HUMAN-WILDLIFE CONFLICT AND ECOTOURISM: COMPARING PONGARA AND IVINDO NATIONAL PARKS IN GABON

by

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THESIS ABSTRACT

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Human-wildlife conflicts around protected areas are important issues affecting conservation, especially in Africa. In Gabon, this conflict revolves around crop-raiding by protected wildlife, especially elephants. Elephants' crop-raiding threaten livelihoods and undermines conservation efforts. Gabon is currently using monetary compensation and electric fences to address this human-elephant conflict. This thesis compares the impacts of the human-elephant conflict in Pongara and Ivindo National Parks based on their idiosyncrasy. Information was gathered through systematic review of available literature and publications, observation, and semi-structured face to face interviews with local residents, park employees, and experts from the National Park Agency. This thesis argues that the impacts of human-elephant conflict are more severe in Ivindo compared to Pongara National Park due to their specific characteristics. To effectively address this human-elephant conflict, an adaptive management strategy is needed. This adaptive management strategy should integrate conservation, livelihood security, and combine to the specific characteristics of each park.

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TABLE OF CONTENTS

LIST OF FIGURES

Figure Page

LIST OF TABLES

Table Page

CHAPTER I

INTRODUCTION

The Mega-Transect

In 1999, Michael Fay and a group of conservationists undertake an extensive journey by foot through the pristine tropical forest of Central Africa in quest of knowledge and information about this mysterious part of the world. Fay and his team started their journey in the Republic of Congo and walked for 455 days through dense forests, crossing savannas, and wild rivers (Appendix A). As Fay and his team progressed into the wild forests, they encountered unique and rich biodiversity of flora and fauna along with spectacular natural landscapes. In many instances, there was no trail, no sign of human life and it seemed that no human had ever been there before.

Fay and his team saw a young male elephant walking straight toward them through the trees. One of the experienced team members slid prudently to the back of the file, knowing well that a forest elephant, nearsighted and excitable, is far more dangerous than a leopard. Visually conscious of the presence of this group, the elephant kept coming toward them. When the elephant was about 15 feet from Fay, it turned around and disappeared with its tail streaming high. They were surprised by the behavior of this elephant. The elephant did not chase them. In fact, the elephants did not feel threatened by their presence. Fay recorded the whole scene; he reached his notebook and wrote: Tusk length, about 40 centimeters, maybe ten or twelve years old, he estimated (National Geographic). Fay and his team followed the elephant's direction and they stumbled upon

a prestigious bai (Langoué-Bai in Ivindo National Park). "bai" is a word from the Baka ethnic group, which means natural forest clearing with water, where animals eat and drink. The bai was full of animals including, elephants, gorillas, chimpanzee, and hippos. Fay was able to get close enough to get good pictures of these animals. Langoue-Bai was one of the main discoveries of Fay during his journey in Gabon. At the end of his journey, Fay reported that in Congo he saw deforestation, but in Gabon, he saw the "promise land" (Fire 2008).

However, Fay was concerned with the conservation of the Gabon's rich biodiversity. A few months after his journey, he presented his findings to the former president of Gabon, Omar Bongo Ondimba, to highlight the environmental potential of his country and urged the president of Gabon to act toward the protection of this rare and unique biodiversity (Appendix B). In his presentation, Fay displayed a virtual map of Gabon with "13 emerald green patches" scattered all over the country. Fay commented that these green patches could become national parks, which could make Gabon the next destination for ecotourism (Dowie, 2009). President Omar Bongo was amazed by Fay's presentation and proposition, which were in line with the Gabon's economic diversification strategy. Immediately after Fay's presentation, president Omar Bongo, asked for the creation, by decree, of 13 national parks according to Fay's map (Mayell 2002, Fire 2008, Dowie, 2009) (Appendix C).

The story of the Mega-Transect fueled my interest in the research about the national parks of Gabon. This story reflects the ongoing critique of international conservation including:

1. The conservation value of the pristine as uninhabited wilderness

2. The persistence of the preservation model, which exclude local populations
3. The persistence of the top-down approach to conservation led by external conservation organizations
4. The reflection of neo-colonial conservation theory and "green grabs"

Research Focus

Gabon, with an area of 267,667 Km2, is located in the Gulf of Guinea in Central Africa. It is bounded to the north by Cameroon and Equatorial Guinea, to the south and to the east with the Congo and opens to the Atlantic Ocean to the west. Gabon sits on the equator, between latitudes 2º 30'N and 3º55'S. The country is made up of 75% by the river basin of the Ogooué and 85% of the territory is covered by the tropical forest (Maite 2008).

My research focuses on the persistence of the preservation model and how this translates into the divergent relationships that people have with wildlife. Wildlife as something that is beautiful and desirable, but also as something that is the object of conflicts in many places. This thesis is a preliminary study on ecotourism development and the human-wildlife conflict in Gabon. In this study, I analyze ecotourism development in Gabon and I compare the human-wildlife conflict in Pongara and Ivindo National Parks. This study attempts to answer the following questions:

1. How is ecotourism development in Gabon affecting local communities?
2. How is the human-wildlife conflict experienced in Gabon?
3. How is this conflict different in Pongara and Ivindo National Parks?
4. What are the mitigation strategies used in Gabon to address the human-wildlife conflict?

Ecotourism, as it is conceived and practiced, does not fold neatly as an adequate model to address effectively all conservation issues, including the human-wildlife conflict, as demonstrated in the case of Gabon. The differences between Pongara and Ivindo National Parks further illustrate that local conditions and characteristics need to be considered when creating mitigation strategies to the human-wildlife conflict. Thus, mitigation strategies to address the human-wildlife conflict need to be specific to each park based on their specific socioeconomic, cultural, and geographical characteristics

Research Contribution

My research does not only contribute to the extensive literature about ecotourism but also, and more importantly, it will contribute to the emerging literature about ecotourism and the human-wildlife conflict in Gabon and in Africa in general. This research brings insights about ecotourism development in Gabon through the analysis of the impacts of ecotourism development in Pongara and Ivindo national parks on local communities. Also, this research expands knowledge about the human-wildlife conflict by comparing its impacts in an urban park, Pongara National Park (PNP), and a rural park, Ivindo National Park (INP). Development of tourism in Gabon is important, not only for the communities around the parks, but also for policy makers, the government, national NGOs, and INGOs, and researchers who are interested in biodiversity conservation and ecotourism. This study on the specific case of Gabon can be applied in many other countries with similar characteristics.

Research Methods

I used the following qualitative methods to answer my research questions:

1. Face-to-face interviews, supported with semi-structured questionnaires with two groups of people: government officials/employees and community members living around national parks
2. Observation of activities around the parks and the relationship between the community and the park employees

I conducted interviews over a period of two months. In October 2016, I interviewed two people at the National Park Agency. During the same month, I also visited INP and had the opportunity to interview the manager of the park and an eco-guard. I also interview three villagers from three different villages located around the national park as well as one researcher, who was conducting a training on this site. In November 2016, I visited PNP and I was able to interview the manager of the park, an eco-guard, and two residents in the area.

These semi-structured interviews helped me gather information about people's thoughts, feeling, and perceptions of the national park and conservation in their specific area.

During my visits to the parks, I paid attention to activities and interactions around the parks and took notes and photographs that were helpful and supported data collected through the interviews. When observing the activities around the parks, I focused on public objects, indications, and monuments which were used in the interpretation of the data collected through the interviews. In my notes, I used general identification such as

park employee, community members, villagers, or residents to address human activities or interactions of people who did not want to be identified in my research.

