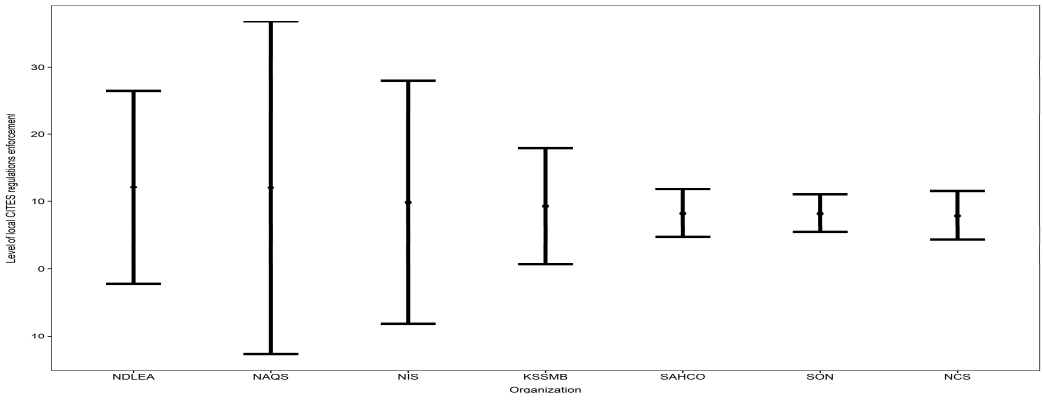

Figure 24 Chart showing management and intervention levels for vultures' conservation. © Umar 2023

Nigeria's ESA provides that; as from the commencement of the Act, the hunting or capture of or trade in the animal and plant species specified in the First Schedule to the Act (being wild animal and plant species that are endemic to Nigeria or otherwise considered to be threatened with extinction) is prohibited. Trade in specimens of these species may be conducted under exceptional circumstances. (See detail of the Regulation of trade in the species specified in the first schedules of the ESA in Annex III)

It was discovered in this study that regulations in vultures' transaction in Nigeria were given misplaced priorities by the enforcement officials at the control posts and this is because of limited or lack of proper knowledge about vulture protection in the CITES provisions and procedures. In addition to institutional issues or lack of resources which plays role as the major constraints to enforcing CITES. The main problems identified in (Sogbohossou *et al*., 2020) includes: lack of knowledge about CITES and CITES procedures; lack of financial support; corruption / weak judicial system; lack of synergy between implementing institutions and conflicts of attribution; porous borders; lack of / insufficient equipment. There is need for additional basic capacity building and more advanced training on wildlife trafficking both nationally and cross border (Nigeria Feredal Ministry of Environment, 2019) It is worth noting that enforcement interventions play a critical role in stemming illegal trade in specimens of species included in CITES Appendices, but bearing in mind that, without a complementary efforts to address the persistent market demand that drives this trade, enforcement action alone may not be sufficient to eliminate these threats, therefore engagement in public awareness campaigns and sensitization on the need to involve the local communities and other critical stakeholders in the implementation and management of CITES in Nigeria is very important (John, 2019).

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

The results obtained in this research revealed that.

1. Hunters are the primary supply chain actors of vulture specimen who either directly source and prescribe vulture specimen to the individual people in demand or sold it to other wildlife traders in retail. And they are not aware of the provision of laws prohibiting trade in vulture specimen.
2. Not only vulture parts, but anything also associated with vultures including eggs and nests are being used in the traditional medicine industry. This signifies additional dangerous threat to complete wiping away of the species.
3. Vultures are completely absent in the research region (North-western Nigeria) long time ago, however the suppliers sourced vulture elsewhere in the country (North central and Southern Nigeria) and transborder (Benin Republic, Cameroon, Niger etc.) to meet demand of the consumers who were revealed by most of the respondents to have come from everywhere.
4. The demand in vulture specimen was elastic, and conclusively revealed mismatch in the supply chain, though in most cases the demand was found to be occasional but very high.
5. Overall assessment of enforcement agencies also indicated limited knowledge of Nigeria's CITES regulations and its provision on vultures, indicating that relevant agencies for wildlife enforcement and Airport/border control law enforcement organizations needs to prioritize the training of their personnel to improve their understanding of the importance of vultures and wildlife conservation as well as trade regulations in general

5.2 Recommendations

- ✓ The general recommendations opined by the primary stakeholders involved in this research was advising government to reduce poverty and provide alternative source of income to the local communities/stakeholders.
- ✓ The hunters who were identified as the primary supply chain actors needs to be engaged in the policy and crime prevention through sensitization, training and empowerment
- ✓ In addition to uplifting vultures' protection/conservation status in the national legislation, governments should ensure its practical application by intensifying training and aggressive awareness on the essentials services the birds provide in our ecosystems and environment.
- ✓ Nigeria Ministry of Environment needs to strengthen government policy on domestic and international trade in vulture specimen by developing a National Vulture Action Plan.
- ✓ Nigeria enforcement agencies should be well informed on the provision of CITES regulation on vultures especially Nigeria's Endangered Species Act and work collaboratively to adhere strictly to the provision of the regulation for effective implementation, overlaps of responsibilities and lack of synergy among enforcement agencies in Nigeria must also be addressed,
- ✓ Social participation in vulture education and awareness campaign should be encouraged by engaging learning institutions, traditional rulers, and local communities.
- ✓ Standardized Management and strict control in vulture transaction must be in place.

REFERENCES

Abayomi, F.O. (2017). Review of Compliance To Cites in Nigeria. *A Thesis Presented to the International University of Andalucia (UNIA) In Partial Fulfillment of the Requirements for CITES Master's course. March, 2017*. Accecced from https://www.researchgate.net/publication/318792697_REVIEW_OF_COMPLIANCE_TO_CITES_IN_NIGERIA_MASTERS_RESEARCH_THESIS_Felix_Olusola_ABAYOMI_NIGERIA

Akingboye, B. O. (2017). Nigerian vultures face extinction. Retrieved November 2022 from The Guardian Nigeria News - Nigeria and World News — Property — *The Guardian Nigeria News* – Nigeria and World News.

