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Poaching as a threat to biodiversity and a barrier to sustainable development in Western Uganda: A Case Study of Queen Elizabeth National Park, Rwenzori Mountains National Park, Kibale National Park, and Surrounding Areas

Madeleine Torraca Jones
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***Poaching as a threat to biodiversity and a barrier to sustainable
development in Western Uganda:***

*A Case Study of Queen Elizabeth National Park, Rwenzori Mountains National
Park, Kibale National Park, and Surrounding Areas*



Madeleine Torraca Jones

University of Denver

SIT Uganda: Development Studies

Academic Director: Charlotte Mafumbo

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Acronyms and Abbreviations:

CC- Community Conservation

FURA- Foundation for Urban and Rural Advancement

KNP- Kibale National Park

LE- Law Enforcement

MTWA- Ministry of Tourism, Wildlife, and Antiquities

NEMA- National Environment Management Authority

NDP- National Development Plan

QENP- Queen Elizabeth National Park

RMNP- Rwenzori Mountains National Park

UCF- Uganda Conservation Foundation

UNCST- Uganda National Council for Science and Technology

UPDF- Uganda People's Defense Force

UWA- Uganda Wildlife Authority

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Abstract

Despite efforts of the international community and individual countries to end poaching activities and target the markets which drive these activities, poaching continues to be a global problem. This paper will discuss the methods, findings, and recommendations that have resulted from a study on poaching in western Uganda. Uganda is both a transit country for illegal animal species and their derivatives from neighboring countries as well as a home to a number of species that are targeted by poachers. This makes Uganda an area of importance to the study of persistent poaching. Many of Uganda's protected areas and native species, as well as Uganda's border with the Democratic Republic of the Congo, are concentrated in the western region making this area particularly relevant to the study.

The research specifically addressed poaching in Queen Elizabeth National Park (QENP), Rwenzori Mountains National Park (RMNP), Kibale National Park (KNP), and the surrounding communities. The research was conducted from QENP, Kasese, Fort Portal, and Kampala over a six-week period. Personal interviews and focus group discussions were the main methods used to gather information during the study.

This paper includes major findings of the study such as the prevalence of poaching activities in the areas studied and the successes and shortcomings of anti-poaching initiatives. For the purposes of this research project, "poaching" includes any illegal trapping or hunting of a wild animal. Although plants are often included as species that can be "poached", this study excludes plant species.

1.0 Introduction

The idea that natural resources, including wild plants and animals, need to be “conserved” by humans is a concept which has been introduced somewhat recently. Regulation of trapping, hunting, and trading animals and their products in order to protect endangered species and to preserve biodiversity of an area is a part of this movement towards conservation. Although the movement exists, some individuals and communities still see anti-poaching and conservation efforts as detrimental rather than beneficial, a situation which minimizes their successes. It is important to recognize that “poaching” has not always existed as it does today when studying the persistent hunting and trapping of wild animals that is done illegally.

As Hulme and Murphree noted in *African Wildlife and Livelihoods*, it was not until “colonial territories enacted laws restricting or banning hunting, [that] Africans who hunted for the pot or for trade were reclassified as ‘poachers.’” Similarly, the Uganda Wildlife Authority (UWA) noted in an article that only with public sensitization surrounding wildlife conservation in recent years are people “beginning to see that there is poaching going on, yet it has been happening historically before the national parks were created more than 50 years ago” (UWA). Furthermore, the article states, “Kings used to hunt openly in our present protected areas. Likewise community members used to hunt wildlife both inside protected areas and in areas outside the protected areas.” (UWA).

While there are individuals and groups who continue to hunt illegally and oppose certain conservation efforts, the international community has increased conservation efforts in recent years. The UN’s Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) began in 1973 and by 2009 had almost 200 member countries. This convention set in place protocol for its signatories and for the international community as a whole to regulate hunting and trade of flora and fauna. Additionally, since the late 1990s there have also been many NGOs and internationally aided projects aimed at the protection of wildlife and the reduction of illegal trade in wildlife and animal products such as ivory or furs (Hulme & Murphree, 2001).

Like several other countries, Uganda has lost large populations of native species to poaching during times of political instability and rampant conflict. In attempts to

discourage further poaching, a combination of national policy such as the Uganda Wildlife Act and community-based initiatives such as revenue sharing, small-scale tourism ventures, and human-animal conflict mitigation efforts have been undertaken. As of July 18, 1991, Uganda has also been a signatory to the CITES agreement. Despite these efforts, however, issues of poaching and illegal trade have not completely disappeared. A report by the Ugandan government suggested the continued existence of a global market for trade in illegal materials, as well as a lack of data and research needed for decision and policy making as inhibiting successful wildlife management and regulation. (NEMA, MWE, & MTI, 2008).

The purpose of this project is to research how much poaching actually occurs in the areas of study and how incentives for poaching can be minimized in order to reduce levels of illegal killing and trading of animals and animal products, to sustain biodiversity, and to encourage tourism and economic development. The study will focus on issues of poaching and illegal trade around QENP, RMNP and KNP. Generally, the research will seek to identify who takes part in the illegal killing and trading in this area, what motivates the involved individuals or groups, what anti-poaching initiatives are in place, and how effective these initiatives are. With information on the prevalence of poaching, and motivations behind poaching activities, recommendations can be made on how to improve existing anti-poaching initiatives and suggestions for new initiatives can be created. The researcher takes a bio-centric approach with the idea that regulation and monitoring of poaching should protect at-risk species and the area's natural ecology without harming, but instead benefitting, the human community.

4.0 Background

When wildlife is seen as a valuable natural resource, people are motivated to protect the species native to their country. In Uganda, governmental recognition of the value of wildlife can be observed through recent moves towards increasing conservation efforts. Actions taken include signing on to the CITES agreement, establishing the Uganda Wildlife Act, and including plans for conservation in the most recent National Development Plan. These policies and plans provide important background information for the study of poaching in Uganda and are discussed further in the following sections.

4.1 CITES and Uganda

CITES stands for the Convention on International Trade in Endangered Species of Wild Fauna and Flora. CITES sets in place a number of restrictions on trade in wildlife by ranking different species into three appendices depending on how endangered the species is. Species listed under Appendix I are threatened with extinction and international trade of these species or their derivatives is almost always prohibited. Species listed under Appendix II are also threatened species and trade of these species or their derivatives is also regulated. Species listed under Appendix III are protected in one or more countries and have varying restrictions in terms of trade. CITES also established a framework for collaboration among its signatories, to which Uganda joined when the government signed onto CITES in 1991 (UNEP).

Species native to Uganda which are listed under Appendix I of the CITES agreement include cheetah, leopard, black rhinoceros, Eastern gorilla, chimpanzee, African elephant, peregrine falcon, and African dwarf crocodile. A list of all Ugandan species listed in Appendices II, III, and I can be found in Appendix 3.

4.2 Uganda Wildlife Act and the Uganda Wildlife Authority

The Uganda Wildlife Act and the implementing agency, the UWA, are the main actors in the regulation and monitoring of poaching activities in Uganda. The Uganda Wildlife Act was set into place by the government of Uganda in August 1996 as:

“An Act to provide for sustainable management of wildlife; to consolidate the law relating to wildlife management; to establish a coordinating, monitoring and supervisory body for that purpose and for other matters incidental to or connected with the foregoing.”

(Republic of Uganda, 1996)

The Act includes sections providing for the protection of wildlife, for control of access to wildlife and natural resources, for regulation of trade in wildlife species and derivatives, and for punishments given to those found in offense of any regulations set by the Act.

Part IV and Part V of the Act cover issues pertaining to wildlife conservation areas, and protected species respectively. Section 21 of Part IV establishes that “any person who in any wildlife conservation area unlawfully- hunts, takes, kills, injures, or disturbs any wild plant or animal or any domestic animal, commits an offence.” Section 25 also establishes that the UWA has the authority to regulate access that neighboring communities have to resources within the park. In relation to protected species, the Act enforces protections given to species by the CITES agreement as well as gives the government of Uganda power to enforce further protections. For example, section 27 of Part V states, “The Minister may, on the recommendation of the board, by statutory order, declare any species of wild plant or wild animal specified in the order to be classified as a protected species under this Act.” Additionally, this section states that, “Species which migrate to or through Uganda which are protected under any international convention or treaty to which Uganda is party and to which section 90 applies shall be protected species under this act,” (Republic of Uganda, 1996).

Part VI of the Act establishes the Wildlife Use Rights which allow individuals access to certain protected resources through activities including hunting, farming, ranching, trading in wildlife and wildlife products, use of wildlife for education or scientific purposes, and general extraction. These use rights are granted by the UWA to

the individual who applies for them depending on their legality in relation to the other parts of the Act.