All the research processes including recruitments, oral consents, and interviews were done in French. I translated all necessary materials and data recorded from English to French. I used my background and knowledge of the Gabonese culture and the local and national language to minimize the effect of my presence on participants' behavior. I also used this knowledge in the interpretation and analysis of the information collected.

Research Limitations

One of the main limitations of my research is the lack of data about the human-wildlife conflict in Gabon. I was not able to obtain quantitative data about ecotourism in either park. For instance, I could not get information about the number of tourists who visit the parks every year and the revenues from ecotourism activities. I was also unable to get data on the number of crop-raiding cases reported in each park. This information was either not collected by the National Park Agency (ANPN) or it was not available to the public.

In addition to the lack of available data, limited time and finances were other constraints to my research. I did not have enough time to conduct in-depth observations and interviews or visit villages near the parks. However, I was still able to collect a significant amount of information to conduct my study

CHAPTER II

DISCOURSES OF CONSERVATION, PROTECTED AREAS, AND ECOTOURISM

Romanticism of The Wild and Conservation

Conservation is not a new subject. In fact, it is an old topic, which can be traced back to the Stone Age Era, where societies were based on sustaining food supply (Western 1994, p.1). Human and wildlife have always competed over resources, especially when humans started settling in one place and managing land and natural resources for their survival. However, as humans became the dominant species on earth and societies became established, ideas of conservation started to develop. These early ideas of conservation were often linked to nature in many regions of the world under different shapes (Hambler, 2004). Minteer and Manning (2003) argue that in America, farmers, loggers, and hunters perceived their activities to be linked to religion. Many human societies have strong connections with nature and that the modern movement of conservation came about with the over exploitation of the land by early settled societies, which caused the extinction of many animal species and natural resources (Western, 1994). The animal extinction of early settlements during the Neolithic Era culminates with the intense urbanization and industrial revolution of the eighteenth and nineteenth century in Europe (Western, 1994). The disappearance of wilderness in Europe and America triggered the modern conservation consciousness, which was based on a romantic view of wilderness.

In the United-States, conservation history traces changes in the social, cultural, political, and economic perception of nature or wilderness. From early Euro-America settlement on the land, American pioneers were at "war" with wilderness and perceived it as something chaotic that needs to be put in order (Judd, 2003; Allin,1982). Allin (1982) comments that "Wilderness was a threat to the very survival of the colonizers, the force against which they were compelled to struggle for their existence" (p.5). Natural resources were perceived to be in superabundance and to be used for economic growth. This early view of nature was one of the drivers of American industrialization where nature was only a commodity to fuel development and urbanization (Allin 1982).

However, the early 19th century is marked by significant changes in the perception of nature in the U.S. America's consciousness of nature and romanticizing of the wild became an important political force, which had significant impacts on land management (Phillips 1997, p.31). A few men such as Henry David Thoreau and Frederick Olmsted were early American advocates for wilderness preservation who believed that wilderness needed to be protected for the well-being of mankind (Allin, 1982). The changes in American perception of wilderness have been informed by the rapid depletion of wild places, the loss of game species, the search for a cultural identity, the expansion of urban areas, and the American's strong sense democracy and desire to make nature accessible to all (Philips 1997, Frome 1997, Runte 1997, Allin 1982). North Americans perceived wilderness as "the antidote to an over urbanized, super technological age and as a recreational resource affording the enjoyment of hardy outdoor sports" (Frome 1997, p.13). These changes in the human relationship with nature in the U.S. triggered the conservation movement of 19th century, which was highlighted by the

creation of protected areas such as the Yosemite Valley in California (Runte, 1997; Frome, 1997; Wirth, 1980). Allin (1982) reports that "the first significant act of preservation by the United States Congress was to cede the Yosemite Valley and the Mariposa Big Tree to Grove to the state of California" as a protected area for public use and the enjoyment of people in 1864 (p. 24).

Similarly, in Europe, the romanticism of nature evolved as people increasingly became interested in the natural environment, which was becoming scarce due to increasing urbanization and exploitation of resources. The European concerns over environmental degradation were not so much on the European continent, but in their many colonies in India and Africa. Oates (1999) comments that by the 1700s Europe's pristine ecosystem had been already intensely modified through excessive cultivation and urbanism in such a way that the romanticism of the Wild was based on a mythic primeval view of African wilderness, which needed to be protected from excessive exploitation. This aesthetic view of nature was reflected in the creation of forest reserves and game parks in India as early as 1764, for water supplies, and in Africa in 1846, for forest and wildlife resources (Oates, 1999; Hulme, 2001; Hambler, 2004). Thus, changes in perception of wilderness, from that of an enemy of civilization and development to something aesthetic and desirable for human civilization, started modern conservation movements. These conservation movements started first in Europe and America, then expanded to rest of the world.

Conservation and National Parks

The global reach of formal nature for conservation practices was led by colonial powers, such as Britain, French, and the United States. These colonial powers have influenced conservation models and initiatives around the world. Changes in the perception of nature or wilderness led to conservation practices which ultimately led to the national park idea. Wilderness and conservation remain as highly contested concepts.

Defining wilderness is a complex task because of its different physical, spiritual, cultural, and social dimensions. The American Wilderness Act of 1964 offers this definition of wilderness: "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain" (Frome, 1997, p.214). In this sense, wilderness seems to be a place that is distant from humans' everyday life. Wilderness is "something that takes place somewhere else, it seems. You must travel to witness it" (Minteer and Manning, 2003, p. 47).

The meaning of conservation does not find global consensus although the term "conservation" is commonly used in relation to natural activities and landscapes. Hambler (2004) explains that conservation has a different meaning to different people and he suggested a broader definition of conservation as "the protection of wildlife from irreversible harm. Wildlife includes all non-domestic species and populations of plants, microorganisms, and animals. By 'irreversible' I mean changes that are not reversible within a human generation. By 'harm' I mean damage or declines due to people" (p. 2-3).

Other definitions of conservation have been suggested and used by many organizations and communities all over the world. The World Conservation Strategy (WCS) of 1980 defines conservation as: 'The management of human use of the biosphere so that it may yield the greatest sustainable benefit to the present generation while maintaining its potential to meet the needs and aspirations of future generations' (Hambler 2004, p.6). President Theodore Roosevelt and Gifford Pinchot, which are known as pioneers of modern conservation movements in the USA, defined conservation as the "sustainable-use" or "wise-use" of public goods (Allin, 1894; Western, 1994; Hambler, 2004). The above definitions have been criticized because of their utilitarian perception of nature which de-emphasizes its intrinsic value.

Arne Naess and George Sessions (1984), in their writing "A Deep Ecology, Eight Points Platforms", supports the idea of "intrinsic value of nature". This idea has inspired many conservationists such a Michael Soulé (2013), one of the founders of the discipline of Conservation Biology, who argued that conservation is about the protection of nature for its intrinsic value and not its utilitarian value. These controversies in the definition of conservation pushed some authors, such as Sandbrook (2015) to embraced the ideas of multiple conservations to be able to encompass the multitude of definitions of conservation. Sandbrook argues that "contemporary conservation is not one thing but many, and that there can be more that separates different conservations from each other than binds them together" (p.566). Sandbrook also argues that recognizing the multitude of conservation definitions "challenges the view of those who have argued for an end to internal debates over the meaning of conservation", which considers both the intrinsic and utilitarian values, and it also raises the question of "which version(s) of conservation

thinking different conservation organizations and individuals actually subscribe to" (p.566). The debate about what conservation is has not found global consensus yet and it is going in different directions.