Ahmed, S. (2022). *Traditional* Beliefs and Institutions for the Conservation of Biodiversity in Ethiopia : A Review from a Conservation Perspective Traditional Beliefs and Institutions for the Conservation of Biodiversity in Ethiopia : *A Review from a Conservation Perspecti*. *January*, 0–5. https://doi.org/10.11648/j.ijnrem.20220701.11

Alves, R. N., Barbosa, A. A., Santos, S. L. D. X., Souto, W. M. S., & Barboza, R. R. D. (2011). *Animal-Based Remedies as Complementary Medicines in the Semi-Arid Region of Northeastern Brazil*. *2011*. https://doi.org/10.1093/ecam/nep134

Awoyemi, S. (2021). *Public defense of Stephen Awoyemi ' s PhD Dissertation : Vulture decline in Nigeria : A sociological study of trade in vulture parts for belief- based use*. Accessed from https://events.ceu.edu/2021-12-14/public-defense-stephen-awoyemis-phd-dissertation-vulture-decline-nigeria-sociological

Bamford, A. J., Monadjem, A., Anderson, M. D., Anthony, A., Borello, W. D., Bridgeford, M., Bridgeford, P., Hancock, P., Howells, B., Wakelin, J., & Hardy, I. C. W. (2009). Trade-offs between specificity and regional generality in habitat association models: A case study of two species of African vulture. *Journal of Applied Ecology*, *46*(4), 852–860. https://doi.org/10.1111/j.1365-2664.2009.01669.x

Bayero-Jimoh, M. (2020). Traditional beliefs and legal frameworks on environmental protection in accessing clean water in Nigeria. *Law, Religion and the Environment in Africa*, *July*, 81–94. Retrieved November 2022 from https://www.researchgate.net/publication/341906182

BirdLife (2021). Tackling Vulture Population Declines in West Africa, retrieved November 2022 from https://www.birdlife.org/news/2021/10/28/tackling-vulture-populations-declines-in-west-africa/.

Boakye, M. K., Wiafe, E. D., & Ziekah, M. Y. (2019). Ethnomedicinal use of vultures by traditional medicinal practitioners in Ghana. *Ostrich*, *90*(2), 111–118. https://doi.org/10.2989/00306525.2019.1578834

Bowerman, W. W., Hall, K. C., & Jr, W. M. S. (2010). Use Of Sub-Saharan Vultures In Traditional Medicine And Conservation And Policy Issues For The African Grey Parrot *(Psittacus erithacus) A Thesis Presented to the Graduate School of Clemson University In Partial Fulfillment of the Requirements for the D*. *December*.

Buij, R., Nikolaus, G., Whytock, R., Ingram, D. J., & Ogada, D. (2016). Trade of threatened vultures and other raptors for fetish and bushmeat in West and Central Africa. *Oryx*, *50*(4), 606–616. https://doi.org/10.1017/S0030605315000514

Botha, A. J., Andevski, J., Bowden, C. G. R., Gudka, M., Safford, R. J., Tavares, J. and Williams, N. P. (2017). Multi-species Action Plan to Conserve African-Eurasian Vultures. *CMS Raptors MOU Technical Publication No. 5. CMS Technical Series No. 35*. Coordinating Unit of the CMS Raptors MOU, Abu Dhabi, United Arab Emirates. 162 pp. ISBN 978-3-937429-23-6. Retrieved November, 2022 from https://www.cms.int/raptors/sites/default/files/publication/vulture-.

Brief history of kano state nigeria business directory. Available at: https://www.nigeriagalleria.com/Nigeria/States_Nigeria/Kano/Brief-History-of-Kano.html 2/10/23, 19:46

Britannica, T. Editors of Encyclopaedia (2010, July 26). Kano. Encyclopedia Britannica. https://www.britannica.com/place/Kano-state-Nigeria 2/10/23, 20:58

CITES (2022). What is CITES?, retrieved November, 2022 from https://cites.org/eng/disc/what.php.

CITES (2023). The CITES Appendices retrieved from https://cites.org/eng/app/index.php

CITES (2023) List of Contracting Parties | CITES retrieved January 2023 from https://cites.org/eng/disc/parties/chronolo.php

CITES (2023). The CITES Publications | CITES 10/02/2023 retrieved from https://cites.org/eng/resources/publications.php

Divittorio, M., Hema, E. M., Dendi, D., Akani, G. C., Cortone, G., Lopez-Lopez, P., Amadi, N., Segniagbeto, G. H., Battistf, C., & Luiselli, L. (2018). The conservation status of West African vultures: An updated review and a strategy for conservation. *Vie et Milieu- Life and Environment*, *68*(1), 33–43. Retrieved November, 2022 from 5-Di Vittorio 681.indd (uv.es).

Economy Kano State Government Official Website. Available at: https://kanostate.gov.ng/economy/ 2/10/23, 20:56

Ekott, I. (2022). *In Nigeria, a decade of payoffs boosted global Wildlife traffickin hub*. Retreived November, 2022 from https://news.mongabay.com/2022/03/in-nigeria-a-decade-of-payoffs-boosted-global-wildlife-trafficking-hub

Fernando, J. (2023, March 14). Law of Supply and Demand in Economics: How It Works. Investopedia. https://www.investopedia.com/terms/l/law-of-supply-demand.asp

Federal Deparment of Forestry, Government of Nigeria (2022). *National Strategy to Combat Wildlife and Forest Crime in Nigeria 2022–2026*. 85 pp. Retrieved November, 2022 from https://www.unodc.org/documents/nigeria//National_Strategy_to_Combat_Wildlife_and_Forest_Crime_in_Nigeria_2022-2026.pdf

Henriques, M., Granadeiro, J. P., Monteiro, H., Nuno, A., Lecoq, M., Cardoso, P., Regalla, A., & Catry, P. (2018). Not in wilderness: African vulture strongholds remain in areas with high human density. *PLoS ONE*, *13*(1), 1–21. https://doi.org/10.1371/journal.pone.0190594

https://www.britannica.com/place/Kano-state-Nigeria 2/10/23, 19:46.

https://en.wikipedia.org/wiki/Jigawa_State 02/10/2023

Ibrahim, J. A., Muazzam, I., Jegede, I. A., & Kunle, O. F. (2010). Medicinal plants and animals sold by the "yan- shimfidas" of sabo wuse in Niger state, Nigeria. *African Journal of Pharmacy and Pharmacology*, *4*(6), 386–394.

I.U.C.N (2021) *The IUCN Red List of Threatened Species*, *IUCN Red List of Threatened Species*. Available at https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22695250A205380033.en

IUCN. 2023. *The IUCN Red List of Threatened Species. Version 2021-3*. Available at; https://www.iucnredlist.org.

Jigawa Encyclopædia Britannica. Encyclopædia Britannica, inc. Available at: Zno-state-Nigeria (Accessed: March 11, 2023).

