

Examination Number:	92
---------------------	----

## MPhil in Conservation Leadership 2014



**UNIVERSITY OF  
CAMBRIDGE**

**Department of Geography**

### **TITLE OF PLACEMENT REPORT**

**VULTURE DECLINES IN WEST AFRICA: INVESTIGATING THE  
SCALE AND (SOCIOECONOMIC) DRIVERS OF THE TRADE IN  
VULTURE PARTS FOR TRADITIONAL MEDICINE**

---

**MPhil in Conservation Leadership**

**Vulture Declines in West Africa: Investigating the Scale  
and (Socioeconomic) Drivers of the Trade in Vulture Parts  
for Traditional Medicine**

**Examination Number: 92**

**August 27, 2014**

**Department of Geography  
University of Cambridge**

# Contents

Acknowledgements .....	4
Executive Summary .....	5
<b>1.0. Introduction.....</b>	<b>6</b>
<b>1.1. The Leadership Challenge from a Broad Conservation Context .....</b>	<b>6</b>
<b>2.0. Literature Review .....</b>	<b>9</b>
<b>2.1. The Problem of Vulture Declines Globally and Specifically in West Africa .....</b>	<b>9</b>
<b>2.2. Trade in Vulture Parts for Traditional Medicine .....</b>	<b>11</b>
<b>2.3. The International Conservation Community and Vulture Conservation.....</b>	<b>13</b>
<b>3.0. Methods.....</b>	<b>16</b>
<b>Table 1: Locations where the markets of the 26 traders in Nigeria and 15 traders in Sierra Leone are situated. The number of markets per city is indicated.....</b>	<b>17</b>
<b>3.1. Study Area .....</b>	<b>17</b>
<b>Fig. 1.....</b>	<b>18</b>
<b>4.0. Results .....</b>	<b>19</b>
<b>Table 2: Percentages of duration that vulture parts stayed in the stall before they are sold (Oshogbo and Abeokuta).....</b>	<b>20</b>
<b>Table 3: Percentages of duration for restocking (Oshogbo and Abeokuta) .....</b>	<b>20</b>
<b>5.0. Discussion and Output.....</b>	<b>22</b>
<b>5.1. Socioeconomic Drivers of the Trade in Vulture Parts (Nigeria).....</b>	<b>22</b>
<b>5.1.1. Scale of the Demand in Vulture Parts.....</b>	<b>24</b>
<b>5.2. Scale of the Demand in Vulture Parts (Sierra Leone) .....</b>	<b>24</b>
<b>5.3. Output .....</b>	<b>26</b>
<b>5.3.1. Action Strategy for Addressing the Vulture Trade Problem in Nigeria .....</b>	<b>26</b>
<b>6.0. Reflections on Personal Leadership Lessons .....</b>	<b>33</b>
<b>6.1. Managing Uncertainty.....</b>	<b>33</b>
<b>6.2. Fostering Inclusivity and Diversity .....</b>	<b>33</b>
<b>7.0. Conclusion and Recommendation .....</b>	<b>34</b>
<b>REFERENCES.....</b>	<b>35</b>
<b>APPENDIX.....</b>	<b>43</b>

## Acknowledgements

I would like to thank my supervisors Drs Hazell Thompson, Kariuki, Ndonganga, Chris Sandbrook for their invaluable support in the preparation and design of this project placement. Dr Thompson gave his time generously; giving attention to detail even though he would have been constrained with his responsibility as Acting CEO of BirdLife International as at the time of this project placement. All supervisors believed in me and this fuelled my determination to give my best to this work. A special thanks is also extended to all BirdLife International staff where I harnessed diversity of ideas and constructive suggestions to the improvement of the methodology for this work.

I would also like to appreciate my field assistants Ms. Rosemary Gbegbaje, Mr. Abraham Ekperusi and Mr. Momoh B. Sesay who generously gave their time to do the surveys on the ground in Nigeria and Sierra Leone on a voluntary basis.

This acknowledgement would not be complete if I didn't mention my mentors who nurtured me for several years before I made it to Cambridge: Drs Beth Kaplin, Phoebe Barnard, David Johns, Andrew Gosler, Jame Schaefer, and Mr. Tom Baugh.

This work was funded through generous support from Wolfson College, University of Cambridge.

### **Executive Summary**

Wildlife trade practiced round the world is a major threat to biodiversity conservation and is a conservation leadership challenge. There are several reasons behind the trade of wildlife and of special interest is wildlife trade for traditional medicine. Vulture parts are traded for use in traditional medicine in West and southern Africa. The trade in vulture parts for traditional medicine in West Africa has been suggested as a possible cause of decline of vultures in the region. A study was carried out in June 2014 to investigate the scale and socioeconomic drivers of the trade in vulture parts for traditional medicine in West Africa with particular emphasis on Nigeria and Sierra Leone. Twenty-six traders in vulture parts in four markets in Oshogbo (11), Abeokuta (10) and Onitsha (5) in Nigeria respectively were interviewed. In Oshogbo there was a total of 34 wildlife traders with only wildlife traders occupying the market. While in Abeokuta there was a total of 87 wildlife traders with the entire traders in the market estimated to be around 200. Fifteen traders in one market in Freetown, Sierra Leone were also interviewed. Information on the proportion of traders in Onitsha and Freetown is unavailable. Ninety-six percent of respondents in all three cities in Nigeria were from the Yoruba ethnic group and 100% of these Yorubas were Muslims. The price of a whole vulture in Oshogbo and Abeokuta ranged from 8,500 – 9,000 Naira (~US \$65). A majority of the traders (80%) in Oshogbo and Abeokuta said their vulture parts stayed in the stall for maximum 2 weeks while 53% said restocking took less than 4 weeks showing the relatively high rate of turnover. In Freetown, Sierra Leone, the traders were 67% Muslims and there was no particular pattern of ethnic groups within the 10 ethnic groups identified. Hundred percent of traders in Freetown, said it took more than 3 weeks for their vulture parts to be purchased. Seventy-three percent said it took longer than 4 months for restocking their vulture parts collection. Overall, results of the study suggest that demand for vultures is strong in the southwest of Nigeria with a vibrant market. The results also show the problem of trade in vulture parts has a cultural and theological dimension. In Sierra Leone, demand for vulture parts is relatively low. It is recommended that conservation scientists work with religious and cultural institutions to influence behavioural change towards trade in vulture parts in Nigeria. Further studies would need to map areas with trade in vulture parts for traditional medicine to see if they tally with areas where vultures are in decline. This would enable scientists to confirm with greater certainty that trade in vulture parts for traditional medicine is the cause of declines of vultures in the regions where vultures are declining compared to areas where they are relatively abundant.

## 1.0. Introduction

### 1.1. The Leadership Challenge from a Broad Conservation Context

Conservation today is faced with complex challenges; habitat transformation, overexploitation, invasive alien species, pollution and anthropogenic climate change (MA, 2005). These problems call for leadership. Veritably, in solving these challenges, conservation leadership demands an understanding of social dynamics and their interactions. Of particular note for this report is the problem of overexploitation through wildlife trade. The Wildlife Trade Monitoring Network (TRAFFIC) defines wildlife trade as any sale or exchange of wild animal and plant resources by people. These include live animals and plants or a diverse range of products needed or prized by humans which are skins, medicinal ingredients, tourist curios, timber, fish and other food products (TRAFFIC, 2008).

International trade in wildlife is a major threat to biodiversity conservation, with potentially adverse consequences for ecosystem functioning as well (Challender et al. undated). Wildlife trade threatens around one-third of birds and mammals worldwide (Baillie et al. 2004). It is the second largest black market worldwide, after narcotics (Toledo et al. 2012). In the early 1990s, TRAFFIC estimated the value of legal wildlife products imported globally was around USD 160 billion and in 2009, the estimated value of global imports was over USD 323 billion (TRAFFIC, 2008). A lack of resources in tropical countries often undermines existing legal frameworks for preventing wildlife trading (Toledo et al. 2012). Local government pay scanty attention to the trade because it is not perceived as a major threat to biodiversity or to human wellbeing (Toledo et al. 2012).

TRAFFIC (2008) has given the following reasons behind the trade of wildlife:

- *food*—fruits, mushrooms, nuts, leaves and tubers, are particular important resources in sustaining livelihoods in many rural areas. Wild animals (including fish) contribute at least a fifth of the animal protein in rural diets in more than 60 countries. A TRAFFIC study demonstrated reliance on wild meat is growing in Eastern and Southern Africa in response to increased human populations and poverty.
- *fuel*—trees and plants are an important source of fuel for cooking and heating, especially in rural areas
- *fodder*—considered very important non-wood forest products in arid regions of Asia and Africa

- *building materials*—for example, timber for furniture and housing to ingredients in manufacturing processes, such as gums and resins
- *clothing and ornaments*—leather, furs, feathers etc
- *sport*—from falconry to trophy hunting
- *healthcare*—everything from herbal remedies, traditional medicines to ingredients for industrial pharmaceuticals. An estimated 80 % of the world's population are said to rely for primary health care on traditional medicines
- *religion*—many animals and plants or derivatives are used for religious purposes);
- *collections*—many wildlife specimens and curios are collected by museums and private individuals”.