The UWA is the governmental agency, under the Ministry of Tourism, Wildlife, and Antiquities (MTWA), which carries out the policies put in place by the Uganda Wildlife Act. The UWA consists of seven different departments, including departments for finance, law enforcement, community conservation, tourism, engineering, civil engineering, and monitoring and research.

4.3 Uganda's National Development Plan (2010/11-2014/15)

The current National Development Plan (NDP) of Uganda sets in place the framework for development with the aim of becoming “A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years” (Republic of Uganda, 2010). As written in the document, this envisioned society will be one in which “Ugandans should be able to exploit and use national resources gainfully and sustainably to promote competitiveness, independence, self-sustenance and a dynamic economy, which is resilient to any external shocks; and economy which supports stability and protection of biological and physical systems.” (Republic of Uganda, 2010).

The goals of the NDP suggest that protection of Uganda's wildlife as a natural resource and an attribute to the country's economy is central to policy formations and implementation in the current and upcoming years. The NDP includes interventions in the tourism development sector such as “review the National Wildlife Act,” “Enact the Uganda Wildlife Education Centre (UWEC) Act” and “Domesticate CITES” (Republic of Uganda, 2010). As Uganda's tourism sector is largely dependent on wildlife and other ecological attractions this focus on resource protection is important to the country's economic success. In the World Bank's report on the *Economic and Statistical Analysis of Tourism in Uganda* published in 2012, the impact of tourist expenditures was recorded as “contributing to 38 percent of exports and 5.6 percent of GDP.” (WB, 2013).

2.0 Objectives

The overall goal of this study is to conduct research on poaching and illegal trade of animal species around Queen Elizabeth National Park, Rwenzori Mountains National Park and Kibale National Park.

The objectives of the study are:

- a. To research what types of poaching and illegal trade occur in the areas surrounding and including QENP, RMNP, and KNP
- b. To research the motivations behind existent poaching and illegal trade
- c. To research anti-poaching and anti-illegal trade initiatives and their successes and failures.
- d. To determine the impacts of poaching on biodiversity and sustainable development

3.0 Justification

While there have been efforts to minimize poaching and illegal trade in animal species and derivatives, these activities persist in Uganda. A number of endangered and unique species live in the areas of study, and poaching exists as one of various threats to these animals. This wildlife is a valuable part of Uganda's tourism sector as well as the country's natural ecology and therefore should be protected against harm and extinction. As noted in a government report, there has been a lack of data and research done to inform policy making and implementation meant to address threats to wildlife such as poaching and challenges to conservation in Uganda (NEMA, MWE, & MTTI, 2008).

There has been an emphasis on reducing international demand for the products of poaching in recent years. While this is important, in order to understand why poaching activities persist it is also necessary to study the local conditions in which the poaching occurs. This report summarizes some of these local conditions in areas where poaching and trade are currently occurring.

5.0 Methods

The researcher spent two weeks in Kampala, one week in QENP, two weeks in Kasese, and one week in Fort Portal conducting research in the field and compiling information into this report. Prior to beginning research in the field, the researcher gained clearance from the UWA and the Uganda National Council for Science and Technology (UNCST) to undertake the study from 20 October to 7 December 2013.

The researcher used a qualitative approach and a combination of semi-structured personal interviews and semi-structured focus group discussions to gather information and perspectives from stakeholders of the national parks and individuals involved with the issues of study. A series of questionnaires were developed for use in interviews and discussions depending on positions of the participants (Appendix 3). Existing literature such as reports, policy, management plans, and other publications were also utilized in the gathering of information for the study. Methods of study and challenges the researcher encountered will be described in more detail in the following sections.

5.1 Existing literature

A review of existing literature (Appendix 1) was done in order to gain background knowledge about the areas of study and existing policy surrounding poaching. Policy reviewed included the Uganda Wildlife Act, the National Development Plan, and the CITES agreement. Several UWA reports were consulted for information on the status of wildlife and the various protected areas of Uganda over the years. Other reports by scholars and organizations on the issues of poaching, trade, and regional situations were also consulted to cross check information and build on the study.

5.2 Semi-Structured interviews

The researcher used a semi-structured format to conduct a number of personal interviews (Appendix 2). A separate set of questions was created for individuals involved with law enforcement, for individuals involved with community-based conservation, and for individuals living in communities bordering or within the protected areas. These questionnaires were used loosely; the researcher often altered or omitted some of the questions depending on the situation. The semi-structured approach was used because it allowed for issues to be cross checked by a number of sources, and also allowed for

flexibility as the interviewees often held unique positions for which not all questions applied.

The researcher used one set of questions to interview a number of UWA staff in the Law Enforcement Department (LE) in each protected area included in the study. At QENP, the executive LE warden, as well as seven LE field rangers were interviewed using the questionnaire. At RMNP the executive LE warden was interviewed using the same questionnaire, and at KNP the captain UPDF officer working with the UWA's LE department as well as three LE field rangers were also interviewed. The executive Community Conservation (CC) wardens at each of the parks were also interviewed using a separate set of questions in many of these interviews; the researcher modified the questionnaire slightly depending on the situation.

The third set of questions was used to interview members of surrounding communities including the LC 1 chairmen of Hamukungu, Nkingo, Bogodi, and Rweteera parishes, and two individual farmers whose land borders QENP. These questions were also used in a series of focus group discussions with community members.

Individuals from CARE International, the Ministry of Tourism, Wildlife, and Antiquities (MTWA), the Good Hope Foundation, Uganda Conservation Foundation, the Foundation for Urban and Rural Advancement (FURA), the Kasese district Environmental officer, and several Makerere professors also participated in personal interviews over the course of the study. The researcher used a combination of relevant questions from the questionnaires during these interviews.

5.3 Focus group discussions

Focus group discussions were held with LC 1 chairmen and other community members of Kasenyi, Kahendero, Nyakarengyo, Ibanda, and Kyanjoki parishes (Appendix 2). A focus group discussion was also held with the King and several ministers of the Basongora kingdom in Kasese. A questionnaire was used for each of these focus groups discussions, but the questions were modified depending on the situation. The semi-structured format was used in the focus group discussions, as in the personal interviews, so that questions could be added or changed depending on the situation. An interpreter was used during these interviews so that the discussions could be

held in the participants' native languages. The use of an interpreter was often absolutely necessary, and when English could have been used, it would have restricted the depth of the discussion significantly.

5.4 Ethics

The researcher received clearance from the UWA and UNCST to undertake the study prior to beginning research. Participants in the study were asked if information they shared could be recorded manually by the researcher, and were aware that they could withhold any information they did not want to share. Participants were informed of the purposes of the study prior to the interview or discussion. While the topic of this study is an illegal activity, no information shared in this report identifies any individual as partaking in any criminal activity and therefore should not and cannot be used against them in any way. If participants asked to remain anonymous, their names do not appear in the report.

5.5 Challenges and Solutions

There were several challenges the researcher encountered during the study. The main challenges were language barriers, time and resource constraints, the illegality of the issue being researched, and questionable reliability of existing data. Different methods were used to minimize these constraints.

The language barrier was mostly problematic while conducting interviews and focus group discussions with the communities surrounding, or in the case of QENP within, the protected areas. The researcher often did not speak the native language of many communities in the areas of study. Additionally, it would also have been difficult for the researcher to identify the LC 1 chairmen and other individuals of the communities willing to participate in the study without any assistance. In order to address these challenges, the researcher used an interpreter to identify individuals for participation and to conduct the interviews and discussions. Though there may still have been some information lost during the translation process, incorporating an interpreter allowed for a deeper level of conversation than could have been achieved if only English was used.

In addition to the language barrier, there were other challenges in arriving at accurate conclusions. One of these challenges was the fact that the subject of the study was an illegal practice. In some cases participants did not want to disclose certain

information and most likely withheld the complete truth because of the illegality of the subject of study. In order to address this challenge, the researcher tried to assure participants that their information would not be used against them and that they had the option of remaining anonymous if preferred. The other challenge to achieving accurate conclusions was in relying on existing data for use in the study. It was necessary to note that the data may not have been exact and there may have been factors contributing to certain data changes that were not directly noted in the reports. For example, when looking at population trends for a certain species, an anthrax breakout or an invasive plant species could have caused the decline rather than poaching. Crosschecking information from multiple sources helped the researcher arrive at the most reliable conclusions.

Lastly, the researcher would have liked to have conducted interviews and focus group discussions in more of the parishes surrounding the protected areas in order to have a larger sample size. Specifically, the researcher would have liked to have talked with individuals from the Ishasha area, and from other areas on the eastern side of QENP and KNP. Due to the cost of transportation and interpreting services, and also to time restraints the researcher was, unfortunately, not able to conduct these interviews.