John, T. D. (2019). Assessing Awareness amongst Critical Stakeholders on the CITES implementation in Nigeria. *A Thesis Presented to the International University of Andalucia (UNIA) In Partial Fulfillment of the Requirements for CITES Master's course. 2019.Accessed from* https://dspace.unia.es/browse?authority=2432&type=author

Kendall, C., Patterson, G., & Williamson, J. (2018). *African Vultures SAFE Action Plan for 2018-2020*. https://assets.speakcdn.com/assets/2332/safevulture_actionplan2018-2020.pdf

Machado, N., & Loyola, R. D. (2013). A Comprehensive Quantitative Assessment of Bird Extinction Risk in Brazil. *PLoS ONE*, *8*(8). Available at https://doi.org/10.1371/journal.pone.0072283

Manigandan, S., Kannan, P., Byju, H., Bharathidasan S. and Ramakrishnan1 B. (2021). An Attitude Assessment of Vulture Conservation Among Three Generations of Residents of The Mudumalai Tiger Reserve, Tamil Nadu, Southern India. *Journal of Science and …*, *June*. https://doi.org/10.46243/jst.2021.v6.i3.pp88-96

Manja W. M., Tende T., Ottosson U., & P. Deikumah J. P. (2021). Abundance, distribution, and threats affecting hooded vultures in North-Central Nigeria. *Journal of Research in Forestry, Wildlife & Environment* Vol. 13(3): 125-135. Retrieved November, 2022 from https://www.researchgate.net/publication/357183943_Abundance_distribution_and_threats_affecting_hooded_vultures_in_NorthCentral_Nigeria_Journal_of_Research_in_Forestry_and_Environment

María' Paula R. A., (2021) Growing Demand for Vulture Heads Threatens the Birds' Survival in Africa retrieved 5th March, 2023 from https://www.audubon.org/news/growing-demand-vulture-heads-threatens-birds-survival-africa

Mayntz, M. (2019) *Can you name all the Vulture species?*, *The Spruce*. The Spruce. Available at: https://www.the spruce.com/types-of-vultures-and-vulture-species-list-385431, 2/10/23, 6:23 PM

McKean, S., Mander, M., Diederichs, N., Ntuli, L., Mavundla, K., Williams, V., & Wakelin, J. (2013). The impact of traditional use on vultures in South Africa. *Vulture News*, *65*(1), 15. https://doi.org/10.4314/vulnew.v65i1.2

Militaru, D. (2020). *Traditional Beliefs Concerning Wildlife : Their Implication on Younger Generations in Gauteng , South Africa*. *October*. https://doi.org/10.13140/RG.2.2.22270.20803

Muhammad, N. D., & Mustapha, Z. K. (2020). Collapsing towards Extinction? Trade in Birds Carcasses for Traditional Medicine and the Decline of Vulture Population in Katsina State, Nigeria. *Journal of Applied Sciences and Environmental Management*, *24*(4), 575–580. https://doi.org/10.4314/jasem.v24i4.5

Nigerian Endangered Species Act (2016) . Retrieved November, 2022 from https://lawcarenigeria.com/endangered-species-control-of-international-trade-and-traffic-act/.

Nigeria Federal Ministry of Environment, (2019). Understanding Threats to West African Biodiversity and Linkages to Wildlife Trafficking: Nigeria Field Assessment Report. Edited by Balinga M. and Stroud A. in 2019.

Nikolopoulou, K. (2022), What Is Purposive Sampling? | Definition & Examples. Scribbr. https://www.scribbr.com/methodology/purposive-sampling/

Nwosu, F. M., & Anwana, D. (2013). The use of traditional belief systems in the management of the coastal lakes and their fisheries in Bayelsa State. *Standard Scientific Research and Essays*, *1*(14), 403–408.

Ogada, D., Shaw, P., Beyers, R. L., Buij, R., Murn, C., Thiollay, J. M., Beale, C. M., Holdo, R. M., Pomeroy, D., Baker, N., Krüger, S. C., Botha, A., Virani, M. Z., Monadjem, A., & Sinclair, A. R. E. (2016). Another Continental Vulture Crisis: Africa's Vultures Collapsing toward Extinction. Conservation Letters, 89-97. [2]. https://doi.org/10.1111/conl.12182

Ogada, D., Shaw, P., Beyers, R. L., Buij, R., Murn, C., Thiollay, J. M., Beale, C. M., Holdo, R. M., Pomeroy, D., Baker, N., Krüger, S. C., Botha, A., Virani, M. Z., Monadjem, A., & Sinclair, A. R. E. (2015). Another Continental Vulture Crisis: Africa's Vultures Collapsing toward Extinction. *Conservation Letters*, *9*(2), 89–97. Available at; https://doi.org/10.1111/conl.12182.

Ogada, D. L., Keesing, F., & Virani, M. Z. (2012). Dropping dead: Causes and consequences of vulture population declines worldwide. *Annals of the New York Academy of Sciences*, *1249*(1), 57–71. Available at; https://doi.org/10.1111/j.1749-6632.2011.06293.x

Olga J., (2020). Making Sense of the Mismatch Between Supply and Demand. Foster Blog. https://blog.foster.uw.edu/mismatch-supply-and-demand-supply-chain

Owolabi, B. A., Odewumi, S. O., & Agbelusi, E. A. (2021). Perceptions on population decline and ethno-cultural knowledge of Hooded Vulture (Necrosyrtes monachus) in southwest States of Nigeria. *Vulture News*, *78*(February), 11–19. https://doi.org/10.4314/vulnew.v78i1.2

Pariona, A. (2017). What Is The Role Of Vultures In The Ecosystem And Wildlife Conservation? Retrieved August 2022 from https://www.worldatlas.com/articles/what-is-the-role-of-vultures-in-the-ecosystem-and-wildlife-conservation.html#:~:

Phipps, L. (2015). Vultures in crisis: poachers and poison threaten nature's garbage disposers retrieved November 2022 from https://scroll.in/article/763937/vultures-in-crisis-poachers-and-poison-threaten-natures-garbage-disposers#

Prichard, D. E. (2020). *Strategic Implementation Plan (2020 – 2023)for the Multi-species Action Plan to conserve African-Eurasian Vultures (Vulture MsAP). CMS Raptors MOU Technical Publication No. 7. CMS Technical Series No. 42. Coordinating Unit of the CMS Raptors MOU, Abu Dhab* (Issue 7). Retrieved November 2022 from https://www.cms.int/raptors/sites/default/files/document/Vulture%20MsAP%20Strategic%20Implementation%20Plan_04.2020.pdf

Ringim, A.S. *et al.* (2022) "Only one vulture was detected during transect surveys in Northern Nigeria.," *Vulture News*, 82, pp. 14–22. Available at: https://www.researchgate.net/publication/364236999

Rosen, G. E., & Smith, K. F. (2010). Summarizing the evidence on the international trade in illegal wildlife. In *EcoHealth* (Vol. 7, Issue 1, pp. 24–32). Available at; https://doi.org/10.1007/s10393-010-0317-y

Saidu, Y., & Buij, R. (2013). Traditional medicine trade in vulture parts in northern Nigeria. *Vulture News*, *65*(1), 4-14. Retrieved November, 2022 from https://doi.org/10.4314/vulnew.v65i1.1.