However, some authors recognize the possibility of finding a common ground in the diversity of conservations. Minteer and Manning (2003) explained that the unity amid the multiplicity of conservations can be summarized in twelve emerging principles in the discourse of conservation. These principles are summarized in table 1

Table 1: Twelve principles of reconstructing conservation

1	Integrative understanding of nature and culture
2	Concerned with working and cultural landscapes as well as more "pristine" environment
3	Rely on a wider and more contextual reading of conservation tradition
4	Require long-range landscape stewardship and restoration efforts
5	Have "land health" as one of its primary socio-ecological goals
6	Be adaptive and open to multiples practices and objectives
7	Embrace value pluralism
8	Promote community-based conservation strategies
9	Rely on engaged citizenry
10	Engage questions of social justice
11	Be politically inclusive and partnership driven
12	Embrace its democratic traditions

Source: Summarized from Minteer & Manning (2003). "*Reconstructing Conservation: Finding Common Ground".* Island Press.

It is important to acknowledge that both the intrinsic and economic values of nature have historically initiated and continue to initiate modern conservation movements, which are represented today by the creation of national parks.

The United States created the world's first national park, Yellowstone National Park in 1872. Yellowstone was not the first protected area in the United-State, but it was

the first one to receive such national status (Phillips, 1997; Allin, 1982). Allin (1982) reports that "the first significant act of preservation by the United States Congress was to cede the Yosemite Valley and the Mariposa Big Tree to Grove to the state of California" as a protected area for public use and the enjoyment of people in 1864 (p.24). Likewise, Runte (1997) argues that if not for the name "national park", Yosemite Valley would have been the world's first national park.

The creation of national parks in the U.S. reflected in part the growing social concern to protect wilderness from increasing urbanization and human exploitation, but also a desire to express cultural identity which would compete with historical monuments, art, and literature of Europe. This American anxiety over cultural identity is not often mentioned in discourses of the creation of the national parks. Runte (1997) explains that the first reason for establishing the national parks in America was the desire for cultural achievement through spectacular natural landscapes and sceneries, which will reflect American human history and be comparable to ancient history and culture of European countries. Also, he suggests that the idea of the national park idea responded to America's cultural rather than environmental needs, which provided the country with a separate national identity. The American's desire to affirm themselves on the global sphere is an important argument to be considered when examining the global expansion of the idea of national park. This global expansion of the idea of national park was not only about Americans' concerns over environmental degradation, but also a cultural expression and global assertion.

Another social and cultural driver of conservation in America and in Europe is sport hunting. "In Europe, as with America, hunting was – and is – part of the reason for

protection of many private lands that remain relatively rich in wildlife." (Hambler 2004, p.8). In the U.S., the visible loss of many game species, including the bison, and the degradation of natural landscapes raised concerns for sports hunters and nature lovers. These sports hunters and nature lovers pressured the government on the necessity to protect nature and were part of the original coalition of interests that supported the establishment of Yellowstone (Hambler, 2004; Mason, 2004). In Europe, especially Britain, the culture of hunting was very common among rich aristocrats and royalties who have had set aside lands for this sole purpose. Hulme (2001) explains that in many colonial territories, laws restricting hunting of certain animal were enacted and "conservation legislation set aside areas of land, and certain quarry species, for European hunters" (p.11). Likewise, Oates (1999) reports that British conservation leaders in Africa were big-game hunters who were concerned about the uncontrolled hunting of game species. Consequently, many game reserves and national parks were created including the Belgian Royal gorilla sanctuary reserve in 1925, known today as the Virunga National Park in Congo, and Kruger National Park in South Africa in 1926 (Oates, 1999). Also, in the USSR, President Lenin created many national parks and reserves for scientific, economic, and aesthetic reasons (Hambler, 2004). Many other parks which were created after the independence movement in Africa have been influenced by the early American and European environmental protection policies. Modern conservation initiatives have been about protecting natural resources, spectacular landscapes, and charismatic megafauna from degradation and depletion. The early protection of nature was not for its own sake but to serve human needs whether they be cultural, economic, scientific, or political. The "new" conservation model, symbolized by the concept of ecotourism,

reflects the utilitarian purpose of conservation which now focuses on economic development.

National Parks and Ecotourism

The Western utilitarian perception of nature is tied to the strategy behind the use of national parks to protect nature for people's enjoyment. The U.S. National Park Service Act of 1916 states that the service was created to 'conserve the scenery and the natural and historic objects and the wild life therein [within the national parks] and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations' (as cited in Winks, 1996, p.1). This enjoyment of people is related to the development of tourism in national parks. Ceballos-Lascurian reported that "it's only around the 1800s that the word 'tourist' started to be used to designate people who were visiting other places for the sake of entertainment and discovery" (as cited in Rai, 2012, p. 1). This time frame coincides with the rise of the conservation movement and the creation of national parks and game reserves for public use and entertainment. Mason (2004) reports that the Yellowstone was primarily created for the protection of natural "monuments" and animals to ensure the satisfaction of tourists and sportsmen, rather than the protection of the environment. This shows that from the beginning national parks were created for people to enjoy them.

Tourists wanted to visit national parks to see the natural monuments that were being protected. Cohen argues that modern tourism is about the desire to reconnect with nature and the search for the pristine and primitive places that have not yet been impacted by modernity (as cited in Stronza, 2001 p.265). In the late nineteenth century, European

and American tourists became increasingly interested in having a "wilderness experience" in the national parks and they were expecting "grand natural phenomena that would rival the Old World architectural attractions" that were popular at the time (Mason, 2004). The increased interest in "wilderness", "pristine" and "primitive" led to a massive movement of people around the world looking for entertainment through visiting "new" popular natural places and experiencing new ways of life.

The mass movement of tourists impacted the natural landscapes and social structures of many places through the construction of tourism infrastructures. Mason (2004) reports that "by 1916, Americans viewed national parks as wilderness and wildlife reserves, as well as tourist attractions. However, roads, concessions, and other facilities that catered to tourists were built around the parks and often undermined wildlife protection" (p.3). Places that were once "pristine" became popular and lost their unspoiled value. Mass tourism caused significant environmental degradations which created dissatisfaction among tourists. Discontents with mass tourism led people to consider alternative forms of tourism including ecotourism.

The introduction of ecotourism as a practice of environmental sustainability in the tourism sector resulted from concerns over the inappropriate use of natural resources for development purposes and increasing disdain of "mass tourism" (Rai, 2012; Fennell, 2009). Ecotourism, which emerged in the late 1980s, was not only born out of the increasing disdain of mass tourism but also out of increasing interest in the well-being of communities living around the pristine areas who were being destroyed by mass tourism (Diamantis, 1999; Honey, 2008). National parks were created for people to enjoy, but not all people. Many indigenous and aboriginal people living in "discovered" pristine areas

around the globe were dispossessed and displaced to create national parks. “The dominant colonial approach to conservation was the establishment of PAs from which people were essentially excluded or resettled, often forcibly” (Sunderland et al., 2007, p.276). Wells et al (1992) suggests that conservation was about protecting the land through models such as ‘fortress conservation’ or ‘fences and fines approach’ (as cited in Hulme 2001, p.10). Likewise, Hulme (2001) explains that the early fortress conservation model of the America’s national parks and Britain’s nature reserves were about “the creating protected areas, the exclusion of people, and the prevention of consumptive use and minimization of other forms of human impact”. Mason (2004) reports that in the U.S., the army was deployed in Yellowstone to protect its wilderness for the public interest. The army removed indigenous people from this wilderness because they were not associated with the aesthetic and romantic vision of nature, which motivated environmental activists such as John Muir. “Early parks in the North America were established by and for a select group of privileged people who could afford leisure time and transportation costs to remote areas” (Martin, 2003). This fortress conservation model dominated the international discourse on conservation and influenced later conservation initiatives in many parts of the world (Mason, 2004). The conservation movement has been dominated by the ‘Yellowstone model’, which is represented in categories Ia, Ib, and II of the IUCN eight categories of protected areas (Appendix D). Ecotourism, in contrast, originated to address these social and economic issues associated with the fortress and exclusionary conservation model.