Traditional medicine attracts a wildlife trade driven by often-unverified beliefs about the medicinal properties of certain plants and animals or their parts and derivatives (UNODC, undated). Examples include orchids, tiger parts and rhino horn (UNODC, undated). Trade in wildlife parts for traditional medicine has existed for thousands of years and is a common heritage shared by all human communities (Cocker, 2000). For instance, an ancient Greek belief states that staring directly into the eyes of a Stone Curlew *Burhinus oedicephalus* could cure a sufferer from jaundice (Cocker, 2000). Other beliefs include eating the owl's eyes or the contents of eagles' gall bladder would improve eyesight; while Nightingales' *Luscinia megarhynchos* tongues could enhance an individual's vocal abilities; the brains of a crane were deemed a powerful aphrodisiac, while a vulture's liver was sovereign against gout, indigestion and cataracts (Pollard, 1977 as cited in Cocker, 2000). The market for traditional medicine is believed to be expanding at a rate of 10% per annum (Liddick, 2011). Although the medicinal properties of most traditional medicines using ingredients from endangered wildlife have been scientifically refuted, these medicines continue to be used (UNODC, undated). This use therefore poses a leadership challenge to conservation practitioners and policy makers. For example, recent crisis in rhino poaching due to the demand for rhino horns in Asia could have led to the extinction of the West African rhino (TRAFFIC, 2008b). Demand for rhino horns still persists as international concern about China's use of illegal wildlife products for traditional Chinese medicine is heightened in recent times. Lam (2012) has argued that while understanding poaching can help to protect species in their habitats, the root of the problem lies in the demand side of the community chain; poaching will fail to cease unless consumption is curbed. Lam further observes that knowledge of the scope of illegal wildlife trade can instruct international conservation bodies and local governments

how and where to allocate legal enforcement and awareness raising efforts, and provide the most effective conservation actions for threatened species. Understanding spatial and temporal patterns in market dynamics can help identify the efficacy of implemented laws and actions, market trends, and drivers for demand (Lam, 2012).

The trade in vulture parts for traditional medicine in West Africa has been suggested as a possible cause of decline of vultures in the sub-region (Ogada et al. 2011). As at the time of this study no empirical evidence has confirmed this hypothesis. This report therefore seeks to explore the extent to which this hypothesis is true through qualitative research. The study will investigate the scale and socio-economic drivers of the trade in vulture parts for traditional medicine in West Africa. In addition to understanding the magnitude of the trade, the socio-economic dynamics associated with the trade will also be investigated to help inform an effective conservation strategy. The study areas selected in the sub-region are Nigeria and Sierra Leone where fetish markets are prevalent. In essence, this report addresses the leadership challenge of controlling overexploitation through wildlife trade and will propose priority next action steps as part of addressing the challenge for vulture trade in particular given constraints on resources and information.



## 2.0. Literature Review

### 2.1. The Problem of Vulture Declines Globally and Specifically in West Africa

Although vultures are not aesthetically appealing they occupy a very important niche in the food chain. Vultures are nature's most successful scavengers, providing an extensive array of ecological, economic, and cultural services (Ogada et al. 2011). However, currently, 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. 2011). In the last decade, the vulture populations have declined by more than 95% in India, Nepal and Pakistan and the annual rate of decline continues to increase according to concerned scientists (IUCN, 2012). In Europe and North America vulture populations decline had started since the mid-19th century spanning a 100 years with some populations of Bearded vultures in Europe and the California condor in North America already nearing extinction (Mingozzi and Estéve, 1997; Synder, 1983 as cited in Ogada et al. 2011). Although Europe and North America have historically recorded large population declines, the majority of vulture populations are now increasing or stable (Ogada et al. 2011). Other regions such as the Middle East also report declines (Cunningham, 2002; Mendelsohn and Leshem, 1983 as cited in Ogada et al. 2011). Declines have also been estimated in Central and South America, though the region has comparatively little published research on vulture populations apart from that on the Andean condor (*Vultur gryphus*) (BirdLife International, 2011a; Rios-Uzeda and Wallace, 2007; Temple and Wallace, 1989; Wallace and Temple, 1988 as cited in Ogada et al. 2011). Population declines have been recorded, particularly in West and East Africa (Ogada et al. 2011). In East Africa, vultures have declined by 70% as recorded over a three-year period in north-central Kenya by Ogada and Keesing (2010). Rondeau and Thiollay (2004)'s comparison of abundance indices of the six main species of vulture in West Africa shows that vulture populations have decreased drastically over the last 30 years. Aside the hooded vulture, they report that vulture populations in rural areas have decreased overall by 95% (Rondeau and Thiollay, 2004). More recently, the hooded vulture across its African range has been suggested to have declined by 62% in 50 years (Ogada and Buij, 2011). In North Africa, Morocco to be specific, two species, Cinereous and Lappet faced vultures (*Torgos tracheliotos*), have been extirpated (Mundy 2000 as cited in Ogada et al. 2011).

A number of reasons have been suggested behind the global decline of vultures. However, poisoning or human persecution, or both, feature in the list of nearly every declining vulture

population (Ogada et al. 2011). For instance, the non-steroidal anti-inflammatory drug diclofenac causes renal failure and is lethal to some species of vultures resulting in massive declines of Gyps vultures in South Asia (BirdLife International, 2013). In 2006, the Indian government banned the manufacture and sale of diclofenac (Koenig, 2006). The deliberate poisoning by humans of carnivores, which kill scavengers as well as the intended victims, is likely the major cause of vulture poisoning (Ogada et al. 2011). Poisoning of carnivores is common in Europe and Africa (see Ogada et al. 2011).

The possible cause of vulture declines in West Africa is yet to be empirically determined (Rondeau and Thiollay, 2004). According to preliminary investigations, it would appear that diclofenac is not used in West Africa to treat livestock (Rondeau and Thiollay, 2004). However, as suggested by M. Gilbert (pers. comm. as cited in Rondeau and Thiollay, 2004), it is not excluded that other non-steroidal anti-inflammations, with the same nephrotoxic properties, are used in West Africa. All species of vultures have declined in West Africa as reported by Rondeau and Thiollay (2004), whereas only Gyps vultures have been affected in the Indian subcontinent (Rondeau and Thiollay, 2004; BirdLife International, 2013). Rondeau and Thiollay (2004) suggest possible causes of vulture declines in West Africa: reduced availability of carcasses, poisoning, persecution for body parts for food and traditional medicine, powerlines: electrocution and collision, drowning, exposure to contaminants, and disturbance of breeding sites.

Persecution of vultures for use of their body parts for food and traditional medicine is widespread across West Africa (Sodeinde and Soewu, 1999; Cocker, 2000; Nikolaus, 2001; Rondeau and Thiollay, 2004; Ogada and Buij, 2011; Saidu and Buij, 2013). Vultures feature in the initiation and mystical rites of many ethnic groups in West Africa and they are very important for the communities in the sub-region (Rondeau and Thiollay, 2004). In Nigeria, the hooded vulture is eaten for food by some communities (Anon. 1997, as cited in Rondeau and Thiollay, 2004). Where vultures are used for traditional medicine, they are used in treatment of epilepsy, insanity, stroke, ease of delivery in women spiritual protection against witches and witchcraft, evil spirits, good luck (during gambling, money doubling, competition, contest), to stimulate walking in infants, and to gain supernatural powers (Saidu and Buij, 2013). The head of vultures is said to be highly valued because of the belief by many that it has clairvoyant powers (Saidu and Buij, 2013). These beliefs drive trade in vulture parts in West Africa. Witch doctors send their clients to wildlife parts traders and only

the witch doctor decides which birds, herbs or minerals are needed and how they are to be used (Nikolaus, 2001).

## **2.2. Trade in Vulture Parts for Traditional Medicine**

Use of vulture parts for traditional medicine has been documented in West and southern Africa (Verdoon et al. 2004; Mckean, 2004; Nikolaus, 2001; Sodeinde and Soewu, 1999 as cited in Ogada et al. 2011). Relatively few studies have endeavoured to understand the market for vulture parts for traditional medicine. Mckean et al. (2013) made a study of three large informal urban markets in South Africa and worked to assess the species and number of vulture parts used, supply sources, hunting methods, values and turnover, ecological sustainability of vulture use levels, the trade chain and the traditional belief systems which are reported to support vulture use. Among the results discovered was that the trade in vultures follows a distinctive chain, with various market segments along the way. The typical trade chain starts with vulture hunters from the rural areas near protected areas in Zululand or adjacent vulture colonies in Pondoland or Southern Mozambique (Mckean et al. 2013). Different species of vultures are traded, but many Traditional Healers and vulture traders indicated no preference for trading any particular species (Mckean et al. 2013). It is estimated that between 106 and 240 vultures could be traded per annum, with 160 vultures traded per year being the most likely scenario (Mckean et al. 2013). Mckean et al. (2013) report that there is a distinct link between the preference for different parts of vultures and prices paid by consumers for these. For instance, the head and neck, which are most preferred as a treatment or for use by Traditional Healers, carry a higher price per unit than any other part of the body (Mckean et al. 2013).

Beilis and Esterhuizen (2005) report on a study to show the extent of use of vulture parts for traditional medicine in Lesotho and the potential impact of the trade on the Cape Griffon populations. They observed that many vulture parts were used ranging from vertebrae, brain (powdered and bottled) to head, wing, and feathers. There was an apparent low turnover of the wing and primary feathers as they remained unsold for two to three months. While the brains or eyes were in higher demand and sold faster, but at a higher price (Beilis and Esterhuizen, 2005). Beilis and Esterhuizen (2005) estimated that if 35 registered healers trading in animal and vulture parts utilise one vulture per year then a total of around 35 birds are used each year. And to determine the predicted rate of decline of the Lesotho Cape Griffon population due to traditional medicine (assuming that all the vulture parts came from

within Lesotho), they made extrapolations based on the estimate that: 1) only 5% of Cape Griffons reach sexual maturity, 2) with a starting breeding population of 552 Cape Griffon pairs, 3) an annual human population increase of 2.5% and a corresponding increase in the request for vulture parts of one extra bird every year (Beilis and Esterhuizen, 2005). The results of their extrapolation showed birds lost to traditional medicine would constitute nearly 7% of the total Cape Griffon breeding population in Lesotho (Beilis and Esterhuizen, 2005). Further, their results indicated that an increase of just one extra vulture lost every year to the trade would lead to the Lesotho vulture population losing viable breeding pairs by 2012 (Beilis and Esterhuizen, 2005).