Sogbohossou, E. A., Philippe, M., Balinga, B., Tech, T., & Biodiversity, W. A. (2020). Implementation of CITES in West African Countries: Progress, Constraints and Recommendations.Retrieved from research gate February, 2023 at https://www.researchgate.net/publication/339043356

Ters, L. E. T. (2020). *Deliberate poisoning of Africa ' s vultures*. 303–305. Retrieved November, 2022 from https://www.science.org/doi/10.1126/science.abd1862

The essential role of vultures in our ecosystem (2020) available at (https://www.getaway.co.za/travel-news/the-essential-role-of-vultures-in-our-ecosystem/#)**. 2/10/23, 6:36 PM**

Thompson, L. J. (2022). *Trade in vulture parts in West Africa : Burkina Faso may be one of the main sources of vulture carcasses*.

Thompson, L. J., & Blackmore, A. C. (2020). A brief review of the legal protection of vultures in South Africa. *Ostrich*, *91*(1), 1–12. Available at https://doi.org/10.2989/00306525.2019.1674938

UKEssays. (November 2018). Semi-structured interviews | Analysis. Retrieved from https://www.ukessays.com/essays/education/an-exploratory-use-of-semi-structured-interviews.php?vref=1

UNEP-WCMC, (2021). REPORT ON WEST AFRICAN VULTURES (ACCIPITRIDAE SPP.). Submitted by the CITES Secretariat in relation to agenda item 20 on West African Vultures (Accipitridae spp.). It contains the report submitted by UNEP-WCMC, reviewing the trade and sentinel poisoning of West African vultures (Accipitridae spp). Accessed January 2023 from https://stag.cites.org/sites/default/files/eng/com/ac/31/Inf/E-AC31-Inf-10.pdf

Vultures clear up to 70% of Africa's carrion. African Wildlife Foundation. Available at: (https://www.awf.org/wildlife-conservation/vulture). 2/10/23, 6:36 PM

Vultures of the world map Birdorable. Available at: https://www.birdorable.com/fun/view/vultures-of-the-world-map/, 2/10/23, 6:28 PM

Wahab D A., Maulany R. I., Nasri and Nirsyawita (2020) Hunting and trading activities of reticulated python (Python reticulatus) in South Sulawesi, Indonesia: A report from the field. *IOP Conference Series: Earth and Environmental Science.* Retrieved from https://iopscience.iop.org/article/10.1088/1755-1315/486/1/012029/meta

Wang, Q., Shi, J., Shen, X., & Zhao, T. (2021). Characteristics and patterns of international trade in CITES-listed live birds in China from 2010 to 2019. *Global Ecology and Conservation*, *30*(August), e01786. https://doi.org/10.1016/j.gecco.2021.e01786

Weidensoul, S. (2021). *The race to save African Vultures*. Available at; https://www.allaboutbirds.org/news/the-race-to-save-african-vultures/

WHO. (2022). Regional framework for harnessing traditional and complementary medicine for achieving health and well_being in the Western Pacific. *World Health Organization*, 1–6.

Williams, M. M., Ottosson, U., Tende, T., & Deikumah, J. P. (2021). Traditional belief systems and trade in vulture parts are leading to the eradication of vultures in Nigeria: an ethno-ornithological study of north-central Nigeria. *Ostrich*, *92*(3), 194–202. https://doi.org/10.2989/00306525.2021.1929534

Williams, V. L., Cunningham, A. B., Kemp, A. C., & Bruyns, R. K. (2014). *Risks to Birds Traded for African Traditional Medicine : A Quantitative Assessment*. *9*(8). https://doi.org/10.1371/journal.pone.0105397

Wilson, E. E., & Wolkovich, E. M. (2011). Scavenging: how carnivores and carrion structure communities. *Trends in Ecology & Evolution*, *26*(3), 129–135. https://doi.org/10.1016/J.TREE.2010.12.011

Worldometer (2023). World Population, retrieved January, 2023 from https://www.worldometers.info /Worldometer - real time world statistics (worldometers.info.

Yatta, H. K. (2019). *Management and conservation of species in trade: "assessing gaps, challenges and priorities for effective implementation if CITES in Sierra Leone." March*, 88. A Thesis Presented to the International University of Andalucia (UNIA) In Partial Fulfillment of the Requirements for CITES Master's course.

Yee, N., Shaffer, L. J., Gore, M. L., Bowerman, W. W., & Harrell, R. M. (2021). Expert perceptions of conflicts in African vulture conservation: Implications for overcoming ethical decision-making dilemmas. *Journal of Raptor Research*, *55*(3), 359–373. Available at;https://www.researchgate.net/publication/354320789

APPENDICES

APPENDIX I

INTERVIEW QUESTIONS TARGETED TO LOCAL WILDLIFE/BUSH MEAT TRADERS, HUNTERS, TRADITIONAL MEDICINE TRADERS IN KANO AND JIGAWA STATES (TO BE INTERPRETED IN THE HAUSA LOCAL LANGUAGE USED BY THE PEOPLE)

1. Real/estimated age of the respondent.
2. Gender (Male/Female/Youth/Middle age/Old/Literate/Illiterate)
3. Location
4. Role played in the business/ profession.
5. How did you find yourself in this business/ profession?
6. For how long have you been in this business/ profession?
7. What is the purpose of your business/ profession?
8. Do you make supply of wildlife products?
9. Do you make use of and or supply vultures/specimen?
10. Of what importance are vultures in your business/ profession?
11. How often is the demand for vultures?
12. Who are the usual people in the demand of vultures?
13. Where do they usually come from?
14. How easy is it meeting the demand in vulture specimens?
15. Where do you usually get the vulture specimen from
16. Which species of vulture is demanded most
17. How much?
18. In your experience do you think harvesting/hunting/trading in vulture and other wildlife is sustainable?
19. What do think the government and public can do to help you in the sustainability of your business

APPENDIX II

A SURVEY QUESTIONNAIRE ON EFFICACY OF TRADE CONTROL IN ENDANGERED VULTURE SPECIMEN AND CITES AWARENESS CAMPAIGN ACCROSS KANO AND JIGAWA STATES, NIGERIA.