Ecotourism and Community Development

With the acknowledgment of the social and economic injustices associated with the fortress conservation model, a new conservation science emerged. This new approach advocates the reconciliation between conservation and economic development through integrated conservation programs (Doak, 2015; Soulé, 2013). These integrated conservation and development models characterized by concepts such as sustainable development, community-based conservations (CBCs), and the rise of the ecotourism industry have gained substantial support with conservationists and economists (Martin, 2003). Ecotourism "has generated a significant amount of interest and controversy over the past two decades" as a concept that combined both development and conservation (Fennell, 2009, p.372). However, there is no global consensus on the definition of ecotourism. Many pieces of literature on the topic have given credit to Ceballos-Lascuráin (1987) as the first to express a formal definition of ecotourism. Ceballos-Lascuráin defined ecotourism as "travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations, both past and present, found in these areas" (as cited in Fennell 2009, p. 373).

Recent definitions of ecotourism include the International Ecotourism Society (IES) definition of ecotourism as "Responsible travel to natural areas that conserves the environment and improves the well-being of local people." (As cited in Honey, 2008, p.6). Rai (2012) defines ecotourism as "an exciting new venture, which combines the pleasures of discovering spectacular flora and fauna, and understanding their values with an opportunity to contribute to their protection". Also, Fennell (2009) mentions that

"Ecotourism is a sustainable, non-invasive form of nature-based tourism that focuses primarily on learning about nature first-hand, and which is ethically managed to be low-impact, non-consumptive, and locally oriented (control, benefits, and scale) and which typically occurs in natural areas, and should contribute to the conservation of such areas." (p.373).

Although there is no consensus on the definition of ecotourism, most of the definitions articulate elements such as nature, conservation, education, culture, and local people as the basic principles of this concept (Weaver, 2001). Emphasis on nature-based principle and conservation of relatively undisturbed natural places have motivated many developing countries to use ecotourism as a tool for economic development, environmental protection, and conservation. Many developing countries have created national parks to protect and conserve the natural biodiversity for ecotourism activities. Honey (2008) argues that:

> "Around the world, ecotourism has been hailed as a panacea: a way to fund conservation and scientific research, protect fragile and pristine ecosystems, benefit rural communities, promote development in poor countries, enhance ecological and cultural sensitivity, instill environmental awareness and a social conscience in the travel industry, satisfy and educate the discriminating tourist, and, some claim, build world peace." (p.4)

Rai (2012) summarizes the criteria in the extensive literature on ecotourism in three principles: (i) minimal impacts on the biodiversity and the community of the visited area; (ii) education of the tourist on the ecosystem of the site including the culture and traditions of the community of the visited area; and (iii) significant economic development or gain of the local community.

Ecotourism has successfully attracted the attention of tourists and many scholars because of its ability to address social as well as environmental issues. “With considerable growth in international tourism and expansion of parks and reserves, ecotourism plays an increasingly important role in shaping the sustainable development discourse” (Martin, 2003, p.24). Also, the relationship between ecotourism and ecological conservation has attracted a range of people including environmentalists, ecologists, biologists, economists, and social scientists. This significant interest in ecotourism encouraged scholars to write extensively on this topic and its relation to biodiversity conservation. However, ecotourism is yet to prove its efficacy in addressing the many issues of conservation, which have been growing. As conservation efforts increase through the creation of national parks and protected areas in developing areas, conservationists are faced with increasing conflicts between people and protected wildlife, which undermines conservation efforts.

National Parks and the Human-Wildlife Conflict

Although conflicts over space and resources between wildlife and people are not new, it is gaining increased attention in conservation discourse (Nyhus et al., 2005). With regards to this conflict, there is a general recognition among conservationists that farmers and people living near protected areas and national parks disproportionately bear the cost of conserving biodiversity, especially large and often dangerous animals (Mackenzie, 2012; Ninan et al., 2007; Nyhus et al., 2005). The human-wildlife conflict includes the killing of people, livestock, or game species, crop-raiding, and transmission of diseases (Woodroffe et al., 2005; Naughton-Treves et al., 2005). These issues are fueled by the fact that people and wildlife are increasingly sharing spaces or habitats (Woodroffe et al.,

2005, Chandra, 2005). Human's recreational and livelihoods activities (agriculture and livestock herding) increasingly impinge on wildlife habitats. Also, an increasing number of protected areas are being created near or within people's residential and livelihood areas.

Addressing issues between people and wildlife becomes even more pressing and critical not only for conservation but also for the development and the well-being of people. Effective conservation needs to find solution for this conflict which is increasingly related to protected areas (PAs). Ecotourism is thought to be the solution to many conservation issues including the human-wildlife issue. Chandra (2005) argues that there are positive and negative values of wildlife. The positive values include ethical, cultural, scientific, ecological, and game values which are used in ecotourism. However, the negative values are the destruction of properties, including crop raiding, predation on livestock, and the killing of people. Ecotourism is believed to have the ability to increase the positive value to wildlife to support both conservation and local development.

The issue of the human-wildlife conflict is severe in developing and poor countries, especially those in Africa, where a significant number of people live in the areas where national parks have been created. Protected areas are often not large enough for the spatial and ecological needs of targeted endangered species they want to protect. For example, "80% of world Africa's elephants range outside protected areas" (Hoare 2000). Most of the African elephants are in Central Africa, especially in Gabon. Gabon has the highest density of forest elephants in the region. Gabon is suffering chronic crop-raiding by primarily elephants and other primate animals. Lahm (1994) reports that "Average loss of crop damage by wildlife reach 61% in Gabon" (as cited in Woodroffe et

al., 2005). This is a serious problem considering that many farmers in Gabon live in rural areas and highly depend on their plantations for as sources of income and livelihood.

Around the world and in Gabon, many lethal and non-lethal management techniques have been developed and implemented to address the conflicts between people and wildlife, especially near protected areas. Lethal control techniques include killing and poisoning animals and non-lethal control techniques include compensation, fencing, translocation, and zoning (Woodroffe et al., 2005). However, many of these techniques have not yet been studied extensively; there is a lack of data in the literature about these techniques. As Woodroffe points out there is lack of systematic studies on the effectiveness of lethal as well as non-lethal management practices (Woodroffe et al., 2005). This is because the human-wildlife conflict is multidimensional and addressing this conflict requires a deep understanding its related issues (Woodroffe et al., 2005). Chapter V of this thesis will address the human wildlife conflict in the context of Gabon by looking its related issues. Before discussing this conflict, it is important to understand conservation movements in Gabon.