6.0 Findings

6.1 Definitions and Motivations of Poaching

In this report, poaching refers to any hunting, killing, or trapping of an animal that is done illegally. The illegality of hunting, trapping, and killing certain species is established by both international and domestic policy as was discussed in the background. Poachers are motivated by a number of incentives, some more influential than others depending on social and environmental factors.

6.1.1 Traditional vs. Situational Poaching

Individuals involved in poaching can be divided into two categories depending on the manner in which they became involved in illegally hunting or trapping wild animals. For individuals in the first category, poaching is a tradition. An individual may become involved in this “traditional” of poaching by living in a culture which promotes or normalizes poaching activities. The individual may inherit knowledge, tools, and

expectations from family or community members, encouraging them to hunt or trap wild animals for consumption or trade. It was suggested by a UWA ranger stationed at KNP that certain tribes in western Uganda, such as the Batooro, Bakiga, and Bakonjo, are more likely to encourage poaching as a tradition. (Lubahika, 2013).

The second category consists of “situational” poachers. These individuals may become involved in poaching activities for a variety of reasons. One might turn to poaching because they see no alternative source of food or income. One might join a friend who has been hunting or setting traps to protect his or her property. One might acquire a gun for any reason and decide that hunting wild animals will be a less costly way to fulfill their needs than any other.

While reasons (such as subsistence, trade, or protection) for poaching may be the same for “traditional” and “situational” poachers there is a fundamental difference between the two. The individuals who have inherited poaching as a tradition operate under a different mindset than those who have not inherited the tradition. Situational poachers may approach poaching as a cost-benefit equation and see poaching as an alternative means to achieve a certain goal. Traditional poachers on the other hand are more likely look at poaching as a way of life and as the most natural way to achieve the same or similar goals.

6.1.2 Subsistence

Much of the poaching that occurs in the area of study is done for subsistence purposes. In this report, subsistence-level poaching refers to the killing of wild animals for meat or other products to be directly consumed or to be consumed within the community. Animals poached for subsistence purposes in this area include hippopotamus, buffalo, antelope, and various primates and birds. Even elephants may be poached for subsistence; according to a member of the UPDF, elephant trunks are thought to taste very good. (John, 2013). While poaching for subsistence is common and is illegal, it may not necessarily be the biggest threat to biodiversity because many of the species killed for their meat are not endangered.

Poverty and preference are the main drivers of subsistence-level poaching. Game meat may be sought after by an individual due to lack of an alternative food source or an alternative income. It has been suggested by several sources, however, that currently it is

more common for game meat to be sought after because of cultural preference. Game meat is preferred because it is believed to be sweeter than meat from livestock and may contain fewer chemicals than other meat. (Scholar, Twinomugisha, Butele, 2013).

6.1.3 Commercial

The second type of poaching is driven by the demand in domestic and international markets for wild animal species, game meat, or trophies. Illegal hunting and trapping for commercial reasons is done for trade and wealth accumulation purposes rather than for consumption. Materials that have often been sought after for trade include rhino horn, elephant ivory, hippo teeth, leopard skins, and snake skins among others. There are also some species that are captured for trade as pets including chimpanzee, various birds, reptiles, and others.

It is mostly this kind of poaching that the CITES agreement is targeting and attempting to reduce. However, the treaty has not been fully successful. It can be argued that CITES has too narrow a focus, and does not address problems other than trade that cause loss of biodiversity, and may even contribute to rising levels of poaching. A report on CITES in Uganda noted that, “listing of species can be considered a double-edged sword, because while it is considered to be ‘protective’, it can trigger off poaching and illegal trade.” (Makumbi & Manyindo, 2000). Another situation which may be increasing poaching for commercial purposes, as noted by a member of the UPDF stationed in KNP, is the off sales of ivory in several southern African countries. The off sales have reopened the market for ivory, which has, in some cases, in KNP for example, led to increased poaching of elephants in recent years despite international attention to the problem. (John, 2013).

6.1.4 Cultural

In addition to subsistence and commercial reasons, poaching may also be done to obtain materials that are culturally valuable to the communities living around the parks. While it can also be said that the markets discussed above, such as markets for ivory, horns, and game meat are culturally specific, this refers to items which are valuable to the tribes and communities living in western Uganda, not to foreign markets. This kind of poaching most likely exists on a smaller scale than poaching done for consumption, sale, or trade purposes and also may be diminishing as culture and societal values change over

time. Animals may be poached for their skin, scales, bones, or other products for use in cultural rituals, traditional medicine, or as status symbols.

Skins from monkeys, kobs, leopards, and other animals may be worn as status symbols or given to individuals of power as gifts. (Okello, 2013). Chimpanzee skulls and bones, snake skins among other animal products are used by traditional healers for healing rituals, traditional bone setting, and in medicines. (Rugumba, 2013). According to individuals staying in Kasese, Indians find lion nails and teeth very valuable for their medicinal qualities and because they make the owner attractive to the other gender.

6.1.5 Protection

Human-wildlife conflict is also a driver of illegal trapping and hunting activities in western Uganda. Individuals may set traps around their property or kill an animal upon seeing them near their property in order to protect their lives or their livelihoods.

Crop raiding is one of the most prominent human-wildlife conflicts in the areas around protected areas in western Uganda. Crop raiding occurs when an animal enters onto an individual's land and consumes their crops. Elephants, buffalo, and baboons are some of the species most threatening to farmers, frequently eating their harvest of beans, maize, and even cotton. Animal aggression towards humans or their livestock is another serious human-wildlife conflict. Lions, hyenas, leopards, hippopotamus, crocodiles, and chimpanzee are the most threatening animals in the area. Many community members who lived close to the parks could easily reference the loss of another community member or the frequent loss of livestock from themselves or their community.

6.2 Implications of Regional Conflict on Native Species

QENP, RMNP, KNP, and the surrounding areas have been subjected to increased levels of poaching due to political conflict and rebel activity occurring in or affecting western Uganda. Poaching has been rampant during times of conflict because, with low levels of regulation, poaching can easily provide a source of funding or food.

6.2.1 Past Conflict

Extensive poaching was done throughout Uganda during the 1970s and 80s under Idi Amin's regime. The effects of the rampant killing of keystone species such as

elephants and rhinoceros during this time can still be seen; there are now no wild rhinos in Uganda and far fewer elephants (Appendix 5). As mentioned in a report written on the implications of CITES in Uganda,

“By 1973, elephant poaching had become ‘a problem to contend with’ especially since, having run out of ammunitions, poachers resorted to chemical poisoning to kill elephants (Game Department). The Anti-Poaching Team was largely ineffectual in stemming the escalation in poaching during the period, partly because the game guards were an integral component of the poaching and illegal wildlife trade network. Although not directly mentioned, GD annual reports do allude to the fact that poaching was, to a large extent, state sponsored.” (Makumbi & Manyindo, 2000).

The report additionally noted, “Presidents Idi Amin of Uganda and Muammar Gaddafi of Libya were observed hunting elephants in Queen Elizabeth National Park (QENP), in spite of the government ban on elephant hunting that had been introduced the previous year.” (Makumbi & Manyindo, 2000).

In western Uganda specifically, the Allied Democratic Forces (ADF) rebel group was active from 1995 to 2004. The group was especially active in the Rwenzori Mountains and during this time many chimpanzees and other primates living in the mountains were killed for food. The ADF became more dependent on poaching for subsistence as displaced villagers abandoned their crops and rebels ran out of fields to raid. Because of the ADF conflict, there are now so few chimpanzees in RMNP that chimp tracking is not done in the national park. (Francis, Rugumba, 2013).

Another consequence of past rebel activity and war in the region has been the proliferation of weapons that can be used for poaching. There was no real disarmament of excombatants or members of communities in areas exposed to danger during conflict who were also given guns for protection. The availability of guns for hunting both reduces the threat of injury from animals or rangers in the park and makes killing the animals easier. (Francis, 2013)(Rugumba, 2013).

6.2.2 Recent Rebel Activity

Conflicts which have affected the areas of study more recently include continued activities of the Associated Domestic Front (ADF) and other rebel groups within the Democratic Republic of the Congo. There are many armed groups in the Congo and the

border between the DRC and Uganda is large and therefore difficult to patrol entirely. Some of these rebel groups near the border of the DRC and Uganda partake in poaching. Individuals in the rebel groups have often been living in the area and know the forest very well, know how to avoid rangers and where good hunting spots are, and are often armed.