Studies on trade in vulture parts for traditional medicine in West Africa are few. Cocker (2000) surveyed four main fetish Béninois markets at the capital Port Novo, Bohicon, Abomey and Cotonou and identified 4 species of vultures: Hooded Vulture (*Necrosyrtes monachus*), African White-backed Vulture (*Gyps africanus*), and White Headed Vulture (*Aegyptius occipitalis*). In Nigeria, Sodeinde and Soewu (1999) report that the Hooded Vulture (*Necrosyrtes monachus*) was the most frequently seen bird in the survey markets and offered by 36% of all stalls surveyed. Nikolaus (2001) surveyed 24 Nigerian fetish markets selling birds for traditional medicine. The aim of the study was to judge the impact of fetish markets on birds and to find out the main species affected. Nikolaus reports that vultures are the most valuable products sold fetching about US \$10-20. Hooded Vultures and Palm-nut Vulture cost US \$2.50. Source points for live-birds were reported to be Lagos and Kano (Nikolaus, 2001). Traders of bird parts cannot find vultures in Nigeria anymore and have to obtain them from neighbouring countries like Chad and Niger (Nikolaus, 2001). Saidu and Buij (2003) report on findings on the vulture trade in northern Nigeria. Their results show that 40% of traders sold vultures for spiritual healing and 25% sold vultures for consumption. Forty-three percent of traders were supplied most often from vulture populations inside Nigeria and 48% were principally supplied from other countries in the region, as far west as Benin and east to Sudan (Saidu and Buij, 2013). Further, increased prices for parts during the past 10 years reflected similar, or perhaps increasing demand but lower availability of vultures (Saidu and Buij, 2013). Hooded Vulture (*Necrosyrtes monachus*) was the commonest species traded with 90% of parts belonging to this species (Saidu and Buij, 2013).

Overall, although these studies in West Africa have successfully determined the characteristics of the trade in vulture parts for traditional medicine and the reasons behind the

trade, the findings are inadequate to inform an effective vulture conservation strategy. For instance, the studies do not show an estimate of turnover rates for vulture parts in these markets. These would have helped in approximating the scale of the demand for vulture parts and hence the pressure on vultures. Also, conservation is essentially a behavioural problem (Mascia, 2003). In dealing with social systems, an understanding of the drivers of the dynamics of those social systems is critical. Questions that would therefore arise are: is there a pattern of socio-cultural factors in trade in vulture parts for traditional medicine that could be harnessed to make an impact on vulture conservation? What common denominator amongst these vulture traders could be an opportunity for conservation action? Johns (2009) observes that the mobilization of people starts in the cultural arena and the opportunities for mobilization are many.

### **2.3. The International Conservation Community and Vulture Conservation**

The comparison of efforts to conserve vultures in Asia and Africa has been done by Ogada et al. (2011). Since the Asia vulture crisis was linked to a single source which is diclofenac poisoning, conservation efforts were more targeted and provided a mechanism whereby success of conservation interventions can be directly measured (Ogada et al. 2011). The Asian vulture crisis highlighted the importance of collaboration between scientists, regional governments, donors, and the media to effectively conserve vultures (Ogada et al. 2011).

In 2004, WWF-Pakistan launched the Gyps Vulture Restoration Project in Pakistan with an objective to conserve a viable population in a safe and secure environment (Murn et al. 2008). Additional objectives include continued monitoring of wild populations, lobbying for the complete removal of diclofenac from the environment and to build staff capacity for the eventual release of captive-bred vultures (Murn et al. 2008).

The Saving Asia's Vultures from Extinction (SAVE) programme is a consortium of like-minded, regional and international organisations, created to oversee and coordinate conservation, campaigning and fundraising activities to help the plight of South Asia's vultures (SAVE, 2011). SAVE's work crosses international boundaries and is dependent on international collaboration and funding and was created in 2011 (SAVE, 2011). The approach SAVE uses is three pronged: advocacy, vulture safe zones and breeding centres (see SAVE, 2011).

In Africa, there has been little, if any support for vulture conservation by majority of African governments, with the exception of South Africa (Ogada et al. 2011). However, Africa has begun to make inroads towards a holistic strategy to address vulture declines in the continent. For instance, in 2011 the Vulture Specialist Group (VSG) of the IUCN Species Survival Commission was established to create greater awareness about vultures and coordinate their effective conservation (Botha et al. 2012). The group is divided into five regions: Africa, Asia, Europe, North and South America with each region forming its own steering committee (Botha et al. 2012). The key activities of the VSG include: 1) review IUCN status and updates for all vulture species, 2) promote vulture conservation and management activities, 3) promote vulture research and monitoring, 4) disseminate and communicate information about vultures, and 5) establish regional and international partnerships and advocate on behalf of vultures (Botha et al. 2012). In order to actualize these goals, the Africa arm of the VSG organised a pan-African vulture summit at Ilkeliani Camp in the Masai Mara, Kenya from April 16-20, 2012 (Botha et al. 2012). The aims of the summit were to, 1) develop the foundation of a Pan-African vulture strategy, 2) create a regional framework to implement the outcomes of the summit through the development of an African vulture secretariat, 3) elect a steering committee for the Africa Region of the VSG and 4) amend and adopt a resolution to encourage African governments to address threats to African vulture populations (Botha et al. 2012).

In 2013, BirdLife Botswana declared it will launch a new public campaign called “I want Botswana’s vultures ALIVE – not DEAD” in response to increasing vulture poisoning incidences, the latest of which killed about 1,000 vultures (Anon. 2013). The message is a wake-up call to the Ministry of Environment, Wildlife and Tourism and other anti-poaching agencies to help conservation organisations maintain Botswana’s tourism and extend attention to poisoning of vultures which may be linked to elephant poaching (Anon. 2013).

Naturama and the Association des Techniciens Indépendants du Cinéma et de l'audio-visuel (ATIC) with funding from BirdLife International and the North England Zoological Society have sponsored a film documentary to educate the public in Burkina Faso on the plight of vultures (BirdLife International, 2011).

The South African government recently endorsed a Biodiversity Management Plan (BMP) for the Bearded Vulture *Gypaetus barbatus meridionalis*, an endangered species inhabiting the Maluti Drakensberg Mountains of southern Africa including Lesotho and the Free State,

Kwazulu-Natal and Eastern Cape Provinces of South Africa (Krüger, 2014). The aim of the BMP is to provide a mechanism to ensure the long term survival of the Bearded Vulture through halting the population decline and stabilizing the population size (approximately 100 breeding pairs) over the next ten years and to start growing the population to a realistic carrying capacity (150 breeding pairs) in the future (Krüger, 2014).

BirdLife South Africa and the Royal Society for the Protection of Birds (RSPB) have commissioned the review of the conservation status of Afro-tropical vultures (Botha et al. 2012). In Nigeria, the Nigerian Conservation Foundation (NCF) is carrying out research on basic monitoring and national advocacy for vulture conservation (Akagu and Adeleke, 2012). A Memorandum of Understanding on Africa-Eurasian Migratory Birds of Prey was concluded under the UNEP Convention on the Conservation of Migratory Species of Wild Animals and covers three species of vultures: the Egyptian vulture (*Neophron percnopterus*), Eurasian Griffon (*Gyps fulvus*) and Cinereous vulture (*Aegypius monachus*) (Anon. 2012).

The International Vulture Awareness Day was created through cooperative efforts by the Birds of Prey Programme, South Africa and the Hawk Conservancy Trust, England and this grew into an international event aimed at increasing awareness of vulture conservation (Anon. 2012).

### 3.0. Methods

Data collection was carried out through semi-structured open-ended questionnaires administered to 26 traders of vulture parts for traditional medicine in 4 markets in three cities in Nigeria and 15 traders in one market in Sierra Leone (Table 1). The cities selected in Nigeria for this survey were from those cited in the literature as bird parts market (See Nikolaus, 2001). In Oshogbo, 16 vulture traders out of 34 wildlife traders were surveyed with 5 vulture traders declining to be interviewed. The market in Oshogbo is small with only wildlife parts for sale and 34 wildlife traders overall. For Abeokuta, 13 vulture traders out of 87 wildlife traders were interviewed with 3 vulture traders declining to be interviewed. In the Abeokuta market, other products were sold apart from wildlife and the overall number of traders in the market is estimated to be around 200. Information on the proportion of traders in Onitsha and Freetown are not available.

Saidu and Buij (2013) define ‘traditional medicine’ as the use of wild animal parts to treat physiological ailments and their application for ceremonial, religious or spiritual purpose associated with healing; which is suitable for this report. All traders in all markets in Nigeria and Sierra Leone were given once-off interviews in the month of June 2014. Questionnaires were administered by graduate student conservation biologists who were accompanied by local interpreters to foster trust and harmonious communication. The interviews investigated two broad categories: ‘market demand’ and ‘historical perspective’ of trade in vulture parts. Information on demographics of traders and their customers was collected including how long it was estimated vulture parts were on the stall before purchase, how frequently new stock is gotten, how long it has been since the traders first started the business and if it was passed down from their parents among other questions (See Appendix 1 for questionnaire). GPS coordinates of all survey sites except for Onitsha were taken.

Data analysis was done using SPSS statistical package to determine percentages.



**Table 1:** Locations where the markets of the 26 traders in Nigeria and 15 traders in Sierra Leone are situated. The number of markets per city is indicated.