1. Age of Respondent ……...

2. Gender ……..……

3.Organization…….…….

4.Rank…….…….

5. Have you heard about vultures before? YES/NO

6. If yes how often do you see them?

(a) quite often (b) occasionally (b) once a while

and where? ----------

7. When last did you sight vultures?

(a) since childhood (b) few years ago (c) many years back (d) can't say

8. What do you think could be the cause of their disappearance?----------

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9. Do you think Vultures are important in the ecosystem and human life? YES/NO

10. As a Law enforcement official have you ever encounter vulture specimen? YES/NO

11. If yes what action did you take

(a) allow the culprit to go (b) confiscated the specimen, (c) arrested and prosecuted the culprit (d) all the above.

12. What do you think vulture specimen is being used for

(a) food (b) Medicine (c) others please specify…….

13. Are you aware that **vultures are recognized as one of the most endangered group of birds in the world** YES/NO

14. **Nigeria had seven species of vultures, but most of them have been hunted and extirpated across the country's ecological zones owing to belief systems and trades in their body parts for many purposes.** Do you think trade in vultures should be regulated YES/NO

15. Do you know any National/International Law that protects and or regulate trade in vulture specimen? YES/NO

16. Are you aware that **there is a normal channel for licencing transaction in vulture and other wildlife specimen**? YES/NO

17. Have you ever heard about CITES? YES/NO

18. **CITES stands for Convention on International Trade in Endangered Species of Wild Fauna and Flora. It is an international agreement between governments adopted on 3rd March 1973. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species**. Do you believe CITES is important?

(a) Not at all important (b) somewhat important (c) extremely important

19. Are you aware that Nigeria is signatory to CITES? YES/NO

20. **Nigeria joined CITES on 09 May 1974 and entered into force on 01 July 1975**. do you think CITES compliance is effective in Nigeria?

1. Yes 2. No 3. Not sure

21. Are you aware that CITES is a mechanism of monitoring the species that are traded regularly? YES/NO

22.are you aware about CITES Appendices YES/NO

23. Do you know the purpose of listing species in CITES Appendices? YES/NO

24. **CITES lists species of wild flora and fauna in Appendix I, II, and III based on the degree protection required by the species**. Do you think CITES should be implemented in Nigeria? YES/NO

25. Which of the CITES appendices are traded most? (A) I (B) II (C) III (D) all the above

26. are you aware that **all West African vultures are listed in CITES Appendix II meaning that export in all vulture specimens require CITES** Permit? YES, NO, NOT SURE

27.Are you aware of the **Nigeria's CITES regulation,** the Endangered Species (Control of International Trade and Traffic) Amendment Act, (Nigerian Endangered Species Act, 2016) ESA, 2016. YES/NO

28. Are you aware that **ESA is a Nigeria's domesticated CITES regulation**? YES /NO

29. Are you aware that the **ESA protects all vultures in Nigeria**? YES /NO

30 Are you aware that **all Vultures are placed in the highest degree of protection in the ESA**? YES/NO

31. If yes which degree of protection was vulture accorded? (a) Schedule 1 (b) schedule II (c) Schedule III (d) Appendix I (e) Appendix II (f) Appendix III (g) others (specify)……

32. Are you aware that **illegal traders/ smugglers of Vultures and other endangered species can be convicted**? YES/NO

33. If yes do you experience any enforcement challenges with regards to above in the course of your duties? YES/NO

34 Does your organization have any record of previous arrest, confiscation and or prosecution with regards to illegal vulture specimen transaction? YES/NO

35. If yes, please state where and when? ……...

……..

36. Have you ever attended any training on CITES enforcement/compliance? YES/NO

37. Is your organization already collaborating with other agencies regarding vulture/ wildlife enforcement and CITES compliance? YES/NO

38. Do you have any suggestion on the priorities for improving wildlife enforcement action in Nigeria?

APPENDIX III

Regulation of trade in the species specified in the first schedules of the Nigeria's ESA

(1) All specimens of species naturally occurring within the geographical boundaries and territorial waters of Nigeria, including their parts (or trophies) and products thereof (or derivatives) are for the purposes of this Act, its natural heritage.

(2) No natural heritage of Nigeria shall be considered as personal or household effect unless it is legally acquired and Management Authority of Nigeria is satisfied that the specimen was obtained from not earlier than the second filial generation of a captive-bred population of registered captive breeding facility.

(3) All trade in specimens of species included in the First Schedule of this Act shall be subject to regulations as follows:

(a) The hunting, capture, trafficking or otherwise dealing in any specimen of species included in the First Schedule is hereby prohibited. In exceptional circumstances, the Management Authority of Nigeria may issue appropriate and valid permit or certificate for trade in these species.

(b) The export of any specimen of species included in the First Schedule shall require an export permit. An export permit shall only be granted when Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) The specimen was not obtained in contravention of any of the laws for the protection of fauna and flora of any State of the Federal Republic of Nigeria from where the specimen was acquired;

(ii) The specimen is not to be used primarily for commercial purposes;

(iii) Living specimens will be prepared and shipped to conform to extant provisions of the Convention and to minimise the risk of injury, damage to health or cruel treatment; and

(iv) Such export will not be detrimental to the survival of the species and is within the limit of the export quota determined for the country for the period.

(c) The import of any specimen of a species included in the First Schedule into Nigeria shall require an import permit. An import permit shall be granted only when an export

permit or re-export certificate has been issued by the country of export and or re-export; and Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) The import will be for purposes, which are not detrimental to the survival of the species;

(ii) The recipient of a living specimen is suitably equipped to house and care for it;

(iii) The specimen is not in its living form an invasive or parasitic species;

(iv) The relevant authority of the country of export or re-export has issued a certificate of good health for the specimen; and

(d) The re-export of any specimen of a species included in the First Schedule shall require a re-export certificate. A re-export certificate shall only be granted when Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) The specimen was imported into the country in accordance with extant provisions of the Convention on International Trade in Endangered Species of wild Fauna and Flora (CITES) and this Act;

(ii) Any living specimen will be so prepared and shipped as to minimise the risk of injury, damage to health or cruel treatment; and

(iii) An import permit has been granted for the specimen.