A UN Security Council report stated that, “former poachers, excombatants and local leaders in the eastern Democratic Republic of the Congo have told the Group that Uganda is the most common transit country or destination for poached ivory from the northeast Democratic Republic of the Congo.” (Alusala, Fahey, Fomba, Leloup, Plamadiala, & Serralta, 19 July 2013). The same letter reported that a purchaser of ivory who was recently arrested for supporting militia groups in the URDC in the area has been found to have “obtained arms and ammunition from sources in Uganda and that he coordinated his smuggling with political and military officials in Kasese district, Uganda.”

A UN document from the previous year noted “Congolese armed forces continue to be plagued by criminal networks generating revenue for senior officers through their control over natural resources and contraband, including the trafficking of ivory from armed groups. The land forces commander, Gen. Gabriel Amisi, oversees a network distributing hunting ammunition for poachers and armed groups.” (Hege, Alusala, de Koning, Plamaidala, Serralta, & Spittaels, 12 October 2012). These documents suggest that illegal hunting by rebel groups done for commercial trade currently threatens animals close to the border in western Uganda and that actors within Uganda are involved in the illegal trade.

6.3 Regulation and Reduction Strategies

Anti-poaching efforts may aim to either maximize the costs or minimize the benefits of poaching. Different anti-poaching strategies need to be employed depending on the poacher’s motivations and perceptions of the value of wildlife. In order to maximize costs, it is necessary to assert a high level of risk associated with poaching or illegal trade. Risks may include losing one’s life, livelihood, money, property, social standing, or a natural resource. The benefits of poaching can be minimized by providing individuals or groups with better alternatives to poaching or reducing the need for whatever poaching may offer. For example, by providing alternative food or income

sources and improving park-people and wildlife-people relationships, benefits of poaching can be minimized.

Generally, programs and initiatives attempting to influence the cost-benefit calculations of poachers take one of two approaches: they create either a physical or an ideological barrier between the individual and act of poaching. This is done by enforcing an ideological shift towards conservation, enforcing anti-poaching law, or reducing human-animal conflict. A combination of these different approaches to conservation is necessary to reduce levels of poaching; one approach without the other is insufficient to address the problem. Additionally, anti-poaching initiatives must recognize the difference between “traditional” and “situational” poaching in order to counter poaching appropriately and efficiently.

6.3.1 Law Enforcement Methods

The UWA is the main law enforcement entity working to monitor and regulate poaching activities in Uganda. The UWA currently works with the tourism police, the UPDF, and the local court system to enforce policy set in place by the Uganda Wildlife Act. The law enforcement (LE) department of the UWA consists of the LE warden and a number of field rangers, who work with the UPDF, tourism police, and informants in order to minimize illegal activity both within the park and in surrounding areas. Regular patrols are done within the park boundaries while intelligence networks consisting of informants from the UWA as well as community members keep a watch for illegal activity in the surrounding communities. The routes and frequencies of the ranger patrols take into account travel patterns of the animals and where poachers have been active in the past. The UWA also increases the number of patrols done during times of the year when poachers are more active such as during holidays. (Dinah, Juliet, Rugumba 2013).

The law enforcement approach to minimize poaching has several shortcomings. The problems with LE strategies varied slightly in each protected area, but there were some general issues common to QENP, RMNP, and KNP. Mainly, a lack of resources meant that coverage of the protected areas was not maximized and that morale and preparedness of the LE rangers was not maximized either. Additionally, the punishments enforced by the authorities may not be strong enough to discourage individuals from

further poaching. These shortcomings will be discussed further in relation to each national park included in the study.

6.3.2 Community Conservation Methods

The Community Conservation (CC) department of the UWA, as well as several NGOs active in Uganda, have programs which encourage communities around protected areas to conserve the natural resources (including wildlife) around them. These programs aim to instill a belief that conservation is beneficial, while overuse and exploitation of natural resources is detrimental to the community. Community-based conservation has the potential to increase the costs of poaching because if wildlife is perceived as a valuable resource by society, then a negative view of poaching will be established within that society. Initiatives meant to incentivize conservation include revenue sharing with bordering national parks, sensitization and mobilization of surrounding communities, employment, community-based tourism, and resource sharing with protected areas.

The CC department of the UWA is involved in community sensitization and mobilization and also contributes funds to the revenue sharing program through which communities surrounding the protected areas are able to benefit from visitor expenditures. CC wardens working for the UWA are supposed to have regular discussions with members of the communities around the parks to discuss issues of importance while revenue sharing is a program implemented by UWA and local governmental systems whereby 20% of gate entry fees are given to district level governments around a national park. Money from revenue sharing is allocated to each subcounty that has at least one parish which borders a park, and money is divided equally depending on how many bordering parishes each subcounty has. The funds from revenue sharing are meant to be used to implement a variety of projects to benefit the community such as building clinics or schools or for income-generating projects. (Mukumi, 2013).

Education, mobilization, employment, and benefit sharing have often fallen short of convincing communities that the national parks and the native wildlife are valuable, however. Revenue sharing often fails as a compensation method and as a method of changing mindsets. While some communities do see benefits from revenue sharing or from tourism-generated employment or income, many communities do not. Additionally,

individuals may not see the benefits as correlated with protecting wildlife in particular- a circumstance which implies shortcomings in sensitization and mobilization efforts.

6.3.3 Human-Wildlife Conflict Reduction

Human-wildlife conflict reduction is another way in which incentives to poach can be minimized. If individuals view wildlife as valuable, rather than as detrimental to their lives and livelihoods, they will be less likely to hunt or set traps for these animals. The UWA and local governmental bodies, as well as several NGOs including the Uganda Conservation Foundation (UCF) and Care International, have implemented a number of initiatives to address human-wildlife conflict. Despite efforts however, conflicts such as crop raiding and attacks on people or their livestock continue to be prevalent issues in communities bordering protected areas.

The UWA provides some protection to communities bordering protected areas by deploying rangers at outposts to scare away animals who may stray onto an individual's property or by responding to calls when there has been an incidence of conflict. In order to strengthen levels of protection for community members, districts with parishes bordering protected areas are also supposed to recruit "vermin control" officers and rangers. Most community members from areas bordering or within QENP, RMNP, and KNP, however, said that support from UWA or the government in protecting their lives and property was very limited.

In addition to any support that local governments or the UWA may provide, a series of projects meant to reduce conflict have been implemented in the areas of study. Projects employed or supported by the Uganda Conservation Foundation in the region of study include the Bukorwe Ridge Elephant Trench project, the Waterways project, the Dura project, and the Vermin Control project. (Patrick, 2013). The Good Hope Foundation under CARE International has also implemented a number of similar initiatives meant to minimize human-animal conflict through reducing damages from crop raiding and threats to the lives of community members or their livestock. Among the projects were planting thorny plants, digging trenches, and placing beehives in strategic location to prevent vermin animals and threatening animals from entering an individual's property. (Kahyana, 2013).

These projects have run into a number of challenges and therefore success has been limited. As a result of these issues, few of the projects are in use now although they could have reduced conflict and addressed some complaints of the communities bordering the national parks.

6.4 Poaching in Queen Elizabeth National Park

Queen Elizabeth National Park was gazetted in 1952 as a man and biosphere reserve. The park has an area of 1,978km² and is mostly savanna, but also includes some forested area. As a man and biosphere reserve, there are eleven communities within the park which are each under the authority of their own governments rather than under the authority of the UWA. Currently there is a cumulative population of around 150,000 people living in these enclave communities who rely largely on fishing in Lake George, Lake Edward, and the Kazinga Channel. QENP is within the districts of Kasese, Kanungu, Bushenyi, and Rukungiri and is bordered to the west by Virunga National Park in the DRC. Prominent ethnic groups in the area include the Bakonjo, Basongora, Banyaruguru, and the Bakiga. Animal species native to this area include, but are not limited to, lions, leopards, warthogs, bushpigs, Uganda kob, waterbuck, buffalo, elephants, hippopotamus, chimpanzee, baboons and over 600 species of birds. (UWA).

6.4.1 Prevalence of Poaching

According to interviews with members of the UWA working in the LE and CC departments, poaching exists as one of the main challenges to wildlife conservation in QENP. All field rangers interviewed at QENP reported that poaching was more prevalent among the communities bordering the park than among the enclave communities. This assertion that border communities partake in more poaching than the enclave communities was supported by interviews with members from the communities within and bordering QENP. The Ishasha region in particular was noted as the area where poaching is the most prominent, while the Bakonjo, Bakiga, and Banyaruguru were suggested to be the tribes who partake in the most poaching. (Fana, 2013)

Animals from the park which are frequently poached for consumption or small-scale trade include hippopotamus, buffalo, and to a lesser degree, antelopes such as kobs, topi, or waterbuck. While most community members interviewed responded that they did not hunt these animals for their meat, responses by some participants suggested that many

people do in fact eat these animals. For example, two individuals who own farmland bordering the park in the Rukoki sub county said that people from their communities ambush the animals from the park for consumption purposes. (Mbabazi, 2013) (Okello, 2013).