### Nigeria

City of survey	Market	No. of Traders
Oshogbo	1	11
Abeokuta	1	10
Onitsha	2	5

### Sierra Leone

City of survey	Market	No. of Traders
Freetown	1	15

## 3.1. Study Area

### Nigeria

Oshogbo is a city in southwest Nigeria; the capital of Osun State (see Fig 1). It lies on the railway line from Lagos to Kano and has a population of about 156,694 people based on 1991 census (Wikipedia, 2014a). Most of the population are members of the Yoruba ethnic group (Wikipedia, 2014a). In 1988, about 27% of the population were engaged in farming as their primary occupation, 8% were traders and about 30% clerks and teachers (Wikipedia, 2014a).

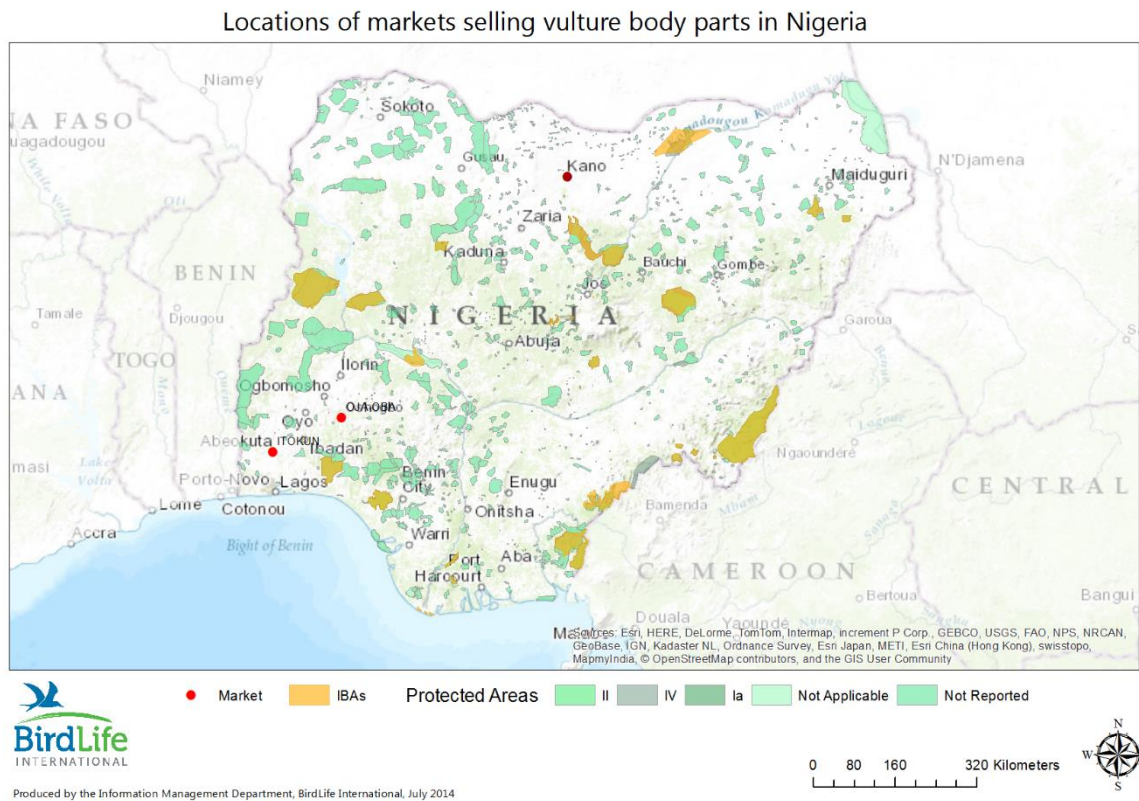
Abeokuta is the largest city and capital of Ogun State in southwest Nigeria (Wikipedia, 2014b) (see Fig 1). It has a population of 1,117,000 for 2012 (Wikipedia, 2014b). The majority in Abeokuta are from the Yoruba ethnic group.

Onitsha is a city, a commercial and religious centre and river port on the eastern bank of the Niger River in Anambra State, south eastern Nigeria (Wikipedia, 2014c) (see Fig 1). The region is predominantly occupied by the Ibo ethnic group. The population is 350,280 based on the 1991 census (Wikipedia, 2014c).

## Sierra Leone

Freetown is the capital and largest city of Sierra Leone located in the Western Area of the country (Wikipedia, 2014d). As of 2010, the population of Freetown is estimated at 1.2 million (Wikipedia, 2014d). The population of Freetown is ethnically, culturally, and religiously diverse, among Muslims and Christians (Wikipedia, 2014d). The city is home to a significant population of virtually all of the country's ethnic groups, with no single ethnic group forming a majority of the city's population (Wikipedia, 2014d).

Fig. 1.



## **4.0. Results**

### **A. Nigeria**

#### **Traders (Oshogbo, Abeokuta and Onitsha)**

A little over half the traditional medicine traders that deal in vulture parts in all three cities were youths with 52% of respondents below 37 years. The traders were predominantly female (80% of respondents). 96% of respondents were from the Yoruba ethnic group and 100% of these Yorubas were Muslims. 22% of the traders were illiterate while the remainder had at least a primary school education.

#### **Customers (Oshogbo and Abeokuta)**

The results from the Onitsha survey in south east Nigeria are not included because they cover only 5 respondents with no particular pattern and Onitsha is in a distinct geopolitical zone from the southwest in Nigeria (See Study Area).

Half of the traders said Traditional Religion Practitioners were the customers who patronized them. Seventy-seven percent of them said their customers were predominantly male and 64% of them said their customers were educated. All respondents (100%) said their customers were Yoruba. Of the interviewed traders, 77% said they patronized regular customers and a majority (94%) said their customers were increasing. Sixty-five percent said their customers came from the same town.

#### **Vulture Parts and Prices (Oshogbo and Abeokuta)**

Eighty-nine percent of the traders said their vulture parts were sourced from Northern Nigeria with some of them mentioning Kano in particular. Seventy-nine percent of respondents said that vulture parts are more in demand relative to other animal parts. A majority of the traders said their vulture parts stayed in the stall for maximum of 2 weeks while a little over half said restocking took less than 4 weeks (Table 2 & 3).

The price of vulture head was the most expensive vulture part and ranged from 2,000-6,000 Naira (US \$13 - 38). A whole vulture ranged from 8,500-9,000 Naira (US \$56).

### Historical Perspective (Oshogbo and Abeokuta)

The majority of the traders said they have been in the business for more than 8 years (90% of respondents). All traders (100%) inherited the trade from their parents. Seventy-one percent of the respondents said the availability of supplies is more compared to 10 years ago and all the traders said the business is more lucrative in the present (within 2014). Ninety-four percent said the vulture parts with regards to 10 years ago are more expensive.

**Table 2:** Percentages of duration that vulture parts stayed in the stall before they are sold (Oshogbo and Abeokuta).

Duration in Stall		Frequency	Percentage
Valid	< 5 days	5	33.3
	1 wk	2	13.3
	2 wks	5	33.3
	> 3 wks	3	20.0
	Total	15	100.0
Missing	System	6	
Total		21	

**Table 3:** Percentages of duration for restocking (Oshogbo and Abeokuta)

Duration of restocking		Frequency	Percentage
Valid	< 4 wks	8	53.3
	2 mths	1	6.7
	3 mths	2	13.3
	> 4 mths	4	26.7
	Total	15	100.0
Missing	System	6	
Total		21	

## **B. Sierra Leone**

### **Traders (Freetown)**

The traders were predominantly female (93%) and 67% of them were Muslims. In terms of tribes involved in the trade, there was no particular pattern of ethnic groups within the 10 ethnic groups identified. Twenty-seven percent of the respondents had no education.

### **Customers (Freetown)**

The majority of respondents (93%) said Traditional Religion Practitioners patronized them and 67% of the respondents said both sexes patronized them. More than half of the traders said that customers of all types came to them (i.e. educated and illiterate). Eighty-seven percent of respondents said they had no regular customers and 73% said their customers were not increasing. All respondents (100%) said their customers came from all locations of the country.

### **Vulture Parts and Prices (Freetown)**

Hundred percent of the traders said it took longer than 3 weeks for their vulture parts to be purchased from the stall. Seventy-three percent said it took longer than 4 months to restock their vulture parts collection. The price of a vulture head ranges from Le 25,000 to Le 50,000 (US \$6 – 11).

### **Historical Perspective (Freetown)**

Ninety-three percent of the traders said they have been in the business for more than 8 years with three respondents mentioning 20 years. Hundred percent of the respondents inherited the trade from their parents. Eighty-seven percent of the respondents said the business is not more lucrative in the present (within 2014). A little more than half of respondents (53%) say the availability of supplies is fewer compared to 10 years ago.

## 5.0. Discussion and Output

### 5.1. Socioeconomic Drivers of the Trade in Vulture Parts (Nigeria)

Results of the study show that over half (52%) of the traditional medicine traders that deal in vulture parts in Oshogbo, Abeokuta and Onitsha are youths and predominantly female (80%). A probable reason why that many youths feature in our study may be due to high unemployment rates in Nigeria. According to the National Bureau of Statistics (NBS), the rate of unemployment in Nigeria stood at 23.9% in 2011, while urban unemployment was estimated at 29.5% in 2013 (This Day, 2014) as compared to 7.7% in the UK (BBC, 2013). It is important to note that only 22% of the traders were illiterate while the remainder had at least a primary school education. Ordinarily, education should have increased the opportunities for alternative livelihoods. Also the result that majority of these traders were female is supported by Nikolaus (2001)'s observation that almost all shops surveyed in his study were run by women and could be due to a gender socio-cultural construct by the Yorubas.