(e) The introduction from the sea of any specimen of a species included in the First Schedule shall require a certificate from the Management Authority of Nigeria. A certificate shall only be granted when Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) The relevant Scientific Authority of Nigeria has advised that the introduction will not be detrimental to the survival of the species;

(ii) The proposed recipient of a living specimen is suitably equipped to house and care for it;

(iii) The specimen is not in its living form an invasive or parasitic species; and

(f) Appropriate fees have been paid to the Federal Government of Nigeria

(4) All trade in specimens of species included in the Second Schedule of this Act shall be subject to regulations as follows:

(a) The export of specimens of species included in the Second Schedule of this Act shall require an export permit. An export permit shall only be granted when Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) The specimen was not obtained in contravention of any of the laws for the protection of fauna and flora of any State of the Federal Republic of Nigeria from where the specimen was acquired;

(ii) Such export will not be detrimental to the survival of the species and is within the limit of the export quota determined for the country for the period;

(v) Living specimens will be prepared and shipped to conform to extant provisions of the Convention and to minimise the risk of injury, damage to health, cruel treatment or death thereto;

(vi) The prescribed fees have been paid to the Federal Government of Nigeria;

(vii) A certificate of good health for the specimen has been issued by a competent authority prior to the exportation;

(b) No person shall import any specimen of a species specified in the Second Schedule except an import permit for the species has been issued by the Management Authority of Nigeria.

(c) An import permit shall only be granted when Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) an export permit or re-export certificate has been issued by the country of export and or re-export;

(ii) The specimen is not in its living form an invasive or parasitic species;

(iii) the competent authority of the country of export or re-export has issued a certificate of good health for the specimen;

(iv) The import will be for purposes, which are not detrimental to the survival of the species; and

(v) The proposed recipient of a living specimen is suitably equipped to house and care for it.

(d) The re-export of any specimen of a species included in the Second Schedule shall require the prior grant and presentation of a re-export certificate. A re-export certificate shall only be granted when Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) The specimen was imported into the country in accordance with extant provisions of CITES and this Act;

(ii) Any living specimen will be so prepared and shipped as to minimise the risk of injury, damage to health or cruel treatment or death thereto.

(e) The introduction from the sea of any specimen of a species included in the Second Schedule shall require the prior grant of a certificate from the Management Authority of the State of introduction. A certificate shall only be granted when the following conditions have been met:

(j) The relevant Scientific Authority of Nigeria has advised that the introduction will not be detrimental to the survival of the species involved; and

(iii) Living specimens will be prepared and shipped to conform to extant provisions of the Convention and to minimise the risk of injury, damage to health, cruel treatment or death thereto;

(f) Notwithstanding the nature of trade under this section of this Act, prescribed fees for the transaction shall be paid to the Federal Government of Nigeria.

(5) All trade in specimens of species included in the Third Schedule of this Act shall be subject to regulations as follows:

(a) The export of any specimen of a species included in the Third Schedule shall require the prior grant and presentation of a certificate of origin. A certificate of origin shall only be granted when Management Authority of Nigeria is satisfied that the following conditions have been met:

(i) the specimen was not obtained in contravention of the extant laws for the protection of fauna and flora of any State of the Federal Republic of Nigeria from where the specimen was acquired;

(ii) Living specimens will be prepared and shipped to conform to extant provisions of the Convention and to minimise the risk of injury, damage to health, cruel treatment or death thereto;

(iii) appropriate fees have been paid to the Federal Government of Nigeria; and

(iv) A certificate of good health of the specimen has been issued by appropriate authority

(b) The import of any specimen of a species included in the Third Schedule shall require the prior presentation of a certificate of origin and, where the import is from a State which has included the species in CITES Appendix III, an export permit.

(c) In the case of re-export, a certificate granted by the Management Authority of the State of export that the specimen was processed in that State or is being re-exported shall be accepted by the Management Authority of Nigeria as evidence that the provisions of the present Convention have been complied with in respect of the specimen concerned.

(d) Notwithstanding the nature of trade under this section of the Act, appropriate fees shall be paid to the Federal Government of Nigeria.

Permits and Certificates

(1) Permits and certificates granted under the provisions of Section 2(1), (2) and (3) shall be in accordance with the provisions of this Section:

(a) An export or import permit, re-export certificate or certificate of origin shall remain valid for a period of six months from the date of issue or for such period the Management Authority of Nigeria may determine.

(b) Management Authority of Nigeria reserves the right to produce new designs of permits or certificates at any time, provided the design conforms to the model prescribed under the Convention.

(c) Any copies of a permit or certificate issued by a Management Authority shall be clearly marked as copies only and no such copy may be used in place of the original, except when such copies have been endorsed by the issuing Management Authority.

(d) The Enforcement Authority shall cancel and retain the export permit, re-export certificate or certificate of origin presented in respect of the importation of any specimen into Nigeria.

(e) A separate permit shall be required for each consignment of any specimen imported, exported or re-exported under this Act.

(f) Management Authority, where feasible, may affix a mark or seal on any specimen of wild fauna or flora for the purpose of identification of the specimen. Such mark or seal shall be designed in such a way as to render its imitation by unauthorised persons difficult or impossible

Alteration of schedules and exemptions

(1) The provisions of sections 2 and 3 shall apply to the transit or trans-shipment of specimens through or in the territory of Nigeria even when the specimens remain in Customs control.

(2) The provisions of sections 2 and 3 shall not apply to specimens that are legally acquired personal or household effects. This exemption shall not apply where:

(a) the acquisition of the parent or breeding stock of such specimens contravened the provisions of this Act; and

(b) the specimen is a First Schedule species acquired outside the holder's State of usual residence in Nigeria.

(3) The provisions of sections 2 and 3 shall not apply where Management Authority of Nigeria is satisfied that:

(a) the specimens were acquired before the commencement of the present Convention;

(b) the specimens are to be used for Scientific studies or researches that contribute to knowledge and conservation of the species in the wild; and

(c) the specimens are proven to be bred in captivity or artificially propagated.

(4) It shall be a defence to a charge under this Act that the killing, capture or fishing of any specimen specified under the First and Second Schedules to this Act was for any of the following reasons:

(a) the paramount public interest;

(b) the defence of human life;

(c) the protection of public health;

(d) the defence of property; or

(e) the defence of the lives of other animals.

(5) Specimens of First Schedule animals bred in captivity for commercial purposes, or of plant species artificially propagated for commercial purposes, shall be treated as Second Schedule species.

(6) Subject to the approval of the Management Authority of Nigeria, the provisions of sections 2 and 3 shall not apply to the following:

(a) Non-commercial loan, donation or exchange between scientists or scientific institutions registered by appropriate Management Authority; and

(b) herbarium specimens, other preserved, dried or embedded museum specimens, and live plant material, which carry a label issued by an appropriate Management Authority; and

(c) a memorandum of understanding (MOU) and or a material transfer agreement (MTA) among all parties concerned in (5) (a) and (b) of this section shall be deposited with the Management Authority of Nigeria.