Poaching for commercial purposes also occurs in QENP although on a smaller scale than does poaching for subsistence reasons. In QENP, animals that may be targeted for commercial purposes include elephants for their ivory, leopards for their skins, crocodiles for their skins, and chimpanzees for trade among others. Because of the small elephant population within the park and their large size it is more difficult for poachers to successfully kill an elephant than to kill some of the other animals in the park. That being said, there are still a number of elephants killed in the park, a number which may be rising due to an increased international market for ivory. One field ranger reported that 15 elephants have been killed this year, most of them killed with snares. (Scholar, 2013).

Individuals also occasionally set traps or hunt wild animals to protect their crops, livestock or their own life or in retaliation for losses due to wildlife activity. Among the fishing enclave communities, hippos, crocodiles, and lions were listed as very threatening animals. In the bordering parishes, animals such as lions and hippos also pose a threat to personal safety and property. A farmer whose land bordered the park described how a lion had killed someone on her property just last month and how elephants would often eat a farmer's entire harvest. The same farmer said that support from the UWA for protection was very minimal and so farmer groups formed in order to patrol the area. These farming groups may be armed with spears, pangas, and sometimes guns and they may easily kill animals with these weapons not only to keep them away from property, but also for food. (Okello, 2013).

6.4.2 Unique Challenges

Being a man and biosphere reserve, QENP has the unique challenge of protecting local wildlife and natural biodiversity while also balancing the needs of the enclave communities. For example, the eleven enclave communities are allowed to fish in Lake George, Lake Edward, and the Kazinga channel and as human populations within these communities grow, and as fish are increasingly being traded in market rather than simply consumed within the community, fish populations are becoming strained. These factors

could lead to an increase in subsistence level poaching as consumption needs are no longer being met by the fish. (Guma, 2013). The reduction in fish population also means the consumption needs of other animals such as the hippopotamus and crocodiles may not be met. This can create a situation which leads to higher levels of human-animal conflict and increased poaching for protection purposes.

QENP has an exceptionally large amount of human-wildlife and human-park interaction because these enclave communities exist and because there are many parishes bordering the park with large human populations. In addition to the fishing done in the area, there are many people farming very close to the park, or who rear cattle in the area. This results in encroachment on the land as individuals want to access resources they often feel the park is denying them unnecessarily, including wildlife. Individuals living in these communities are familiar with the land, and often in contact or very close to wild animals within the park, and as the border is very large, it is hard to monitor the activities of these communities.

6.4.3 Regulation and Reduction: Success and Shortcomings

The LE department of the UWA conducts regular patrols to monitor and regulate illegal activities including poaching in QENP. However, the field rangers working at QENP mentioned several constraints undermining the success of these patrols. Lack of funding has resulted in low salaries and a need for better supplies for the rangers on patrol. This can lead to lowered motivation among the rangers, and a lack of enough food rations during patrol which could potentially lead a ranger to hunt for food. Another issue currently challenging the LE department is the rapid growth of several invasive plants which make movement around the park difficult and make it easier for people who have entered the park illegally to hide. (Kyathumba, 2013).

One initiative that has been introduced in the LE department at QENP, and will soon be introduced in Murchison Falls National Park, is the WILD LEO project. This project is meant to increase the effectiveness of patrols by documenting instances of illegal activity as they are found, providing evidence, which can be used to find and punish those who have committed the offense. This project could help increase the risk of and lower the prevalence of poaching in these parks. (Lemieuex, 2013).

The CC department of the UWA, as well as NGOs such as the UCF, and Care International have implemented a number of initiatives in the communities around QENP to try to improve park-community relationships and reduce human-wildlife conflicts. These initiatives, in theory, should encourage community based conservation efforts and result in mutual benefits for the park and the people, however in QENP there remain many conflicts. There have been repeated complaints by communities that they take care of the park's animals although the animals cause nothing but problems for them and the park does not compensate them in any way or thank them for protecting the animals that they should be protecting. Tensions between surrounding and enclave communities and the park authorities could also lead to poaching. One community member in Kasenyi fishing village expressed great discontent with the park and the wildlife saying, "our heart to protect the park is gone". (Focus Group1). Some communities were so angry with the park and the authorities that they said they would begin poaching just to get attention; as a way of voicing their complaints through actions.

Under Care International, several projects to try to reduce tensions between the park and the community have been attempted, but many have failed. When beehives were given to LC 1 chairmen in Kasinga subcounty, they allegedly gave these beehives to friends or family and did not place them in the areas where they were needed. While trenches were dug in some areas to prevent crop raiding, they were often too costly to upkeep and the elephants who they were meant to keep away were smart enough to simply fill in the holes and then cross through. (Kahyana, 2013). "Vermin control" officers and rangers are meant to help minimize conflicts as well, but in Kasese District, and possibly in other districts as well, the local government has not recruited any. The District Environment Officer mentioned that it would be very difficult, especially in Kasese District, which shares borders with three national parks, to recruit and pay for enough officers and rangers to fulfill the job so the government avoids putting vermin control recruitment on their agenda. (Mukumi, 2013).

QENP still has many improvements to make if the communities near the park are to see the land and the wildlife as valuable resources to protect. Currently, this is not the case and exploitation of resources from the park, including wildlife, is a continuing problem.

6.5 Poaching in Rwenzori Mountains National Park

Rwenzori Mountains National Park falls within the districts of Kasese, Kabarole, and Bundibugyo, and is bordered by the DRC to the west. RMNP is a forested, mountainous range, which was gazetted as a national park in 1991 with an area of 996km². Species endemic to the Rwenzori Mountains include black-fronted and red duikers, bushbucks, rock hyrax, bush pigs, elephants, black and white colobus monkeys, blue monkeys, red monkeys, baboons, l'ohest monkeys, leopards and many birds and reptiles. (UWA). Prominent tribal groups in the area include the Bakonjo, Batooro, Bwamba and the Batwa. (John, 2013).

6.5.1 Prevalence of Poaching

Most poaching done in Rwenzori Mountains National Park occurs in the tropical and bamboo levels of the forest where most of the wildlife, including various primates, bush pigs, and some elephants, is found. Some animals, such as black-fronted and red duikers and rock hyrax, live at higher altitudes. Though they live farther away from the surrounding communities and are difficult to reach, they are still hunted at times. (Focus Group 5).

The most common form of poaching around RMNP currently, according to UWA officials and community members, is poaching for subsistence purposes. According to those interviewed, however, even this kind of poaching is minimal and is not as common in RMNP as it is in and around QENP. (Focus Group 5). This can be attributed to differences in ecosystems and species that live in the two protected areas. In RMNP, duikers, rock hyrax, and various primates may be hunted or trapped for their meat while animals such as hippos and buffalo, which are commonly hunted for meat in QENP, do not live in the mountains. It was suggested that eating primates is a practice of Congolese influence and that many tribes that do not have Congolese influence will not eat many animals native to RMNP. Additionally, certain birds such as African queen pigeons, olive pigeons, and red-eyed pigeons may be eaten mostly by tribes from the Bundibugyo region. (Lubahika, 2013).

Community members around RMNP seemed to have fewer problems with crop raiding and loss of livestock than did community members living or farming in bordering or enclave communities adjacent to QENP. Most communities bordering the Rwenzori

national park described a good relationship with the park, while its existence did restrict access to resources to some degree. (William, 2013)(Focus Groups 4 and 5). Because of this attitude, it is likely that individuals see the park and wildlife as an asset more than as a problem. Hunting and trapping of animals for protection is also probably less common than it is around QENP, however, a community member living in the Kyanjoki parish suggested that some people still do set traps to protect their property in bordering areas.

Poaching around RMNP may also be driven by cultural beliefs. The LE warden at RMNP suggested that some groups of people believe that because chimpanzees eat many medicinal plants, eating chimpanzee meat will allow one to live longer. Other primates, such as the black and white colobus monkey who reside in the Rwenzori Mountains are hunted for the value of their skins which may be offered to the king or to various prestigious members of a community or societal group such as a tribe or kingdom. Animal products may also be desired for use in traditional healing. For example, chimpanzee bones may be used to help mend broken human bones, and snake skins may help cure problems such as a skin rash. (Rugumba, 2013) (Francis, 2013). This being said, cultural beliefs vary largely from community to community and also change with time. For example, while some may believe chimpanzee meat will help one live longer, the LC chairman of Ibanda, a village bordering the park, reported that now people actually do not eat them because they fear getting sick. (William, 2013).