The Yorubas seem to be the major traders of traditional medicine in Nigeria as our results show that 96% of respondents were from the Yoruba ethnic group. Although, this could also be attributed to the fact that Oshogbo and Abeokuta are predominantly Yoruba. But Yorubas were also among the 5 respondents surveyed in Onitsha southeast Nigeria that is predominantly Ibo with ratio 4 Yorubas : 1 Ibo. This is supported by Nikolaus (2001) who reports that the sale of traditional medicines throughout Nigeria is done only by people of the Yoruba tribe from the southwest. But Saidu and Buij (2013) didn't identify any Yorubas in their survey of 113 traditional medicine traders in 39 markets within 8 States in northern Nigeria which are predominantly of the Hausa tribe. Overall, it can still be argued that Yorubas are the major traders of traditional medicine since they are found selling traditional medicine in more markets and cities than the Hausas (see Nikolaus, 2001).

The survey revealed that 100% of the Yoruba traders were Muslims. Perhaps this may be because the Islamic religion among the Yorubas is probably relatively tolerant of fusion with trado-medical beliefs rather than outright worship of traditional deities. Christianity on the other hand, which is the second major religion in Nigeria, frowns explicitly at fetish practices.

The customers of these traders in Oshogbo and Abeokuta were predominantly male as said by 77% of the respondents. This could be explained by the issue of gender roles in the family structure and partly due to what vulture parts are meant to do as traditional medicine portions. For instance, the following targets of traditional medicine using vulture parts i.e. gambling, money doubling, competitions and contests are all male dominated events. The fact that 64% of the traders said their customers were educated explains that cultural forces are deeply entrenched in Nigerian society and education has little influence on people's beliefs and worldviews.

Seventy-seven percent of the respondents in Oshogbo and Abeokuta said they patronised regular customers and a majority of them (94%) said their customers were increasing. The fact that these traders patronised regular customers for vulture parts may be because of the region where the market is located which could have prevalent beliefs about the potency of vulture parts as medicine. The reason behind increasing customers for vulture parts in Oshogbo and Abeokuta is not clear. However, it may be due to the perceived failure of societal institutions such as hospitals and medical centres to resolve their problems. Finally, 65% of the respondents said their customers come from the same town, meaning the market meets a local demand in the main.

Results reveal that the vulture head was the most expensive vulture part ranging from 2,000 – 6,000 Naira (US \$13-38). Mcklean et al. (2013) also report similar results where the head and neck are most preferred as a treatment or for use by Traditional Healers, thereby carrying a higher price per unit than any other part of the body. The results show a whole vulture costs 8,500-9000 Naira (~ US \$56). Ten years ago it was estimated to be US \$0.95-1.60 and more recently US \$13-19 per vulture (Saidu and Buij, 2013). And prices up to US \$100 in Western Africa (Nikolaus, 2011 as cited in Saidu and Buij, 2013). These rising prices foster a lucrative market for the vulture trade and may encourage vulture traders to continue in the business. The relative cost of 9,000 Naira for vulture parts in southwest Nigeria as revealed by this study relative to the minimum wage of 18,000 naira (US \$113) in Nigeria suggests how expensive whole vultures are. However, Mcklean et al. (2013) have estimated that sales of vultures represent between 5% and 10% of the incomes of traditional healers. They observe that most hunters and traders trade a wide range of animal products, and vultures are likely to constitute only a modest portion of the trade (Mcklean et al. 2013).

### **5.1.1. Scale of the Demand in Vulture Parts**

The survey results reveal that 89% of the traders in Oshogbo and Abeokuta said their vulture parts were sourced from northern Nigeria with some of them mentioning Kano in particular. This could mean there is a trade chain for vulture parts in Nigeria with a central hub in northern Nigeria, possibly Kano in particular. Northern Nigeria could be supplying other regions of Nigeria with vulture parts. And 79% of the traders said that vulture parts are more in demand relative to other animal parts. This might be understandable considering that vulture parts are believed to cure a variety of illnesses and give good luck during gambling, money doubling, competition and contests as mentioned in an earlier part of this report (Saidu and Buij, 2013).

The rate of demand for vulture parts is estimated in the results revealed by the study that 80% of the traders in Oshogbo and Abeokuta said that vulture parts stayed in the stall for a maximum of 2 weeks while a little over half of them (53%) said restocking took less than 4 weeks. Restocking in these markets show a relatively high turnover rate. Taylor and Fox (1992) suggest a six-month 'shelf life' for skins in the market in Lomé, Togo. We could extrapolate based on the estimate that if 11 traders out of 21 traders in Oshogbo and Abeokuta restocked with 1 vulture every month, in 1 year, they would have acquired 132 vultures altogether for 2 markets in 2 cities. And Nikolaus (2001) surveyed 24 markets in Nigeria. Although the demand for vultures across these regions would differ, it can be conservatively estimated that if 66 vultures are acquired for each market in one year, then in 24 markets, over 1,500 vultures are traded across the country yearly. In Onitsha, southeast Nigeria, only very few vulture traders could be identified in this study.

Seventy-one percent of the respondents in Oshogbo and Abeokuta said the availability of supplies is more compared to 10 years ago. This could be due to a lucrative market in vulture parts thriving in the sub-region which could be pushing for supplies outside Nigeria in other countries such as Cameroun (Ogada and Buij, 2011).

### **5.2. Scale of the Demand in Vulture Parts (Sierra Leone)**

Results of the survey in Freetown, Sierra Leone show that 87% of respondents said they had no regular customers and 73% said their customers were not increasing. Further, 100% of the traders said it took greater than 3 weeks for their vulture parts to be purchased from the stall. And 73% said it took greater than 4 months to restock their vulture parts collection. Finally, a



little more than half of the respondents say the availability of supplies is fewer compared to 10 years ago (53%). Overall, this suggests that demand for vulture parts could be relatively low in Sierra Leone. Although this study represents only one market in the whole of Sierra Leone (the market is located in the capital city of Freetown). Field assistants also reported that vultures are still locally common with a majority of traders sourcing their vulture parts locally (M.B. Sesay pers. comm.).

In the light of the foregoing interpretations of the results of this study, the extent to which trade in vulture parts for traditional medicine in West Africa is a possible cause of decline of vultures can be explored. First, this study does confirm that there is demand for vulture parts for traditional medicine in Nigeria with an emphasis on the southwest where Yorubas are in the majority. While other possible causes of vulture declines have been suggested, ranging from reduced availability of carcasses, poisoning and power lines to disturbance of breeding sites, direct persecution through trade in vulture parts for traditional medicine seem to be the most likely cause of vulture declines in Nigeria for example. Although, it may be argued that the practice of use of vultures for traditional medicine had already existed for centuries, so it would not make any difference to vulture populations, it is clear that human populations have since increased in Nigeria and there are relatively higher levels of poverty and social inequity. Therefore, where this belief is prevalent, more people would likely resort to traditional medicine as an alternative when they lack better avenues to address their problems. To substantiate further the hypothesis that trade in vulture parts for traditional medicine is a possible cause of decline of vultures in Nigeria and West Africa, it must be noted that in the same Nigeria, a community in Enugu State is observed to have relative abundance of vultures given that it is a taboo to kill vultures there. The community is Agbogugu in Agwu Local Govt Area, Enugu State. The belief there is that vultures are sacred birds and should be undisturbed (I. Tanshi person. comm.). In neighbouring Ghana, in the city of Accra, the Hooded Vultures have been reported seen in their numbers (257) (Roberts, 2013). Further west, is the Gambia, where 654 Hooded Vultures were seen in a 24 kilometre road count (Bildstein, 2013).

It is acknowledged that this study has its limitations since only three cities in Nigeria were surveyed and one city in Sierra Leone. But the findings in the study are supported by prior research such as that of Nikolaus (2001) and Saidu and Buij (2013). Further studies would need a wider coverage of Nigerian fetish markets and other West African markets with a

strategy of mapping areas of trade in vulture parts for traditional medicine to confirm if they tally with areas where vultures are in decline comparing with areas where vultures are relatively abundant. This would enable scientists to confirm with greater certainty that trade in vulture parts for traditional medicine is the cause of declines of vultures in the regions where they are declining.

### **5.3. Output**

#### **5.3.1. Action Strategy for Addressing the Vulture Trade Problem in Nigeria**

##### **Background and Justification**

One of the key threats to vultures in West Africa, especially in Nigeria is thought to be persecution for their body parts used in traditional medicine. Several studies corroborate this hypothesis (Sodeinde and Soewu, 1999; Cocker, 2000; Nikolaus, 2001; Ogada and Buij, 2011; Saidu and Buij, 2013). A more recent study by the author carried out in the month of June 2014 gives insight into the scale of the demand and socioeconomic drivers behind the vulture trade in Nigeria. Twenty-six traders in vulture parts in four markets in Oshogbo (11), Abeokuta (10) and Onitsha (5) respectively were interviewed. In Oshogbo there was a total of 34 wildlife traders with only wildlife traders occupying the market. While in Abeokuta there was a total of 87 wildlife traders with the entire traders in the market estimated to be around 200. Information on the proportion of traders in Onitsha is not available. The price of a whole vulture in Oshogbo and Abeokuta ranged from 8,500 – 9,000 Naira (~US \$65). A majority of the traders (80%) in these cities said their vulture parts stayed in the stall for maximum 2 weeks while 53% said restocking took less than 4 weeks showing the rate of turnover was relatively high.