CHAPTER III

CONSERVATION IN GABON: OPPORTUNITIES AND CHALLENGES

The Colonial Legacy

The modern conservation movement in Africa can be traced back to the Colonial Era. During the latter part of the eighteenth century, the European expansion in Africa, through the establishment of colonies, led to a rapid destruction of forests, especially the tropical forest (Grove, 1987; Pullan, 1988). This rapid destruction of the forests was partially the results of timber extraction and the creation of food and fiber plantations that fueled the European economy (Pullan, 1988). Concerns for the protection of the African forests got international attention around 1900 when the extinction of many game species became noticeable (Pullan, 1988). The European perception of Africa, as a wilderness that needs to be preserved from industrial and economic development, fueled the African conservation movement of the nineteenth and twentieth centuries. Anderson (1987) commented: "Much of the emotional as distinct from the economic investment which Europe made in Africa has manifested itself in the wish to protect the natural environment as a special kind of 'Eden', for the purposes of the European psyche, rather than as a complex and changing environment in which people have actually had to live" (p.4). The London Convention of 1933 expressed the first international to protect African forests. (Appendix E)

However, this desire to protect African forest is associated with the decline of game species for sports hunting (Pullan, 1987; Roulet, 2004). The colonial conservation movement in Africa was pushed by hunters who were concerned about the depletion of game species. Many colonial administrators were game hunters and they wanted to

protect game animals (Mackenzie, 1987; Pullan, 1988). The desire to protect game species in Africa is reflected in the African conservation movement which focuses on the creation of game reserves, especially in British colonies in Kenya, Uganda, and South Africa (Pullan, 1988; Anderson, 1987; Roulet, 2004). In 1908, British colonies created the Kruger game reserve in South Africa (Roulet, 2004). This conservation movement came later in the French West African colonies, especially in regions of tropical forests. It is only around the 1940s that French colonial administrators started creating parks and protected areas in their colonies. "By 1946, there were only nineteen national parks in Africa, of which two were located in lowland humid forests. One of these, the Odzala National Park, had been declared a strict nature reserve in 1935 and a national park in 1940. The creation of this and the Okanda National Park reflected only the desire of French administrations to appear to implement the 1933 Convention, for these were 'paper' parks, unmanaged and unprotected, and designated on maps but not on the ground" (Pullan,1988, p. 175). Okanda National Park was the first in National Park of Gabon, which was part of the French Equatorial Africa.

French colonists were the first to initiate modern conservation in the region of Gabon. French colonists created three protected areas including Lope-Okanda Reserve, Okanda National Park, and Ofoue Reserve (Roulet, 2004) (Appendix F). The French colonial authorities created the Lope Game Reserve in 1946, which is now Lope National Park, as a fulfillment of the London Convention of 1933. After its independence in 1960, Gabon kept Lope as a Protected Area, however; it followed the steps of the French colonialists because Lope remained a 'paper' park. The present chapter discusses

Gabon's conservation movement of the 21st century and the creation of its national park system.

The Awakening: National Parks, A Political Agenda

After its independence, Gabon's government focused on the economic development of the country through resource extraction, specifically oil and manganese exploitation (Essabe, 2012). Oil revenues contributed to around 40% of Gabon's GDP as well as 80% of all exports and 60% of the Country's budget (Essabe, 2012). However, Gabon's economy has been affected over the years with the instabilities in the oil industry. The contribution of the oil industry to the economy has diminished significantly. Essabe (2012) reports that the contribution of Oil to the Gabon's economy has declined at the rate of 5% a year since 1997. Gabon has turned to other industries, such as the logging industry, to support its economy. Laurence (2006) reports that in 1957, only 1.9 million ha of Gabon's forest was under long-term logging lease. However, by 1999, this number increased by 11.9 million representing about 45% of the entire Gabonese forest (p.460). With regards to this economic situation, Gabon's authorities looked at diversification strategies to move from an extractive economy to a diversified economy (Essabe, 2012). This strategic diversification of the economy included the promotion of its environmental potential through the development of tourism.

Gabon's natural wealth became popularized when the naturalist and conservationist Michael Fay, from Wildlife Conservation Society (WCS), undertook the Mega-Transect across the Central African forest covering the Republic of Congo, Cameroon, and Gabon (National Public Radio 2000, Mayell 2002). The journey was about 1,609 kilometers (2000 mile) on foot, through the jungle (Appendix A). After Fay's

publication of his adventure, Gabon's thirteen national parks were created. In 2002, at the World Summit on Sustainable development in Johannesburg, South Africa, President Omar Bongo announced the creation of these parks. This declaration made the headline of many conservation media outlets and positioned Gabon as one of the global leaders in the environmental protection (Essabe, 2012). Also, the U.S. Secretary of State, Collin Powell launched the Congo Basin Partnership in which the U.S. planned to invest up to $53 million dollars (www.pfbc-cbfp.org, www.2001-2009.state.gov).

Gabon's new commitment to biodiversity conservation would make the country one of the major beneficiaries of this investment. Gabon was the only country to comply with the Yaoundé Convention of 2002 where leaders of Central African National pledged to set aside 10% of their territory for conservation (Essabe, 2012). The creation of Gabon's national parks, which cover about 11% of the territory, attracted the attention of many environmental organizations such as WCS Gabon (Wildlife Conservation Society), National Geographic, and the WWF (World Wildlife Fund). In 2007, National Geographic Television produced a documentary called "Gabon the last Eden" to promote Gabon's biodiversity. In this documentary, National Geographic used Fay's information and the creation of Gabon's national parks to publicize Gabon's new conservation movement and promotion of ecotourism development (Appendix G).

Gabon's Conservation Policies

Supported by the WCS and Michael Fay, Gabon took significant steps towards conservation. However, as mentioned earlier, since its independence, Gabon had focused on resource extraction for the development of its economy. In terms of conservation, Gabon had only the residue from the conservation efforts of its colonial time. Gabon did

not have solid conservation or environmental programs or policies at the time of the creation of the parks. Neither did Gabon have the necessary institutions and resources to manage the parks. Therefore, Gabon's national parks and conservation model have received significant external influence, especially from the U.S. Gabon's conservation movement has encountered many of the issues related to conservation, including lack of funding and conflict with local communities. The country has been struggling to manage its national parks due to the lack of staffing, ecotourism and conservation infrastructures, financial support, and effective management.

In 2007, five years after the creation of the national parks, the government of Gabon created the National Park Agency (ANPN) and the Law of the Parks to organize the management of the park. The mission of the ANPN is to implement policies for national parks by ensuring the protection of national parks and their natural resources, working towards the efficient development of the national park system, and enhancing the value of the national parks and their resources (www.parcsgabon.org). The ANPN is now directly under the authority of the President. The ANPN management organization includes a management committee, an executive administration, and local administrations. The management committee is made up of sixteen members working at the presidential and ministerial level with partner NGOs (Agence Nationale des Parcs Nationaux, 2012). Pr. Lee James Taylor White, the Executive secretary of the ANPN, manages the executive administration. This executive administration is responsible for all administrative and supervisory work at the national level. At the local level, each park has a park manager, called a "conservator", and eco-guards. The conservator and the eco-guards are responsible for the implementation of conservation policies. They also report

to the ANPN all the conservation and management problems in the parks and surrounding areas. However, Gabon's national parks and forests are under the management of three entities including National Park Agency (ANPN), the General Direction of Water and Forest (DGEF), and the Wildlife Conservation Society (WCS), which operate in different areas but tend to overlap in the regulatory and protective management of biodiversity (Yobo & Ito, 2016).

Gabon's conservation model focuses on preserving wildlife and natural habitat. Andrade (2012) reports that "Many protected areas (PAs) have been established following the same conventional and exclusionary top-down approach applied at Yellowstone in 1872" (p.1). Likewise, Stevens (1997) suggests that Yosemite and Yellowstone have set a precedent of a conservation model which excludes indigenous people and today the establishment of national parks all over the world follows a strict nature protection approach, which is accompanied by the expulsion of indigenous people from their homelands. In Africa, including in Gabon, the creation of many national parks and protected areas has resulted in the displacement of local and indigenous people. (Oates, 1999; Andrade, 2012). Conservation displacement in the Central Africa region has not yet been systematically studied. So, we cannot determine how many people have been displaced due to conservation (Schmidt-Soltau, 2003, Agrawal et al. 2009). However, Geisler (2003) estimates that conservation projects in Africa have caused the displacement of about 14 million (as cited in Agrawal et al., 2009). Also, Schmidt-Soltau (2003) conducted a study about conservation displacement in Central Africa and found that local people and indigenous people have been excluded from villages and expropriated of their traditional land in Gabon (see table 2).