6.5.2 Unique Challenges

In attempts to reduce poaching, RMNP has the unique challenge of being a densely-forested mountain range which borders the DRC. This means not only that rangers need to be able to navigate in difficult terrain, but also that the area is easy for poachers, and rebel groups, to hide in if they know the land well.

From around 1996 until around 2004 the Associated Democratic Front (ADF) was highly active in the Rwenzori Mountains and surrounding areas as described previously. During this time, poaching was rampant and though it has subsided significantly since then, the effects of the extensive poaching are still felt. (Focus Group 5). There is no chimp tracking done in the park today because the chimpanzee population has declined in past years. This means that economic benefits from tourism have been minimized due to poaching around RMNP.

6.5.3 Regulation and Reduction: Success and Shortcomings

Members of the UWA working in RMNP said that they still face some challenges with community members not believing or not taking heed in sensitization and education efforts by the CC department. Additionally, they mentioned that patrols are often not sufficient to catch illegal activity because the park is large and rangers cannot be everywhere at once. (Rugumba, 2013) (Francis, 2013).

Although these challenges exist, communities around RMNP seemed to have far fewer complaints about human-wildlife conflict and a much better attitude towards the park and park authorities. Compared to QENP, it seems that revenue sharing as well as benefits from tourism and employment in the area are more effective in the communities around RMNP. Community members generally felt they did benefit from the park, though they did not necessarily feel they benefitted from wildlife itself. (William, 2013) (Focus groups 4 and 5). While RMNP has fewer problems, and supposedly less poaching to deal with, LE and CC efforts could still be strengthened and benefit from more resources.

6.6 Poaching in Kibale National Park

Kibale National Park is located to the north of QENP and belongs to the districts of Kabarole, Kasese, Kamwenge, and Kyenjojo. The park is mostly forested but also includes some savanna and has an area of 795km². Prominent tribal groups residing around the area include the Bakiga and the Batooro. The land adjacent to the park is used largely for agriculture. Animals native to the area include elephants, buffalo, antelope, bushbuck, warthogs, bush pigs, blue duikers, red duikers, leopards, golden cats, chimpanzees, several monkey species, baboons, and pangolins among others.

6.6.1 Prevalence of poaching

Poaching does occur within KNP although, like in RMNP, not as frequently as it does in QENP. It was suggested by members of the UWA that poaching is most prevalent along the western side of the park, and in Kasenda subcounty in particular. (Kagoro, 2013).

Much of the poaching done within the park was for acquisition of meat for either consumption, or small-scale trade. Species that may be hunted for meat in KNP include buffalo, duikers, bush pigs, bushbuck, and primates such as chimpanzee. The LC 1

chairman of Rweteera parish reported that although he did not know who was poaching in the park, people in the community know people are poaching when they hear dogs used to hunt down the wild animals. The poachers will consume the animals they hunt themselves or sell them secretly to people in their villages. (Samuel, 2013).

There is also poaching done for commercial purposes in KNP. Elephants are the main animals hunted for trading purposes, for their tusks. Pangolins are also hunted on occasion as there is a market for their scales. (John, 2013). Animals may be hunted for cultural reasons as well, though the LC 1 chairman of Nkingo reported that it is rare for animals to be hunted for use in traditional medicine or cultural rituals. (Abudu, 2013). Still, it is possible that animals such as mongoose, primates such as black and white colobus monkeys and chimpanzees, pangolins, and other species are sought after for cultural values.

Individuals interviewed in communities bordering KNP all said that crop raiding was the biggest challenge posed by wildlife and their most prominent issue with the park. This may mean that as initiative such as trench digging are not sufficient, individuals may set traps or hunt animals on their own in order to protect their property. While it is legal to hunt vermin species on personal property, protected species such as elephants or chimpanzees may at times also be killed by traps or hunters. Like those bordering RMNP, however, the chairmen of Bogodi, Nkingo, and Rweteera reported that generally the members of their communities found the park and its wildlife to be valuable, with the exception of some of the farmers who still experience crop raiding and find the animals to be very problematic. (Samuel, 2013) (Adolf, 2013) (Abudu, 2013).

6.6.2 Unique Challenges

Members of the UWA stationed at KNP said a big challenge they are currently facing is a new trapping method being used mainly to trap elephants. Individuals or groups have been going into the park and digging large pits which they then cover with netting and disguise with leaves and dirt. They then wait for an elephant to fall into the pit and are able to extract the animal's tusks and meat, as well, if they are interested. The CC warden at KNP has also noted that since the off sales of ivory in several south African countries, demand for ivory has increased and they have been seeing poaching for ivory increase in the park. (Kagoro, 2013).

Community members voiced most discontent with crop raiding done by the animals in the park. Because KNP is surrounded mostly by agricultural communities rather than by cattle-rearing communities as near QENP, crop raiding is a big challenge. Additionally, there are many “vermin” animals such as baboons and monkeys, and also elephants living in the park, and these species are common crop raiders. While communities are allowed to kill vermin species when they enter their property, setting traps is indiscriminate and may threaten species which are more endangered than baboons, for example.

6.6.3 Regulation and Reduction: Success and Shortcomings

Based on interviews with members of the UWA and communities bordering the national park, the CC department at KNP has been quite successful. The warden CC at KNP works with 4 other CC rangers, and is in the process of recruiting because more rangers are needed to address the problems of the surrounding communities. (Kagoro, 2013). As a result of sensitization, mobilization, and community-based tourism those interviewed in bordering parishes reported that their communities felt they benefitted from the park and the wildlife. (Abudu, 2013) (Adolf, 2013) (Samuel, 2013). The LC 1 chairman of Rweteera parish additionally noted that the CC warden or rangers were easily accessible and had been to the community for sensitization.

In order to minimize human-wildlife conflict, trench-building, thorn-planting, and tea-planting projects have been initiated. Of the park’s 229 kms of border, 71 are marked by a river while 58 are separated by a trench. Revenue sharing funds to bordering districts have focused on trench building, the UWA has tried to engage communities so they feel the trench is theirs, and are motivated to upkeep the trench. Tea planting has also been encouraged used to minimize human- wildlife conflict around the park because the animals do not eat tea leaves. (Kagoro, 2013). While these initiatives have potential, funding is not high and some communities and individuals are not protected at this time meaning they may still be trapping or hunting to protect their own property.

Kibale National Park has 11 ranger outposts around the park including the headquarters from which the field rangers operate. The LE department at KNP noted similar constraints as did those in the LE departments at QENP and RMNP. These included lack of funding for salaries, infrastructure and supplies, lack of manpower, and

environmental restrictions to successful patrols, especially during rainy seasons. With better communication, more manpower and more materials it would be possible for the LE department at KNP to “fill the gaps” in their system. (Lubahika, 2013).

7.0 Synthesis and Conclusions

Poaching done in QENP, RMNP, and KNP, both in the past and in the present, affects the biodiversity of the region, the communities bordering the protected areas, and the economic development of the country. As has been discussed, there have been many efforts to reduce poaching in Uganda, however there is evidence that poaching does still occur and is not without consequences. Illegal hunting and trapping of wild animals and illegal trade persist in Western Uganda despite efforts to dissuade these activities because, for some individuals and groups, incentives to poach and trade outweigh the risks. These risks range from the danger of being caught by an authority and sent to court to being killed. An additional risk is that of losing a valuable natural resource, however recognition of this particular risk is dependent on perceptions of park and wildlife benefits, something which may be altered.

Poaching is detrimental to society because it causes problems for families and communities when someone is killed, has to serve a sentence, or comes into debt due to poaching. Poaching also causes tensions between communities and authorities, which can lead to conflict. Additionally, poaching is detrimental to the ecosystem because it alters the biodiversity and is especially problematic when keystone species such as elephants are killed in large percentages. Lastly, poaching has negative affects on tourism from which communities and the economy of Uganda could benefit.

8.0 Recommendations

As many participants suggested, increased efforts in both law enforcement and in community-based conservation are the best methods to reduce levels of poaching. While there are efforts in place to reduce poaching through both of these methods, there exist gaps and areas that need strengthening. The UWA needs support from the government

and continued support from organizations such as UCF, Care International, and other NGOs in order to address the problem of poaching.

In terms of law enforcement, ranger patrols and intelligence networks both have the potential to be very successful in minimizing poaching activities. As noted, in all of the protected areas included in this study, increased salaries for field rangers, a larger staff, more equipment for patrols, and a system such as WILD LEO used for accountability could all improve the LE system.