Results of the study reveal demand for vulture parts is increasing, turnover rates and availability of supplies is relatively particularly high in south western Nigeria because the trade is more lucrative in the region. This is probably because socio-cultural beliefs on the use of vulture parts are prevalent in southwest Nigeria. Whereas in the southeast trade levels in vulture parts is very low. From the survey, 96% of respondents were from the Yoruba ethnic group and 100% of these Yorubas were Muslims. But tribal affiliation which is the origin of the superstitious beliefs in use of vultures for traditional medicine seem to be the major driver of trade in vulture parts. Results also show that demand for vultures is strong in the southwest of Nigeria (the Yorubas are from the southwest and spread round the country).

Hundred percent of respondents inherited the trade from their parents which means the trade is restricted and passed across generations making possible control plausible. Eighty-nine percent of respondents said their vulture parts were sourced from the North with some of them mentioning Kano in particular. Kano is about 813 km from Oshogbo for instance. The origin of vulture parts from northern Nigeria is supported by Nikolaus (2001) and Saidu and Buij (2013).

The aforementioned will inform the vulture conservation strategy in Nigeria and how it might be effectively implemented. The proposal is based on the precautionary principle which is used where robust evidence is lacking in order to lessen or remove harm (Wikipedia, 2014e). In essence, the strategy proposed in this document is based on the premise that there is a cultural and theological dimension to the problem of trade in vulture parts in Nigeria. Culture informs the basis for the perpetuation of the trade practice in vulture parts for traditional medicine across generations in families in West Africa. Since the majority of traders in vulture parts in Nigeria are Muslims, an opportunity is presented for religion to shape culture in Nigeria through faith-based conservation messages as demonstrated elsewhere in the continent (Gambrill, 2011). Saroglou and Cohen (2011) observe religion may be part of culture, constitute culture, include and transcend culture, be influenced by culture, shape culture, or interact with culture in influencing cognitions, emotions, and actions. So in pushing for conservation of vultures from a theological angle the bidirectional relationship between religion and culture is recognised and the proposed strategy appreciates the reality that facts by themselves are rarely persuasive and people would rather be engaged through their emotions, values and beliefs. For instance, Johns (2009) observes that “Because people must explain the world, they fill in what they don’t know based on values and axioms. Knowledge and beliefs become conflated and new information about what causes lightning, for example, may not be persuasive to a group who have long thought it reflected the gods’ anger”.

**Objective:**

The objective of this document is to recommend a strategy for vulture conservation in Nigeria for BirdLife International and its local partner the Nigerian Conservation Foundation (NCF)

## **Strategy**

### **Overarching Goal:**

To conserve vultures in Nigeria and West Africa.

### **Immediate Goal:**

To mobilize and influence concerned parties in Nigeria (and internationally) to stop the sale of vulture parts in local markets in Nigeria from a theological basis for conservation.

### **Short term Expected Outcome:**

Sale of vulture parts for traditional medicine has decreased. And this will be measured by the number of those selling vulture parts in the country.

### **Long term Expected Outcome:**

Vulture populations have recovered. This will be measured through road counts and presence around abattoirs and dump sites in Nigeria. And the baseline for comparisons will be areas in Nigeria and West Africa where vulture populations are in abundance.

### **Identification, description, and roles of stakeholders, partners, and target audiences:**

i) Alliance of Religions and Conservation (ARC) [[http://www.arcworld.org/about\\_ARC.asp](http://www.arcworld.org/about_ARC.asp)]

#### **Description:**

ARC is a secular body that helps the major religions of the world to develop their own environmental programmes, based on their own core teachings, beliefs and practices. They help religions link with key environmental organisations – creating powerful alliances between faith communities and conservation groups.

#### **Potential role:**

ARC would serve as partners in this effort and provide the link to the Qadiriyyah Movement in Nigeria (see below) as this movement is an ARC partner.

ii) Qadiriyyah Movement, Nigeria [<http://www.arcworld.org/projects.asp?projectID=585>]

Description:

The Qadiriyyah Movement is Nigeria's largest Islamic sect with an estimated 15 million followers in the country. It has 1,500 full-time imams and muqaddams (spiritual representatives) largely in Northern and South Western states of Nigeria as well as in Northern Sudan, Niger, Chad, Togo, Cameroon and Ghana. The movement runs 118 primary schools, 34 secondary schools, two theological colleges and has more than 8,000 affiliated mosques.

Khalifa Sheikh Qaribullah Nasir Kabara is the leader of the Qadiriyyah Sufi Movement in Nigeria and the entire West African region. He was one of four leaders who attended the ARC/British Council-organised visit of Nigerian leaders to the UK in November 2010 and who committed to drawing up a long-term plan of action on the environment. This plan includes tree planting exercises and environmental education in schools and the wider community among others.

The Qadiriyyah Movement is a partner of the ARC.

Potential role:

It is expected that the leader of the Qadiriyyah Movement Khalifa Sheikh Qaribullah Nasir Kabara would speak to his followers (15 million) and Muslims in general about the risk of vultures going into extinction and the need for them to stop selling vulture parts.

## iii) Nigerian Conservation Foundation

Description:

Leading conservation NGO in Nigeria and BirdLife International's partner.

Potential role:

NCF would serve as BirdLife's local partner in contributing technical expertise and support in the effort and would play a supervisory role in the entire process.

## iv) The Federal Ministry of Environment

Description:

The parastatal in charge of environmental affairs in Nigeria.

Potential role:

The FMNV would create enforcement mechanisms and contribute to the publicity of the problem.

v) Traditional Medicine Dealers Association

Description:

Trade association for traditional medicine.

Potential role:

They would be involved in dialogue and consensual resolution of the problem and will be a conduit to reach the traders directly in order to stop the vulture trade.

vi) The Media

Description:

Print and electronic media (Newspaper, TV, Radio) in Nigeria

Potential role:

Role in publicity is crucial with particular emphasis on southwest and northern Nigeria where vulture markets seem to be concentrated.

vii) Traditional Religion Worshippers Association

Description:

Umbrella body for Traditional Religion practitioners.

Potential role:

It would be wise to invite this stakeholder into the discussion to foster inclusivity.

viii) A Rocha International [<http://www.arocha.org/int-en/index.html>]

Description

A faith-based international Christian organisation which engages in scientific research, environmental education and community-based conservation projects.

### Potential role

A Christian entity would facilitate greater diversity and generate more ideas to solving the problem.

### **Action Point**

A meeting of all the above mentioned bodies will convene in Nigeria to dialogue on the problem of vulture declines in West Africa and Nigeria in particular and how trade in vulture parts is contributing to the problem. Based on a consensual resolution of the problem, specific parties would be assigned specific roles in contributing to resolving the problem. There will be a follow up as soon as possible on action points by individual parties.

The outcome of the meeting will inform the next key action steps. However, it is envisaged that a coordinated set of actions comprising the following would ensue from the meeting:

1. The Qadiriyyah Movement leader would make a public declaration and faith-based conservation message to followers in southwest and northern Nigeria, particularly targeting the Yoruba and Hausa ethnic groups. This would be done in collaboration with the print and electronic media (Newspaper, TV and radio).
2. The Traditional Medicine Dealers Association would reach all its members nation-wide with reasons to stop selling vulture parts.
3. There will be a follow up on the Ministry of Environment to ensure the enforcement of the Endangered Species Act in Nigeria particularly targeting the hooded vulture.
4. A monitoring and evaluation scheme will be set in place to monitor the initiative and gauge its success in the local markets.

### **Timing**

The Independent National Electoral Commission in Nigeria (INEC) has released the 2015 elections time table with the Presidential and the National Assembly elections on February 14, 2015. Our proposed meeting would likely be best after this date.

### Project Timeline

Phasing/Tasks	Timeframe in Months (April- June 2015)			
	Apr	May	Jun	
1. Secure the meeting venue and fix a date. Send out a brief background to the problem and letter of invitation to all parties.				<b>January 2016:</b> Carry out a survey of sample fetish markets in southwest and northern Nigeria to confirm how many traders are still selling vulture parts.
2. Hold the meeting and assign action steps for each party.				
3. Follow up on each party to confirm status of activities.				

### SWOT Analysis of Conservation Strategy

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Faith-based conservation organisations already experienced in this kind of work will be involved in the project (ARC, A Rocha and Qadiriyyah Movement)</li> <li>The project has identified all the relevant parties allowing for an inclusive and democratic process</li> <li>There is a specific target audience: Yoruba traders in southwest Nigeria and Hausa traders in the North</li> <li>Vulture conservation is now an international priority</li> <li>Vultures are listed in the Endangered Species Act of Nigeria and are therefore protected under law</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>The Qadiriyyah Movement covers only 15 million members and doesn't cover all Muslims in Nigeria. So there's a possibility that some traders might be unaware of this movement. Nigeria's population is currently over 170 million</li> <li>Current national insecurity and the Ebola outbreak could be a distracting factor</li> <li>Vultures are not a charismatic species</li> <li>There is low conservation awareness in Nigeria and wildlife conservation is not considered a priority in society</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>With the Ebola outbreak, the risk of wildlife consumption will be heightened</li> <li>A new government is beginning in the year of the meeting. So there would be fresh energy and commitment</li> </ul>	<p><b>Threat</b></p> <ul style="list-style-type: none"> <li>The trade association and traditional religion worshippers may see this initiative as a threat of invasion by Western ideas or may perceive acculturation</li> </ul>



## **6.0. Reflections on Personal Leadership Lessons**

### **6.1. Managing Uncertainty**

One striking lesson learned in this placement project is the need to prepare for and anticipate contingencies. For instance, while preparing for the field surveys of this study two unforeseen events happened in two already identified field sites. The first field site in Jos Nigeria had a terrorist event. The second field site in Kenema Sierra Leone had an occurrence of Ebola outbreak. These cataclysmic events were unexpected but prepared for and well managed by a rational and effective response. Alternative sites for both study sites were immediately identified and enlisted for the placement project research. Hodgson and White (2003) observe that one reduces uncertainty by applying strategies and making decisions. They further posit that the goal is not to seek the reduction of uncertainty but to increase the ability of leaders and followers to work more effectively when facing it. The experience has grounded the author in the reality that whatever leadership project, in executing plans, one must expect the best and prepare for the worst. This is even more so in our age that is filled with uncertainty as recently demonstrated by the global financial crisis of 2008 that crippled many financial institutions, businesses and then conservation organisations.