Table 2: List of protected Areas covered during Schmidt-Soltau study of conservation displacement in Central Africa (Schmidt-Soltau, 2003)

Name	Country	Total Area (km^2)	Year of visit(s)	Impact on local populace	Compensation	Success?
Korup National Park	Cameroon	1259	1997–2002	Involuntary resettlement of villages Expropriation of traditional land use titles	Yes No	No No
Lake Lobeke National Park	Cameroon	4000	1999, 2002	Expulsion of pygmy groups Expropriation of traditional land use titles	No Partly	No No
Dzanga-Ndoki National Park	Central African Republic	1220	2000, 2002	Expulsion of pygmy groups Expropriation of traditional land use titles	No Partly	No No
Nsoc National Park	Equatorial Guinea	5150	1998	Expulsion of villages Expropriation of traditional land use titles	No No	No No
Gamba Protected Areas Complex	Gabon	7000	1997	Expulsion of villages Expropriation of traditional land use titles	Partly Partly	No No
Ipassa-Mingouli Biosphere Reserve	Gabon	100	1997	Expulsion of pygmy groups Expropriation of traditional land use titles	No Partly	No No
Noubale Ndoki National Park	Republic of Congo	3865	1999, 2001	Expulsion of pygmy groups Expropriation of traditional land use titles	No Yes	No Yes
Odzala National Park	Republic of Congo	5090	1996	Expulsion of pygmy groups Expropriation of traditional land use titles	No No	No No

Definitions: While an 'involuntary resettlement' is an organized approach in which the local population receives assistance through the national government and/or the promoter of the national park, an 'expulsion' is a displacement without assistance (Fischer, 2002: 134). A 'village' is permanently inhabited by the rural populations. 'Expulsion of pygmy groups', means that 'pygmy groups', which do not have permanent settlements, were expelled from the forests which they used and inhabited on a temporary basis. 'Expropriation of traditional land use titles' covers cases in which the national government or the promoter of the national park did not consider common property rights such as utilization rights as legal title. 'Success' is meant to denote that all parties involved are satisfied with the outcome of the displacement.

Indigenous groups in Gabon, such as the Babongo Pygmies, who live in the forest, have been forced to relocate to some other places when their traditional lands were designated as part of national parks or protected areas.

In addition to the exclusion of people from national parks, Gabon's emphasis on restrictive conservation policies affects local peoples' livelihoods. Yobo and Ito (2016) argues that Gabon "has focused less on securing the livelihood of local communities since the national parks belong to one single category II that are categorized by 'no take' policy, especially inside of their boundaries" (p.52). Articles Nine and Ten of the Law of the Parks express the restrictive conservation model of Gabon. Article Nine declares that all activities that do not follow the law of the parks are strictly prohibited within the parks (Loi # 003/2007 des Parcs Nationaux). Also, Article Ten addresses the different activities that might be authorized in the parks with an authorization from the ANPN. These activities do not include livelihoods activities conducted by local populations. The only

activity that is permitted within the buffer zone of the parks is the collection of fire wood. Yobo and Ito (2016) reports that studies conducted in Ivindo National Park (INP) emphasize that people living around the park face restriction in the access and collection of resources within the park and these people have been excluded from owning, managing, or benefiting from the park.

However, the creation of the parks was for both the protection of biodiversity and national and local economic development. Both Gabon's Forest Code and the National Park Law "aim at the promoting the economic development of the timber sector, sustainable management of its resources as well as biodiversity protection and ecotourism development" (Yobo and Ito 2016, p.45). Also, The ANPN mandate is to promote sustainable protection of biodiversity and ecotourism development. Article Three of the Law of the Park defines ecotourism as organized tourism, which promotes the sustainability of the ecosystems through the respect of the environment and local populations while ensuring the equal redistribution of economic profits in local communities (Loi #003/2007 des Parcs Nationaux) (Appendix H). In practice, the management of the parks has emphasized biodiversity protection over economic development, especially at the local level. The restrictive conservation policies impact local peoples' livelihoods, especially their food security. Machlis (2009) comments that "throughout the world, and particularly in the tropical ecosystems of the less developed nations, many people live within the boundaries of the designated parks or so close that in their own minds there is little distinction between an inside and outside the park. This creates challenging management needs for often understaffed and minimally equipped national agencies that are equipped with the mandate to protect the biological, ecological,

and aesthetic value of these areas" (p.246). Thus, conservation policies in Gabon can hinder the development of local communities. Yobo et Ito (2016) maintains that the conservation policies of Gabon which aim to promote local participation and local community development are poorly implemented on the ground; these policies need better institutionalization and implementation in each park.

Local Participation in Conservation in Gabon

Despite the extensive literature on best practices of ecotourism, which promotes the inclusion of local people, Gabon does not do much to encourage local participation in conservation efforts. As discussed earlier, Gabon often follows the exclusionary conservation model in park planning and management. This exclusionary system has prevented local communities from participating in Gabon's conservation efforts.

Tourism studies in the Congo Basin region indicate little local community involvement in parks management and ecotourism activities. Zeppel (2006) contends that "there were no Indigenous ecotourism projects discovered in Nigeria, Benin, Togo, Gabon, Liberia, Sierra Leone, Guinea, Guinea-Bissau, Mali or Burkina Faso. In West Africa, there were virtually no Indigenous ecotourism ventures linked with private operators, one exception being the British-owned Makasutu Culture Forest in The Gambia" (p.228). Even with the frequent discourse on collaborative management, many protected areas in developing countries, especially in West Africa, do not have a formal strategy to integrate local inhabitants into park management (Cernea, 2006). Yobo and Ito (2015) reports that local participation in Gabon's conservation efforts is non-existent and the ANPN does not focus on

addressing the needs or livelihood of local people who depend on resources which have been locked into the national parks. However, Article 44 of the Law of Parks articulates that each park should have a Local Management Advisory Committee (LMAC) called Comité Consultative de Gestion Locale (CCGL). These advisory committees are made up of people representing all stakeholders including local communities, business sector, local authorities, and national parks. These people work together and voice the opinions of their party in decision-making processes and conflict resolutions concerning the conservation and the management of the park. Also, Articles 18 and 19 of the Law of Parks support Article 44 and suggest that park managers can sign participatory management contracts with local population through the LMAC to promote effective conservation and valuation of biodiversity. These participatory management contracts must be approved by the ANPN and must support the vision of protecting Gabon's biodiversity and promoting ecotourism development.

However, the poor implementation of these article on the ground shows that Gabon needs to put more efforts into the effective integration of local communities in conservation and ecotourism development efforts. Villagers are given the task to organize themselves and designate two people who will represent all the villages at the LAMC. This is a difficult and complex task for villagers knowing that each village is independently governed and sometimes villages around the park do not speak the same language or do not have the same culture. Communities in PNP include the Mpongwé, from the ÔMyéné ethnic group, Fang, Punu, Vungu, Giza and Bahumbu, as well as immigrant communities from West Africa such as Equatorial

Guinea and Nigeria (Maite, 2008; “Mapping for Right”, 2017). Communities in INP include the Kota, Fang, and Meke. The ethnic groups occupied different villages along the Park’s region, especially along the main road from Ovan to Makokou. In Makokou, these ethnic groups also stay in separate areas (Weghe, 2013).