Increased community conservation efforts are needed, especially in QENP, so that individuals feel they can voice their concerns and are not unfairly disadvantaged by the presence of the national parks. An improved relationship created through benefit sharing, employment, and income through tourism can help communities see wildlife as valuable economic assets and inspire conservation efforts at the community level. As many communities felt they did not benefit from revenue sharing, but many authorities said a switch to direct compensation was not possible, the current revenue sharing system should be improved. Allocating the money directly to the affected parishes and implementing a system for better community input and involvement with fund use could be beneficial.

Lastly, continuing efforts to reduce human-wildlife conflict can lessen the economic and physical threats posed by wildlife to communities. This can be done by improving initiatives such as trench building, tea planting, and providing better protection to communities in the form of vermin control rangers and aid from the UWA. It would also be advisable to consider perimeter fence installation in the future as this has proven to reduce human-wildlife conflict in areas such as neighboring Kenya. Although costly, this would minimize poaching and other costs attributed to human-wildlife conflict.

The success of the above recommendations would require a stronger financial commitment from the government. Additionally, the UWA should be held accountable to both higher governmental structures and directly to the people living in areas surrounding the national parks. Adherence to policies and regulations addressing protected areas, surrounding communities, and wildlife will allow finances and efforts to be efficiently and successfully directed at reduction of conflict, maximization of benefits, and result in diminished poaching.

Appendices

Appendix 1: References

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Appendix 2: Personal interviews and focus group discussions

a. Personal Interviews

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- Fana, B. (2013, October 29). QENP Field Ranger. (M. T. Jones, Interviewer)
- Francis, M. (2013, November 7). RMNP Community Conservation Warden. (M. T. Jones, Interviewer)
- Guma, N. (2013, October 28). QENP Conservation Area Manager. (M. T. Jones, Interviewer)
- John. (2013, November 18). UPDF and Law Enforcement at KNP. (M. T. Jones, Interviewer)
- Joyce. (2013, November 18). Field Ranger at KNP. (M. T. Jones, Interviewer)
- Juliet. (2013, October 29). QENP Field Ranger. (M. T. Jones, Interviewer)
- Kagoro, W. (2013, November 18). Community Conservation warden at KNP. (M. T. Jones, Interviewer)

Kahyana, J. (2013, November 11). Good Hope Foundation. (M. T. Jones, Interviewer)

Kirya, K. (2013, October 28). QENP Law Enforcement Warden. (M. T. Jones, Interviewer)

Kyathumba, E. (2013, October 29). QENP Field Ranger. (M. T. Jones, Interviewer)

Lemieuex, A. (2013, October 30). WILD LEO project manager. (M. T. Jones, Interviewer)

Lubahika, A. (2013, November 18). Field Ranger at KNP. (M. T. Jones, Interviewer)

Makombo, J. (2013, September). Director of Conservation at UWA. (M. T. Jones, Interviewer)

Mbabazi. (2013, November 12). Individual Farmer, Rukoki subcounty. (M. T. Jones, Interviewer)

Mugizi, F. (2013, October 15). PhD in Tourism. (M. T. Jones, Interviewer)

Mukumi, E. (2013, November 14). Kasese District Environmental Officer. (M. T. Jones, Interviewer)

Negma, R. (2013, November 1). QENP Community Conservation Warden. (M. T. Jones, Interviewer)

Okello, E. (2013, November 14). Individual Farmer, Rukoki subcounty. (M. T. Jones, Interviewer)

Patrick. (2013, October 28). Uganda Conservation Foundation. (M. T. Jones, Interviewer)

Reuben. (2013, November 8). FURA. (M. T. Jones, Interviewer)

Rugumba, M. (2013, November 7). RMNP Law Enforcement Warden. (M. T. Jones, Interviewer)

Samuel. (2013, November 20). LC 1 chairman of Rweteera subcounty. (M.T. Jones, Interviewer)

Scholar. (2013, October 29). QENP Field Ranger. (M. T. Jones, Interviewer)

Twinomugisha, B. (2013, October 17). Former Game Warden at MFNP. (M. T. Jones, Interviewer)

William. (2013, November 7). Ibanda LC1 chairman. (M. T. Jones, Interviewer)

b. Focus Group Discussions

Focus group 1: LC 1 chairman and community members of Kasenyi Parish, 3 November 2013.

Focus group 2: LC 1 chairman and community members of Kahendero Parish, 3 November 2013.

Focus group 3: Busongora King and Ministers, Kasese, 4 November 2013.

Focus group 4: Community members of Nyakarengyo Parish, 7 November 2013.

Focus group 5: Community members of Kyakujja, 8 November 2013.

Appendix 3: Species native to Uganda listed under Appendices I, II, and III of CITES

Species	Scientific Name	Listing			
	Cephalophus		patas	Erythrocebus patas	II
dorsalis	dorsalis	II	albigena	Lophocebus albigena	II
	Cephalophus		anubis	Papio anubis	II
silvicultor	silvicultor	II	foai	Piliocolobus foai	II
	Philantomba			Piliocolobus	
monticola	monticola	II	tephrosceles	tephrosceles	II
	Hippopotamus		demidoff	Galago demidoff	II
amphibius	amphibius	II	matschiei	Galago matschiei	II
aureus	Canis aureus	III			
jubatus	Acinonyx jubatus	I		Galago senegalensis	
caracal	Caracal caracal	I/II	thomasi	Galago thomasi	II
silvestris	Felis silvestris	II	Otolemur		
serval	Leptailurus serval	II	crassicaudatus		
leo	Panthera leo	II	beringei	Gorilla beringei	I
pardus	Panthera pardus	I	troglodytes	Pan troglodytes	I
aurata	Profelis aurata	II	potto	Perodicticus potto	II
cristata	Proteles cristata	III	africana	Loxodonta africana	I/II
capensis	Aonyx capensis	II	bicolor	Dendrocygna bicolor	III
maculicollis	Hydrictis maculicollis	II		Sarkidiornis	
capensis	Mellivora capensis	III	melanotos	melanotos	II
civetta	Civettictis civetta	III	rex	Balaeniceps rex	II
	Ceratotherium		nigra	Ciconia nigra	II
simum	simum	I	minor	Phoeniconaias minor	II
bicornis	Diceros bicornis	I	leucorodia	Platalea leucorodia	II
gigantea	Manis gigantea	II	hartlaubi	Tauraco hartlaubi	II
temminckii	Manis temminckii	II	leucolophus	Tauraco leucolophus	II
tetradactyla	Manis tetradactyla	II	Tauraco		
tricuspis	Manis tricuspis	II	porphyreolophus		
	Cercopithecus		schuettii	Tauraco schuettii	II
ascanius	ascanius	II	badius	Accipiter badius	II
denti	Cercopithecus denti	II	castanilius	Accipiter castanilius	II
	Cercopithecus		erythropus	Accipiter erythropus	II
doggetti	doggetti	II	Accipiter		
	Cercopithecus		melanoleucus		
hamlyni	hamlyni	II	minullus	Accipiter minullus	II
	Cercopithecus			Accipiter	
lhoesti	lhoesti	II	ovampensis	ovampensis	II
mitis	Cercopithecus mitis	II	rufiventris	Accipiter rufiventris	II
	Cercopithecus		tachiro	Accipiter tachiro	II
neglectus	neglectus	II	nipalensis	Aquila nipalensis	II
	Chlorocebus		pomarina	Aquila pomarina	II
pygerythrus	pygerythrus	II	rapax	Aquila rapax	II
tantalus	Chlorocebus tantalus	II	verreauxii	Aquila verreauxii	II
angolensis	Colobus angolensis	II	cuculoides	Aviceda cuculoides	II
guereza	Colobus guereza	II	rufipennis	Butastur rufipennis	II