### **6.2. Fostering Inclusivity and Diversity**

Although the author had always been aware of the importance of inclusivity and diversity, this became even more profoundly and explicitly demonstrated in working with BirdLife International, a highly diversified conglomerate of astute professionals. In working with BirdLife International, the author was able to garner constructive criticisms, ideas and suggestions on the improvement of his strategy and plans for the placement project. Each individual brought a unique perspective, an angle that had not been explored before; enriching the quality of his work. Acas (2012) argues that organisations can't thrive and grow if everyone in them thinks and behaves the same way. A diverse workforce with people from different racial, educational and social backgrounds and a diverse age range opens up a wealth of possibilities and helps to encourage creativity and foster innovation (Acas, 2012). This lesson will follow the author all through his career and work as he strives to solve conservation problems; selecting teams, managing boards and executing projects in Africa and beyond.

## **7.0. Conclusion and Recommendation**

This study endeavoured to understand the scale and socio-economic drivers behind wildlife trade with particular emphasis on vultures in West Africa. Among the reasons for wildlife trade are socio-cultural forces which differ from region to region across the world but basically share some common features. For example, all cultures have a need to express their beliefs and these beliefs are sacrosanct, barely tolerant of factual science. In most cases the beliefs are usually anchored by institutions and leaders. Conservation scientists should transcend their own way of seeing the world and find a basis for a common ground with these institutions and dialogue with their leaders as has been suggested in the output of this placement project. For instance, according to Gambrill (2011) as cited in Awoyemi et al. (2012), Muslim fishers in Misali Island, West of Pemba, Tanzania, once threatened important turtle nesting sites and delicate coral slopes through dynamite fishing. Efforts by government and environmental agencies to educate the populace proved ineffective until the Islamic Foundation for Ecology and Environmental Science (IFEES) conducted two environmental ethics workshops based on the Quran, in 1998 and 2001. The central message from the Imams to the madrassa teachers and fishermen was that dynamite fishing was illegal according to Islam, and the fishermen responded by ending this practice immediately.

The future of conservation especially in developing countries where biodiversity is richest would depend to a large extent on the cooperation of local peoples, communities and society at large. Conservation scientists should work to influence attitudinal change in these countries in such a way that it is welcomed and self-motivated. Religious and cultural institutions and their leaders present rich opportunities to realise such an objective.

## REFERENCES

- Acas (2012) The benefits of having a diverse workforce. Available from <http://www.acas.org.uk/index.aspx?articleid=3725> (accessed August 2014)
- Akagu, R. and Adeleke, A. (2012) Current status and threats facing the Nigeria vultures. Submitted to the pan-African Vulture Summit, Masai Mara, Kenya 16-20 April 2012. Nigerian Conservation Foundation
- Anonymous (2012) UNEP/CMS: International Vulture Awareness Day. Available from <http://bonnsustainabilityportal.de/?p=24291>
- Anonymous. (1997) Vultures on the menu. Newspaper report. Vulture News 36:37
- Anonymous. (2013) BirdLife Botswana launches campaign following poisoning of 1000 vultures. Available from <http://minetravel.co.bw/?p=1985> (accessed August 2014)
- Awoyemi, S.M., Gambrill, A., Ormsby, A. & Vyas, D. (2012) Global Efforts to Bridge Religion and Conservation Are They Really Working? In: *Topics in Conservation Biology*, Povilitis, T. (Ed.), In Tech, ISBN 978-953-51-0540-4.
- BBC. (2013) UK unemployment rate drops to 7.7%. Available from <http://www.bbc.co.uk/news/business-24045546> (accessed August 2014)
- Beilis, N. and Esterhuizen, J. (2005) The potential impact on Cape Griffon *Gyps coprotheres* populations due to the trade in traditional medicine in Maseru, Lesotho. Vulture News 53: 15-19
- Bildstein, K.L. (2013) The Gambia. A West African haven for Hooded vultures. Available from <http://hawkmountain.wordpress.com/2013/10/07/the-gambia-a-west-african-haven-for-hooded-vultures/> (accessed August 2014)

BirdLife International. (2011a) IUCN Red List for Birds. Available from:

<http://www.birdlife.org> (accessed May 2011)

BirdLife International. (2011b) Are Hooded Vultures threatened with extinction in Burkina?

Available from <http://www.birdlife.org/news/les-vautours-charognards-menac%C3%A9s-d%E2%80%99extinction-au-burkina-are-hooded-vultures-threatened>  
(accessed August 2014)

BirdLife International. (2013) Vultures are under threat from the veterinary drug diclofenac.

Available from <http://www.birdlife.org/datazone/sowb/casestudy/156> (accessed August 2014)

Botha, A.J., Ogada, D.L. and Virani, M.Z. (2012) Pan-African vulture summit Available

from <https://www.peregrinefund.org/docs/pdf/research-library/2012/2012-PAVS-Proceedings.pdf> (accessed August 2014)

Challender, D.W.S.; Wu, S.B.; Nijman, V., and Macmillan, D.C. (Undated) Changing

behaviour to tackle the wildlife trade. Available from  
<http://www.esajournals.org/doi/pdf/10.1890/1540-9295-12.4.203> (accessed August 2014)

Cocker, M. (2000) African birds in traditional magico-medicinal use – a preliminary survey.

Bulletin of the African Bird Club 7: 60-65

Cunningham, P.L. (2002) Vultures declining in the United Arab Emirates. Vulture News 46:

8-10

Gambrill, A. (2011). From practice to policy to practice: connecting faith and conservation in

Africa. International Resources Group for USAID Bureau for Africa. Washington, DC.

Available from <http://www.rmportal.net/library/content/from-practice-to-policy-to-practice-connecting-faith-and-conservation-in-africa/> (accessed 2012)

Hodgson, P. and White, R. (2003) Facing the unknown: what are leaders for if not to manage uncertainty? Available from <http://iveybusinessjournal.com/topics/leadership/facing-the-unknown-what-are-leaders-for-if-not-to-manage-uncertainty#.U-jlk7F094I> (accessed August 2014)

IUCN (2012) Dead end for vulture populations? Available from [http://www.iucn.org/media/media\\_awards/?10271](http://www.iucn.org/media/media_awards/?10271) (accessed August 2014)

Johns, D. (2012) A new conservation politics: power, organization building, and effectiveness. Wiley-Blackwell.

Koenig, R. (2006) Vulture Research soars as the scavengers' numbers decline. *Science* 312: 1591-1592

Krüger, S. (2014) Biodiversity Management Plan for the Bearded Vulture (*Gypaetus barbatus meridonalis*) for southern Africa. Available from [https://www.environment.gov.za/sites/default/files/gazetted\\_notices/nemba\\_gypaetus\\_barbatus.pdf](https://www.environment.gov.za/sites/default/files/gazetted_notices/nemba_gypaetus_barbatus.pdf) (accessed August 2014)

Lam, Y.K.J. (2012) Estimating the extent of illegal traditional Chinese medicine trade in Guangzhou, China using occupancy modelling. Available from <http://www.iccs.org.uk/wp-content/thesis/consci/2012/Lam.pdf> (accessed August 2014)

Liddick, D.R. (2011) Crimes against nature: Illegal industries and the global environment. Oxford, UK: Praeger Publishers

- Mascia, M. B., Brosius, J. P., Dobson, T. A., Forbes, B. C., Horowitz, L., McKean, M. and Turner, N. J. (2003) Editorial - conservation and the social sciences. *Conservation Biology* 17 (3), 649-650
- McKean, S. (2004) Traditional use of vultures: Some perspectives. In vultures in the vultures of southern Africa – Quo Vadis? Monadjem, A., Anderson, M.D., Piper, S.E., and Boshoff, A.F. Eds: 195-201. Proceedings of a workshop on vulture research and conservation in southern Africa. Birds of Prey Working Group. Johannesburg. Birds of Prey Working Group
- McKean, S., Mander, M., Diederichs, N., V., Ntuli, L., Mavundla, K., Williams, V., and Wakelin, J. (2013) The impact of traditional use on vultures in South Africa. *Vulture News* 65: 15-36 <http://dx.doi.org/10.4314/vulnew.v65:1.2>
- Mendelsohn, H. and Leshem, L. (1983) The status and conservation of vultures in Israel. In vulture biology and management. Wilbur, S.R. and Jackson, J.A. Eds: 86-98. University of California Press. Berkeley, CA
- Millennium Ecosystem Assessment (MA). (2005) *Ecosystems and Human Well-being: Synthesis*. Washington, DC: Island Press
- Mingozzi, T. and Estéve (1997) Analysis of a historical extirpation of the Bearded Vulture *Gypaetus barbatus* (L) in the western Alps (France – Italy): former distribution and causes of extirpation. *Biological Conservation* 79: 155-177
- Mundy, P.J. (2000) The status of vultures in Africa during the 1990s. In raptors at risk. Chancellor, R.D. and Meyburg, B.U. Eds. 151-164. WWGBP/ Hancock House Berlin
- Murn, C., Khan, U. and Farid, F. (2008) Vulture populations in Pakistan and the Gyps vulture restoration project. *Vulture News* 58: 35-43