(7) Management Authority of Nigeria may waive the requirements of sections 2 and 3 and allow the movement without permits or certificates of specimens which form part of a travelling zoo, circus, menagerie, plant exhibition or other travelling exhibition provided that:

(a) the exporter or importer registers full details of such specimens with the Management Authority of Nigeria;

(b) Management Authority is satisfied that the specimens are either pre-Convention or captive-bred specimens; and

(c) Management Authority is satisfied that the specimens will be so transported and cared for as to minimise the risk of injury, damage to health, cruel treatment or death thereof.

(8) Subject to advice by the Scientific Authorities, exercise of precaution or in an emergency the Management Authority of Nigeria may by an order published in the Federal Gazette:

(a) alter the list of animals and or plants specified in the First, Second and Third Schedules of this Act; and

(b) make different regulations in relation to different species, or trade in species and impose such conditions as may be necessary to ensure the survival of the species.

Offences and penalties, forfeitures, fees and administrative charges

(1) It shall be an offence under this Act for any person(s) to conduct international trade in specimens of endangered species of wild fauna and flora in violation of the present Convention and this Act.

(2) Any person who, in contravention of the provisions of this Act, hunts, captures, possesses, trades or otherwise deals in a specimen of wild fauna and or flora without the appropriate permits shall be guilty of an offence and liable on conviction:

(a) in respect of a specimen under the First Schedule, to a fine of five hundred-thousand-naira (N500,000) or five (5) years imprisonment or both such fine and imprisonment;

(b) in respect of a specimen under the Second Schedule, to a fine of three hundred-thousand-naira (N300,000) or three (3) years imprisonment or both such fine and imprisonment.

(c) in respect of a specimen under the Third Schedule, to a fine of one hundred- and fifty-thousand-naira (N150,000) or eighteen (18) months imprisonment or both such fine and imprisonment;

(3) Any person who, in contravention of the provisions of this Act engages in the use of fake, forged, inappropriate, expired or altered permit and or certificate for the conduct of trade shall be guilty of an offence and liable on conviction to:

(a) a fine of two hundred and fifty thousand naira (N250,000) in respect of a first offence; and

(b) two (2) years imprisonment without the option of a fine in respect of a second or subsequent offence.

(4) Any person who, in contravention of the provisions of this Act, aids, abets, conspires or partakes in the carrying out of illegal trade or smuggling of specimens of species of wild fauna and flora shall be guilty of an offence and liable on conviction to a fine of one hundred- and fifty-thousand-naira (N150,000) or one (1) year imprisonment or both such fine and imprisonment.

(5) Any Airline or Shipper, Cargo Handler, or Courier service provider who, in contravention of the provisions of this Act, the International Air Transport Association Live Animal Regulations (IATA – LAR) or other relevant regulations or law, engages in freighting illegally acquired specimens of wild fauna and flora shall be guilty of an offence and liable on conviction to a fine not exceeding two million naira (N2,000,000).

(6) Any person who, in contravention of the provisions of this Act, establishes or causes to be established or operates any zoological garden, menagerie, botanical garden, or any ex-situ or captive breeding facility or centre in Nigeria without the prior approval of the Management Authority shall be guilty of an offence and liable on conviction to a fine not exceeding one million naira (N1,000,000) or 10 years imprisonment or both such fine and imprisonment.

(7) Where a person is convicted of an offence under the fore-going subsections of this section, the court may:

(a) Order the forfeiture of any specimen that is the subject of such conviction.

(b) Order the forfeiture of any vehicle, vessel, weapon, or instrument used in committing the offence; and

(c) Make such orders, including surcharging convicted person(s) and or organisation(s), the cost for the upkeep and or maintenance of live specimens of wild fauna and flora involved in the illegal shipment as the court may deem fit.

(8) Without prejudice to the foregoing:

(a) Where a living specimen is forfeited pursuant to section (7)(a), the specimen shall be entrusted to the Management Authority of Nigeria who may, after consultation with the country of origin return the specimens to the country of origin at that country's expense, or to a Rescue Centre or to such other place as the Management Authority may deem appropriate; and

(b) In the case of forfeiture, the Management Authority may obtain the advice of a Scientific Authority or consult the Secretariat of the Convention in order to facilitate a decision including the choice of a rescue centre.

(9) Notwithstanding the provisions of this Act, it shall be an offence if in an attempt to capture, fish, take, or hunt wild animals in Nigeria, any of the following methods is used/adopted:

(a) Any method liable to cause mass destruction of wild animals;

(b) The use of drugs, poisons, poisoned weapons or poisoned baits;

(c) The use of mechanically propelled vehicles;

(d) The use of firearms capable of firing more than one round at each pull of the trigger;

(e) The use of fire;

(f) The use missiles containing detonators; and

(g) Explosives

(10) Any person who in contravention of the provisions of this Act aids, abets, conspires or partakes in the use of any of the above methods shall be guilty of an offence and liable on conviction to a fine of one-million-naira (N1,000,000) or ten (10) years imprisonment or both.

(11) It shall be an offence under this Act for any person(s) to display, sell or cause to be sold/displayed, advertise or canvass for sale, specimens of endangered species of wild fauna and flora included on the First Schedule of this Act (and Appendix I of the present Convention) in any public place, market, hotel or airport Duty Free Shops in Nigeria. Any person who does so shall be guilty of an offence and liable on conviction to a fine of five hundred-thousand-naira (N500,000) or five (5) years imprisonment or both such fine and imprisonment.

(12) It shall be an offence under this Act for any person(s) to capture, take, hunt, display, sell or cause to be sold/displayed, advertise or canvass for sale, specimens of African-Eurasian waterbirds (or AEWA-listed species) anywhere in Nigeria. Any person who does so shall be guilty of an offence and liable on conviction to a fine of five hundred-thousand-naira (N500,000) or five (5) years imprisonment or both such fine and imprisonment.

(13) For the purposes of obtaining a permit/certificate an applicant shall be required under this Act to make payments of fees and charges to the Management Authority as follows:

(a) Application fee of twenty thousand naira (N20,000);

(b) Processing fees at the rates of one hundred thousand naira (N100,000) for CITES Appendix I/First Schedule species; fifty thousand naira (N50,000) for CITES Appendix II/ Second Schedule species; and thirty thousand naira (N30,000) for other species.