augur	Buteo augur	II		Urotriorchis	
auguralis	Buteo auguralis	II	macrourus	macrourus	II
buteo	Buteo buteo	II	alopex	Falco alopex	II
oreophilus	Buteo oreophilus	II	amurensis	Falco amurensis	II
rufinus	Buteo rufinus	II	ardosiaceus	Falco ardosiaceus	II
riocourii	Chelictinia riocourii	II	biarmicus	Falco biarmicus	II
beaudouini	Circaetus beaudouini	II	chicquera	Falco chicquera	II
	Circaetus		concolor	Falco concolor	II
cinerascens	cinerascens	II	cuvierii	Falco cuvierii	II
cinereus	Circaetus cinereus	II	naumanni	Falco naumanni	II
pectoralis	Circaetus pectoralis	II	peregrinus	Falco peregrinus	I
aeruginosus	Circus aeruginosus	II	rupicoloides	Falco rupicoloides	II
macrourus	Circus macrourus	II	subbuteo	Falco subbuteo	II
pygargus	Circus pygargus	II	tinnunculus	Falco tinnunculus	II
ranivorus	Circus ranivorus	II	Polihierax		
caeruleus	Elanus caeruleus	II	semitorquatus		
barbatus	Gypaetus barbatus	II	haliaetus	Pandion haliaetus	II
	Gypohierax			Sagittarius	
angolensis	angolensis	II	serpentarius	serpentarius	II
africanus	Gyps africanus	II	pavonina	Balearica pavonina	II
rueppellii	Gyps rueppellii	II	regulorum	Balearica regulorum	II
vocifer	Haliaeetus vocifer	II	kori	Ardeotis kori	II
ayresii	Hieraaetus ayresii	II	Eupodotis		
pennatus	Hieraaetus pennatus	II	senegalensis		
	Hieraaetus		hartlaubii	Lissotis hartlaubii	II
spilogaster	spilogaster	II	Lissotis		
	Hieraaetus		melanogaster		
wahlbergi	wahlbergi	II	gindiana	Lophotis gindiana	II
Kaupifalco			denhami	Neotis denhami	II
monogrammicus			pullarius	Agapornis pullarius	II
occipitalis	Lophaetus occipitalis	II	Agapornis		
	Macheiramphus		swindernianus		
alcinus	alcinus	II	gulielmi	Poicephalus gulielmi	II
metabates	Melierax metabates	II	meyeri	Poicephalus meyeri	II
poliopterus	Melierax poliopterus	II	robustus	Poicephalus robustus	II
gabar	Micronisus gabar	II	erithacus	Psittacus erithacus	II
migrans	Milvus migrans	II	abyssinicus	Asio abyssinicus	II
	Necrosyrtes		capensis	Asio capensis	II
monachus	monachus	II	flammeus	Asio flammeus	II
Neophron			africanus	Bubo africanus	II
percnopterus			cinerascens	Bubo cinerascens	II
apivorus	Pernis apivorus	II	lacteus	Bubo lacteus	II
	Polemaetus		poensis	Bubo poensis	II
bellicosus	bellicosus	II	capense	Glaucidium capense	II
typus	Polyboroides typus	II	perlatum	Glaucidium perlatum	II
africanus	Spizaetus africanus	II	Glaucidium		
	Stephanoaetus		tephronotum		
coronatus	coronatus	II	scops	Otus scops	II
	Terathopius		Otus senegalensis		
ecaudatus	ecaudatus	II	leucotis	Ptilopsis leucotis	II
tracheliotus	Torgos tracheliotus	II	peli	Scotopelia peli	II
	Trigonoceps				
occipitalis	occipitalis	II			

woodfordii	Strix woodfordii	II	hoehnelii	Trioceros hoehnelii	II
alba	Tyto alba	II	ituriensis	Trioceros ituriensis	II
capensis	Tyto capensis	II	jacksonii	Trioceros jacksonii	II
niloticus	Crocodylus niloticus	I/II	johnstoni	Trioceros johnstoni	II
	Osteolaemus		rudis	Trioceros rudis	II
tetraspis	tetraspis	I	albigularis	Varanus albigularis	II
dilepis	Chamaeleo dilepis	II	Varanus		
gracilis	Chamaeleo gracilis	II	exanthematicus		
	Chamaeleo		niloticus	Varanus niloticus	II
laevigatus	laevigatus	II	regius	Python regius	II
quilensis	Chamaeleo quilensis	II	sebae	Python sebae	II
Kinyongia			belliana	Kinixys belliana	II
adolfifriderici			erosa	Kinixys erosa	II
carpenteri	Kinyongia carpenteri	II		Stigmochelys	
xenorhina	Kinyongia xenorhina	II	pardalis	pardalis	II
bitaeniatus	Trioceros bitaeniatus	II			
elliotti	Trioceros elliotti	II			

(CITES)

Appendix 4: Questionnaires

Law Enforcement Questionnaire

1. Do you feel the UWA has been successful in monitoring poaching within the park?
2. How do you monitor and regulate poaching activities within the park?
3. How are poaching activities outside of park boundaries regulated, for example in the area between Queen Elizabeth and Rwenzori national parks or in the enclave communities?
4. Does the UWA monitor instances of illegal trade of animals or animal products? If so- how?
5. Do international or domestic NGO efforts help or hinder the UWA's monitory and regulatory initiatives?
6. How is legal killing and trade of animals or animal products differentiated from that which is illegal?
7. Which animals are most frequently poached in the area and for what purpose?
8. How is wildlife threatened by:
 - a. Enclave communities?
 - b. Communities surrounding the park?
 - c. Congolese or other non-Ugandans?
 - d. Other?
9. What kind of poaching, commercial or subsistence, do you see as more threatening to Uganda's biodiversity?
10. What are the biggest challenges to protecting wildlife?
11. What has been shown to be the most effective approach in preventing poaching and illegal trade?
12. What data or research methods are used in measuring effectiveness?

Community Conservation Questionnaire

1. How does the UWA try to promote wildlife conservation in the enclave communities and surrounding communities
Why do communities hunt or capture wildlife within the park?
2. Which animals are poached the most?
3. Which communities are most involved in poaching?
4. What is the biggest challenge to conserving wildlife?
5. What is the best approach to discourage poaching?
6. What is the relationship between the UWA and enclave communities or communities bordering the park like?
7. What other organizations are involved in community conservation?

Community Questionnaire

1. Is the national park beneficial or problematic to your community? Why?
 - a. Do you benefit from revenue sharing with the park? How do you benefit?
 - b. Does the park provide employment options? What are they?
 - c. Do you benefit from tourism? How do you benefit?

- d. Are you able to access resources from the park? Which resources?
2. Do you feel in danger of crop raiding by wildlife?
- Which species
3. Are you and your community protected from crop raiding? If so- how?
4. Have you ever had to kill an animal to protect your property from crop raiding?
5. Do you feel that your life, your livestock, or your community are threatened wildlife?
- Which species?
6. Are you and your community protected from threatening animals? How are you protected?
7. Is it dangerous to hunt animals for meat or trade, why or why not?
8. Do you, and your community generally see wildlife as valuable?

Appendix 5: Wildlife population estimates in the QECA ecosystem

<i>Species</i>	Pre-1973	1976	1980	1988/89	1992	1995	1999	2000	2002
Elephant	2,500	1,200	150	400	500	1,088	1,353	1,086	998
Buffalo	18,000	-	4,200	5,000	-	16,549	7,250	10,674	6,807
Hippo	11,000	-	5,000	2,200	-	2,958	2,811	3,400	-
Uganda Kob	10,000	12,500	20,000	18,000	-	31,899	20,588	32,245	-
Topi	5,000	-	1,500	400	-	493	325	94	157
Waterbuck	3,500	-	2,100	1,500	-	1,860	2,227	4,666	-
Warthog	4,000	-	1,100	1,600	-	1,175	1,931	2,423	-

Source: (Fredrick, 2006).

Appendix 6: Illegal Trade, UN Security Council report

Annex 86

Ugandan government seizures of Ivory, Hippo or Rhino in Uganda, from January 2012 to 14 May 2013

Date of Seizure	Location of Seizure	Item Seized	Nationality of Smuggler(s)
10 February 2012	Entebbe International Airport (EIA)	17 pieces of worked ivory	Chinese (1)
10 February 2012	Pakwatch (customs office)	99 pieces of worked and 10 pieces of raw ivory; 162 kg of hippo teeth; 3 bones of elephants; 9 lizard skins.	Chinese (1), Congolese (1)
23 March 2012	EIA	3 kg of worked pieces of rhino	Indian (1)
25 April 2012	EIA	6 kg of raw ivory pieces	Chinese (1)
17 June 2012	EIA	473 kg of raw ivory pieces	Liberian (1)
23 June 2012	EIA	5 kg of worked ivory	Unknown (1)
19 July 2012	Kampala	92 kg of pieces of hippo	Ugandan (1)
8 August 2012	EIA	9 pieces of raw ivory	Liberian (1)
10 August 2012	Old Kampala	66 pieces of hippo teeth and 1 piece of raw ivory	Ugandan (1)
16 September 2012	Rubirizi	6 pieces of raw ivory	Ugandan (3)

On 7 February 2013, the Government of Uganda announced that representatives of the Ugandan and American militaries had recovered 6 pieces of raw ivory in southeast Central African Republic, which were reportedly stashed by the Lord's Resistance Army.

(Alusala, Fahey, Fomba, Leloup, Plamadiala, & Serralta, 19 July 2013)