Villagers often do not have the skills and knowledge required to effectively take part in organizations such as the LAMC. Schmidt-Soltau (2003) comments that the exclusion of local people in conservation is due to the idea that indigenous societies "do not have a system of representation a therefore hardly 'participate' successfully in the European mode of decision-making" (p.530). The ANPN needs to assist local communities in the process of effectively using the LAMC to participate in conservation efforts.

Local people will not support or participate in conservation efforts if their needs are not considered. “Community development research consistently demonstrates that local are unlikely to participate in development (or conservation) projects unless they perceive a direct and rapid benefit from their inputs of time and resources, especially when the impetus for the project is external” (Martin, 2003, p. 28). Machlis (2000) reports that “integrated biological conservation has been implemented in many developing nations to give residents a significant stake in conservation, protected areas management, and ecotourism development of their areas” (p.246). Aswani and Wiant (2004) emphasizes that “when local communities are excluded from PA management and their needs and aspirations are ignored, it becomes extremely difficult to enforce conservation policies” (as cited in Andrade et al., 2012, p.1). The IUCN concludes that conservation policies which ignore the needs of local people in

national parks are doomed to fail (Schmidt-Soltau, 2003). The lack of local active participation and integration in conservation continues to create challenges for conservation efforts in Gabon.

The Challenges for Conservation in Gabon

In addition to the challenges related to the restrictive and exclusionary conservation model of Gabon, the country is also facing conservation challenges related to the lack adequate institutions and infrastructure. Laurence (2006) argues that ecotourism development in Gabon faces substantial challenges including "the high profitability of exploitative land uses like logging, the illegal encroachment of loggers and hunters into nature reserves, political instability in the surrounding region, and limited infrastructure for tourism" (p.466). Significant parts of lands that are part the national parks are former logging concession that must be repaid by the government. Also, a significant portion of Gabon's remote land was not under strict regulation. This had given open access to poachers and illegal gold miners in many regions where the parks are now established. In 2004, more than six thousand illegal gold miners were found in the buffer zone of Minkébé National Park in Gabon (Ruggiero, 2013) (Appendix I). These miners came from surrounding countries including Cameroon and Congo and they conducted illegal activities in the region including prostitution, drugs, arms trafficking, and poaching (Yong, 2017).

Although Gabon has maintained its reputation of a peaceful country in Central Africa, its surrounding region has witnessed civil wars which increase insecurity in the entire region. Fabricius and de Wet (2002) argue that the difference between East Africa and Central Africa is the lack of tourism infrastructures, trained staff, and security. The

political instability in the region contributes to the unwillingness of the tourism industry to invest in Central Africa, especially because it takes about 25 to 30 years for tourism investment to generate profits. The lack of development inside the country is affecting the Gabon's ability to successfully develop ecotourism in the national parks. The lack of tourism infrastructure and the perceived instability in the region is a major impediment to the development of ecotourism in Gabon.

Furthermore, conservation authorities face growing conflicts between local communities and protected wildlife. Gabon has a significant population of mega fauna such as elephants, gorillas, and chimpanzee. These animals, which range freely in the forests that have been fragmented by logging concession, have access to farmers' fields and destroy food supply for villagers. Crop-raiding is a pressing problem around Gabon's national parks. This problem has significant impacts on local communities and conservation. Many of Gabon's national parks are in remote areas where people depend on substantial agriculture and hunting. Crop-raiding coupled with the restrictive conservation policies, which prevent local people from killing endangered species like elephants, creates frustration in local communities. The ANPN is left with the task of creating effective mitigation strategies to address the issues of crop raiding around the national parks. These ongoing conflicts remains an important consideration in the development of ecotourism and other means of conservation strategies in Gabon.

CHAPTER IV

ECOTOURISM ANALYSIS IN PONGARA AND IVINDO NATIONAL PARKS

Ecotourism, as discussed earlier, has been a common strategy for many developing countries to achieve sustainable development. One of the pillars of President Ali Bongo's Strategic Plan of Emerging Gabon is called "Gabon Vert" (Republique Gabonaise, 2012). The "Gabon Vert" pillar is about "developing the 'green oil' that Gabon ecosystem provides: 22 million hectares of forest, 1 million hectares of arable agricultural land and over 800 kilometers of coastline. Development projects must involve sustainably developing natural resources and adhering to national ecological standards" ("Green Gabon", 2017). Essabe (2012) argues that the creation of national parks in Gabon has economic and environmental justifications for the preservation of biodiversity and the promotion of sustainable development. Thus, sustainable development was and continues to be the focus of Gabon's national parks through the development of ecotourism programs. Since their creation in 2002, the national parks of Gabon have witnessed changes in their management to fulfill the purpose for which they were created. The government of Gabon has been working to promote ecotourism in the nation with the vision of making Gabon the primary destination for tourism-related to the tropical African forest (Agence Nationale des Parcs Nationaux 2012). Gabon's current goal is to attract a hundred thousand tourists a year by 2020." (World Travel and Tourism Council, 2015; "Green Gabon", 2017). However, reaching this objective is quite challenging for Gabon not only because the country is lacking many of the necessary tourism infrastructure, but also because there is no universal meaning of ecotourism

which can be used as a standard for developing tourism programs that are related to nature.

The meaning of ecotourism has been the subject of many debates as conservationists, biologists, ecologists, and socio-economists have tried to design criteria or characteristics of "authentic" ecotourism. Many organizations and tour operators use the word "ecotourism" indiscriminately to catch tourists' attention and designate any tourism activity that is related to nature or that is different from conventional tourism (Honey 2008). Honey (2008) and Zeppel (2006) distinguish between ecotourism and other forms of nature related tourism activities such as nature tourism, wildlife tourism, adventure tourism, ethnic tourism, indigenous tourism. These efforts to distinguish between what ecotourism is, and what it is not, bring clarification in the discussion of ecotourism. Honey (2008) offers seven characteristics of "real ecotourism" which can be used as a framework to analyze ecotourism activities in different part of the world. These seven characteristics include: (1) Involves travel to natural destinations; (2) minimizes impact; (3) builds environmental awareness; (4) provides direct financial benefits; (5) provides financial benefits and empowerment for local people; (6) respects local culture; (7) supports human rights and democratic movements (Honey, 2008, p.28-31). This framework addresses many of the complexities and expectations within the discussion of ecotourism including biodiversity conservation, cultural appreciation and preservation, and local community's sustainable development.

The purpose of this chapter is to analyze ecotourism development in both Pongara and Ivindo National Parks using the Honey's (2008) seven characteristics of ecotourism. This will advance knowledge about ecotourism in these two parks and its complex

relationship with sustainable development. Each characteristic is considered in turn and then applied to each of the parks.

1- Involves Travel to Natural Destinations

Honey (2008) explains that the first criteria of ecotourism are that it involves travel to natural setting places. These are usually remote biodiversity-rich natural places under local, national, or international environmental protection and may be inhabited or uninhabited by human beings. Natural places rich with biodiversity consist of places with significant fauna and flora as well as natural aesthetic wonders and landscapes such as rocks, mountains, wild rivers and waterfalls, and marine environments (Reimer et al, 2013).

In Pongara, the wild beaches and the mosaic landscape are key features. This park, which is only a thirty-minute boat ride from the capital of Gabon (Libreville), is on the Komo estuary and the Atlantic Ocean coast and covers an area of about 929 square kilometers (White, 2007) (Appendix J). Pongara's landscapes include savanna, rainforest, mangrove, lagoon, ocean, and wild beaches. These six different habitats, which encompass majestic megafauna and flora, provide a spectacular experience to visitors of the parks (White 2007). The wild beaches of the Atlantic Ocean attract most of the visitor to the park. Gabon has the highest population of leatherback turtles in the world and its beaches are one of the primary leatherback nesting sites in Africa (Gabon Sea Turtle Partnership). The beaches of PNP is also a site for sea species such as Bottlenose and Atlantic Humpback dolphins.