R**ecords**

(1) Management Authority shall maintain records of trade in specimens of species of wild fauna and flora, which shall include:

(a) the names and addresses of exporters and importers thereof;

(b) the number and type of permits and certificates granted;

(c) the countries with which such trade occurred and the numbers or quantities and types of specimens involved;

(d) the names of species as included in the First, Second or Third Schedules and the Appendices of CITES;

(e) the probable source of the specimen;

(f) the purpose of the trade; and

(g) where applicable, the size, weight and sex of the specimens involved.

(2) Management Authority shall maintain records of ex-situ wildlife facilities operating in Nigeria; and their statistics on housing, feeding, health or sanitation, water quality/availability, species acquisition, species composition/age classification, breeding records, staffing, mortality, sales, exchanges, loans, special features, etc.

Management, Scientific and Enforcement authorities

(1) The Management Authorities of CITES in Nigeria designated under this Act shall be the Federal Ministry responsible for wildlife conservation and management; and the Federal Department of Fisheries which shall be responsible for marine and freshwater fishery species only.

(2) The signatory to permits and certificates issued for the purposes of CITES shall be the Head of Management Authority: the Honourable Minister responsible for wildlife conservation and management matters, or any other officer to whom the function is delegated by the Honourable minister; and the Director of Fisheries or his designate.

(3) The Management Authority is authorised under this Act to carry out the following functions:

(a) formulation and implementation of national policy on wildlife conservation and management in Nigeria;

(b) communication with Management Authorities of other CITES Parties and with the Secretariat of CITES on all matters affecting the implementation of the Convention in Nigeria;

(c) representing Nigeria at the Conferences of the Parties (COP) to the Convention and in the meetings of the CITES Standing Committee;

(d) processing and issuance of CITES export and import permits, re-export certificates and certificates of origin for trade in wild fauna and flora;

(e) rendering annual and bi-ennial reports on CITES implementation in Nigeria to the Secretariat of the Convention;

(f) charging and collection of application, processing and other administrative fees for issuance of CITES permits/certificates and other statutory functions;

(g) establishment of annual export quotas for each species in consultation with relevant Scientific Authority;

(h) Regulation, accreditation and compliance monitoring of zoological gardens, botanical gardens, game farms and ranches, rescue centres, aquaria, captive breeding and other ex-situ operations in Nigeria;

(i) create awareness and educate the public on CITES matters;

(j) liaison, co-operation and collaboration with the Nigeria Customs Service (NCS), Nigeria Police Force (NPF), Interpol, National Environmental Standards and Regulations Enforcement Agency (NESREA), National Agricultural Quarantine Service (NAQS), other law enforcement and regulatory agencies on implementation of CITES in Nigeria;

(k) Take decisions on the final disposal of seized and confiscated specimens of wild species, in close consultation with the Enforcement Authority;

(l) amendment of the list of species indicated in the Schedules of this Act, based on the advice of a Scientific Authority of Nigeria;

(m) render technical assistance to States and Local Governments on wildlife conservation and management issues and projects;

(n) make any regulation to facilitate the implementation of the provisions of this Act; and

(o) any other function within its mandate, or as prescribed under the Convention in the Decisions and/or Resolutions of the Conference of the Parties.

(4) The Scientific Authorities of CITES in Nigeria designated under this Act shall be the following:

(i) Forestry Research Institute of Nigeria (FRIN);

(ii) National Park Service (NPS);

(iii) National Institute for Oceanography and Marine Research (NIOMR);

(iv) National Institute for Freshwater Fisheries Research (NIFFR); and

(v) National Institute for Horticultural Research and Training (NIHORT);

(5) the Scientific Authorities are authorised under this Act to carry out the following functions:

(a) determine and advise Management Authority on safe levels of trade in specimens in the First and Second Schedules;

(b) determine and advise Management Authority on the environmental impact of importation of species included in the First Schedule into Nigeria;

(c) determine whether the recipient of live specimens included in the First Schedule is suitably equipped to house and care for them;

(d) determine whether introduction from the sea will not be detrimental to the survival of the species involved, or other species;

(e) conduct periodic studies or Non Detriment Findings (NDF) on species in the First and Second Schedules and advice Management Authority accordingly;

(f) monitor the status of indigenous species included in Appendix II of the present Convention;

(g) conduct independent assessment of the information included in any proposal for the inclusion of species in Appendices I and II of the Convention;

(h) assist Management Authority with identification of specimens;

(i) represent Nigeria on the Plants and Animals Committees of the present Convention;

(j) periodically assess the national status of all CITES species to determine whether their current listing is appropriate; and

(k) advise Management Authority on the sustainable wildlife trade quotas for species in the First and Second Schedules.

(6) The Enforcement Authority of CITES in Nigeria designated under this Act shall be the National Environmental Standards and Regulations Enforcement Agency (NESREA)

(7) The Enforcement Authority is authorised under this Act to carry out, in addition to the provisions of the NESREA Act and related Regulations, the following functions:

(a) general enforcement of the provisions of the present Convention and this Act within Nigeria;

(b) interrogate suspects and examine consignments, and documents in the course of enforcement duties;

(c) investigate and prosecute cases of illegal trade in specimens of wild fauna and flora species in Nigeria;

(d) search persons, baggages, containers, vehicles, vessels and premises suspected to possess or contain illegally acquired or traded specimens of wild fauna and flora, without warrant;

(e) confiscate illegally traded specimens, and dispose of them in line with the extant policy of the Federal Government of Nigeria or as decided by Management Authority of Nigeria;

(f) Keep confiscated and seized specimens in a safe store or facility constructed by NESREA in consultation with Management Authority and other enforcement Agencies, while live specimens are kept in approved Rescue Centres or other approved locations;

(g) liaise, co-operate and collaborate with the Nigeria Customs Service, Nigeria Police Force, Interpol, other law enforcement and regulatory agencies on enforcement matters; and

(h) maintain an office/presence at the air and sea ports, and land borders in Nigeria.

Power to make regulations.

(1) Nothing in this Act shall prevent the Management Authority from taking regulatory and administrative measures to enforce the provisions of the present Convention and Act, to include:

(a) prohibiting or regulating trade in any specimen of any species of wild fauna and flora;

(b) amending the application forms, permits, certificates, permit processing fees, penalties or period of validity of permits and certificates.

(c) regulating the internal (in-country) trade in specimens of species of wild fauna and flora;

(d) regulating the value-added processing of specimens of species permitted for trade;

(e) regulating the methods and measures for the control of the outbreak of diseases and pests; and

(f) prescribing new or additional administrative charges for any or all its services.