- Nikolaus, G. (2001) Bird exploitation for traditional medicine in Nigeria. *Malimbus* 23: 45-55
- Nikolaus, G. (2011) The fetish culture in West Africa: An ancient tradition as a threat to endangered birdlife? In: *Tropical vertebrates in a changing world*, Schuchmann, K.L. (Ed.) *Bonner Zoologische Monographien*, Zoologisches Forschungsmuseum Alexander Koenig, Bonn. Pp 145-151
- Ogada, D. and Buij, R. (2011) Large declines of the Hooded Vulture *Necrosyrtes monachus* across its African range. *Ostrich* 82: 101-113
- Ogada, D.L. and Keesing, F. (2010) Decline of raptors over a three-year period in Laikipa, Central Kenya. *Journal of Raptor Research* 44: 43-49
- Ogada, D.L., Keesing, F., and Virani, M.Z. (2011) Dropping dead: causes and consequences of vulture population declines worldwide. *Annals of the New York Academy of Sciences*. doi:10.1111/j.1749-6632.2011.06293.x1-15
- Pollard, J. (1977) *Birds in Greek Life and Myth*. London, UK. Thames & Hudson
- Ríos-Uzeda, B. and Wallace, R.B. (2007) Estimating the size of the Andean condor population in the Apolobamba Mountains of Bolivia. *Journal of Field Ornithology* 78: 170-175
- Roberts, J.S.T. (2013) Estimating the population and distribution of Hooded vulture (*Necrosyrtes monachus*) of the Accra metropolitan area. Available from [http://www.africanbirdclub.org/sites/default/files/2013\\_Hooded\\_Vulture\\_Survey.pdf](http://www.africanbirdclub.org/sites/default/files/2013_Hooded_Vulture_Survey.pdf) (accessed August 2014)
- Rondeau, G. and Thiollay, J.M. (2004) West African vulture decline. *Vulture News* 51: 13-33

Saidu, Y. and Buij, R. (2013) Traditional medicine trade in vulture parts in northern Nigeria. *Vulture News* 65: 4-14

Saroglou, V. and Cohen, A.B. (2011) Psychology of culture and religion: Introduction to the JCCP special issue. *Journal of Cross-Cultural Psychology* 42: 1309-1319

SAVE. (2011) Saving Asia's Vultures from Extinction (SAVE) Available from [www.save-vultures.org](http://www.save-vultures.org) (accessed August 2014)

Sodeinde, S.O. and Soewu, D.A. (1999) Pilot study of the traditional medicine trade in Nigeria. *Traffic Bulletin* 18: 35-40

Synder, N.F.R. (1983) California condor reproduction, past and present. *Bird Conservation* 1: 67-86

Temple, S.A. and Wallace, M.P. (1989) Survivorship patterns in a population of Andean condors (*Vultur gryphus*). In *Raptors in the Modern World*. Meyburg, B.U. and Chancellor, R.D. Eds: 247-249. World Working Group on Birds of Prey. Berlin, Germany

This Day. (2014) Nigeria's unemployment rate may rise by 2%. Available from <http://www.thisdaylive.com/articles/nigeria-s-unemployment-rate-may-rise-by-2-168227/> (accessed August 2014)

Toledo, L.F., Asmussen, M.V., and Rodriguez, J.P. (2012) Track illegal trade in wildlife. *Nature* 483: 36

TRAFFIC. (2008) Wildlife trade: What is it? Available from <http://www.traffic.org/trade/> (accessed August 2014)



TRAFFIC. (2008b) TRAFFIC's engagement on African rhinoceros conservation and the global trade in rhinoceros horn. Available from <http://www.traffic.org/rhinos/> (accessed August 2014)

UNODC. (Undated) The illegal wildlife trade in East Asia and the Pacific. Available from [https://www.unodc.org/documents/toc/Reports/TOCTA-EA-Pacific/TOCTA\\_EAP\\_c07.pdf](https://www.unodc.org/documents/toc/Reports/TOCTA-EA-Pacific/TOCTA_EAP_c07.pdf) (accessed August 2014)

Verdoorn, G.H., van Zijl, N., and Snow, T.V. et al. (2004) Vulture poisoning in southern Africa. In vultures in the vultures of southern Africa – Quo Vadis? Monadjem, A., Anderson, M.D., Piper, S.E., and Boshoff, A.F. Eds: 195-201. Proceedings of a workshop on vulture research and conservation in southern Africa. Birds of Prey Working Group. Johannesburg. Birds of Prey Working Group

Wallace, M.P. and Temple, S.A. (1988) Impacts of the 1982-1983 El nino on population dynamics of Andean condors in Peru. *Biotropica* 20: 144-150

Wikipedia. (2014a) Osogbo. Available from <http://en.wikipedia.org/wiki/Osogbo> (accessed August 2014)

Wikipedia. (2014b) Abeokuta. Available from <http://en.wikipedia.org/wiki/Abeokuta> (accessed August 2014)

Wikipedia. (2014c) Onitsha. Available from <http://en.wikipedia.org/wiki/Onitsha> (accessed August 2014)

Wikipedia. (2014d) Freetown. Available from <http://en.wikipedia.org/wiki/Freetown> (accessed August 2014)

Wikipedia. (2014e) Precautionary principle. Available from

[http://en.wikipedia.org/wiki/Precautionary\\_principle](http://en.wikipedia.org/wiki/Precautionary_principle) (accessed August 2014)

## APPENDIX

### Semi-structured Interview Plan

#### Objective of Interview

To understand the scale and socioeconomic drivers of vulture declines

#### Introduction of Interviewer

Good morning/afternoon Sir/Madam, my name is \_\_\_\_\_, and I have been asked to carry out a study on vultures as part of the requirements for a Master's degree in the University of Cambridge. The outcome of this study will contribute to increasing knowledge about the trade in vulture parts and its sustainability. You have the right to decline this interview, to terminate it at any time and you will be kept anonymous in the dissemination of the results of this exercise.

During this interview, I would like to discuss the following topics: market of vulture parts, their source, history of the trade in your area, and some demographics. With these topics in mind....

#### Background Information

Sex:

Age:

Religion:

Ethnic group:

Level of education:

Name of the town where the market is located:

Position with respect to protected area (distance in km to nearest protected area – forest reserve, national park):

#### Market Demand

1. Do you know why your customers come for vulture parts?

A) To make purchases for ceremonies; B) For religious or spiritual purposes associated with healing; C) To treat physiological or psychological ailments D) Other (please specify)

2. What vulture parts do you sell?

## 3. How much are the parts?

Vulture Part	Price
Head	
Leg	
Feet	
Beak	
Bones	
Feathers	
Wings	
Neck	
Eyes	
?	

## 4. When is/are the peak season(s) for this market?

## 5. Who are the main buyers?

Religion: A) Christians B) Moslems; C) Traditional Religion Practitioners

Sex: A) Men B) Women

Age: A) Old B) Young

Level of Education: A) Educated B) Illiterate

Ethnic Group: A) Yorubas B) Hausas C) Ibos

## 6. Do you have regular customers for vulture parts?

A) Yes B) No

## 7. Would you say your customers for vulture parts have increased over the years?

A) Yes B) No

## 8. Where do your customers for vulture parts come from?

A) From the same town B) North C) South D) East E) West

9. Where is the source of your vulture parts? [Where (countries, states, parks) do you and your suppliers get their vulture parts?] Please name location in order of importance.

10. Are vulture parts more in demand relative to other animal parts?

A) Yes B) No

11. Do you know why?

12. How many vulture parts do you have for sale at this moment?

Vulture Part	Number
Head	
Leg	
Feet	
Beak	
Bones	
Feathers	
Wings	
Neck	
Eyes	
?	

13. How long do you estimate your vulture parts are for sale on your stall before they are purchased?

A) < 5 days B) 1wk C) 2wks D) >3wks

14. How frequently do you get new stock?

A) < 4wks B) 2 months C) 3 months D) > 4 months

15. Has the demand for particular parts of the vultures changed?

Vulture Part	Demand
Head	(A) Yes Upward/Downward B)No
Leg	(A) Yes Upward/Downward B)No

Feet	(A) Yes Upward/Downward B)No
Beak	(A) Yes Upward/Downward B)No
Bones	(A) Yes Upward/Downward B)No
Feathers	(A) Yes Upward/Downward B)No
Wings	(A) Yes Upward/Downward B)No
Neck	(A) Yes Upward/Downward B)No
Eyes	(A) Yes Upward/Downward B)No
?	(A) Yes Upward/Downward B)No

16. Can you tell me anything else regarding demand in vultures or their parts?

### Historical Perspective

1. How long has it been since the first time you started this business?

A) <2yrs B) 2-4yrs C) 4-6yrs D) 6-8yrs E) >8yrs

2. Was it passed down from your parents?

A) Yes B) No

3. In your opinion would you say the business is more lucrative now (within this year)?

A) Yes B) No

4. How do you compare the availability of the supplies: current, 10 years ago?

A) Fewer B) More C) No difference

5. How do you explain these?

6. How expensive are these parts with regard to 10 years ago?

Vulture Part	Price
Head	A) More B) Less expensive C) Same price
Leg	A) More B) Less expensive C) Same price
Feet	A) More B) Less expensive C) Same price
Beak	A) More B) Less expensive C) Same price

Bones	A) More B) Less expensive C) Same price
Feathers	A) More B) Less expensive C) Same price
Wings	A) More B) Less expensive C) Same price
Neck	A) More B) Less expensive C) Same price
Eyes	A) More B) Less expensive C) Same price
?	A) More B) Less expensive C) Same price

7. If more/less expensive: why the price change do you think?

8. Can you tell me anything else regarding patterns in vulture trade comparing now and when you started the business?

9. Is there anything more you would like to share?