Mangroves and lagoons are other remarkable land features of PNP. These serve as

nurseries for many fish, crabs, and other crustaceans. Coastal tropical forests interspersed by savanna is another impressive feature of PNP. They are composed of trees and vegetation that are compatible with sandy soil. Also, these forest and savannas are home to many primates such as red-capped mangabeys, gorillas, and large mammals including elephants and Red River Hogs. This is also a spot for migratory birds watching including the rare Damara terns (Pongara National Park, 2014) (Appendix K). I was unable to find a comprehensive list of migratory birds in Gabon. However, Bonn (2017) reports that Gabon, with the support of AEWA (Agreement on the Conservation of African-Eurasian Migratory Waterbirds), recently finished a project aiming to "enhance technical and operational capacity to support the survey and monitoring of migratory waterbirds and their habitats in the country" (p.1).

Ecotourism activities in the park include watching charismatic marine fauna like dolphins, humpback whale, and leatherback turtles. PNP, working with Gabon Sea Turtle Partnership, has created a turtle tourism program which attracts many visitors from around the world (Partenariat Tortue Marine Gabon). Tourists visit PNP every year during the highest turtle nesting season from December to January. Data about the number of tourists visiting PNP is not available. The park manager reported to me that he told me that he did not have records of the number of tourists visiting PNP. However, the total number of tourists visiting Gabon between 2006-2011 was 100,000 ("Gabon restructures tourism", 2015). PNP provides a nighttime turtle walk tours, which enable tourists to observe nesting turtles from a safe distance at night. Also, the park works with several hotels and lodges in the area, such as Pongara Lodges located in the pointe Denis and La Baie de Tortue Hotel to offer tourists water tours for watching dolphins and

humpback whales during the dry season (July-October).

INP is located in the eastern region of the country and covers about 3000 square kilometers. INP extends to two provinces, the Ogooué-Ivindo and the Ogooué-Lolo, and the nearest major city to this park is Makokou (Appendix L). INP is an amazing place for adventure in the tropical forest, observing large African mammals, and kayaking. Its type of habitat includes primary and secondary forest, bai, waterfalls, and rapids. The Langoué Baï is the largest of the network of baïs that is found in the east and south west area of the INP. Baï is a word in Baka ethnic group, which means either a clearing in the forest with a river flowing through or a place in the forest where animal eat and drink (WCS Gabon, 2017). Langoue Baï is said to have been isolated from humans; it is a magnet for wildlife, such as gorillas, elephants, and sitatungas who come to the baï to look for food and minerals. "The clearing boasts up to 90 different forest elephants visiting per day during peak seasons, with more visiting at night" (WCS Gabon, 2017). The park also has the highest number of bird diversity in all forested Africa. Of the 738 species of birds observed in Gabon, over 400 of these have been recorded in the forests of INP (Weghe, 2013) (Appendix M). This makes INP a wonderful place for birdwatching. Sekercioglu (2002) reports that birdwatching is increasingly the most environmentally conscious segment of ecotourism because birdwatchers are often well-educated, wealthy, and committed. Also, bird watchers constitute the largest single group of ecotourists and one of the best source for ecotourism income (Sekercioglu, 2002; Glowinski, 2008). However, birdwatching is not well developed in Gabon, especially in INP.

Ecotourism activities in INP are not as well developed as in PNP. However, INP conducts ecotourism activities such as visiting the falls along the Ivindo River and

wildlife watching at the Langoue-Bai. The park has a few camping sites, such as Kongou Camp, which are used to accommodate researchers and small numbers of tourists (Appendix L).

2- Minimizes Impact

The second component of Honey's framework of ecotourism is about the environmental and social impacts of ecotourism activities. Honey (2008) argues not only that tourists' behaviors need to be regulated to minimize their impacts on pristine ecosystems but also that "the adverse effects of hotels, trails and other infrastructure" need to be reduced using "either recycled or plentiful local building materials, renewable sources of energy, recycling, safe disposal of water and garbage, and environmentally and culturally sensitive architectural design" (p.29).

Pongara is located not only on the coast but also on a historic logging site. During colonial times, the coastal forests of Gabon were the first to be logged. The passed crises in the oil industry have led to an increase in Gabon's logging industry. The country has seen an increasing accumulation of lost logs along the beaches and waterways (Laurence et al., 2008). The lost logs in Gabon, which is estimated at a value of 11.1 million US dollars, belongs to the government of Gabon and cannot be removed without permission from the Gabon's Forestry Department (Laurence et al., 2008). Beaches of PNP are significantly impacted by the lost logs which affect wildlife, especially the endangered leatherback turtle. Laurence et al (2008) reports that "8-14% of all nesting attempts at Pongara Beaches, most (97.6%) involving leatherback turtles, were disturbed or thwarted by lost logs, sometimes with fatal effects for the nesting female" (p. 248) (Appendix N).

The most frequent impacts of log obstructions on beaches involve females either digging their nests below the high tide line, where their eggs would almost certainly be killed by sea water inundation or aborting their nesting attempts altogether. The establishment of the park has significantly reduced logging activities in the region. One of the eco-guards at PNP said "forest that was open for logging activities are now part of the park and they are placed under protection, so villagers cannot cut trees any more" (field interviews, November 2016).

In addition to lost logs, artificial light from the capital city and the development of coastal line impact endangered species in the area. "Large source of artificial light from Libreville and from Pointe Denis resort area, within walking distance of the nesting beach, and light pollution from the resorts around Pongara National Park has grown significantly during the last five years in conjunction with the increase in private bungalows and hotels" have significant impacts on the nesting of the turtle (Bourgeois, 2009). Another environmental issue in Pongara National Park is the continuous erosion process, which creates major escarpments, deeply impacting the visual environment of newly emerged hatchlings (Bourgeois, 2009). PNP, in collaboration with the Gabon's Turtle Partnership, works with the surrounding hotels and lodges on best practices to reduce impacts on protected biodiversity, including turtles in the region, and to keep the beach clean. The park organized cleaning days to reduce the amount of trash on the beaches and eco-guards sometimes walk around the beach to advise people to take their trash with them when they leave the beach. However, one of the residents in Pongara commented that "people come from the city and they bring a lot of trash with them. They come to the beach and leave without cleaning and he is the one picking up trash

sometimes" (field interviews, November 2016).

The Ivindo region has been subject to many illegal logging and gold mining practices as well as poaching. Because of its remoteness, the government was not able to effectively control the region. The establishment of INP in this region reduced significantly these illegal activities, which had tremendous impacts on the environment and surrounding communities. INP encompasses 115, 000 ha of forest that belonged to Rougier Gabon, a European logging company which had logging concessions in the southern area of the park beginning in1971 (Weghe 2013) (Appendix O). The problem of illegal mining exploitation is rampant in many of Gabon's national parks. Eco-guards have discovered small illegal gold mines in the southern area of INP. These gold mines were run by illegal immigrants. In 2012, President Ali Bongo Ondimba created, by decree, a "jungle army", which is a military unit of about 240 men working within the National Park Agency to ensure the security of the national parks and protect their biodiversity, especially against poaching and illegal ivory traffic (Agence Nationale des Parcs Nationaux, 2012). From 2010 to 2012, the jungle army has recorded more than 250 illegal activities within Gabon's national park system. In INP, one of the eco-guards explained that "the military intervention in the park helped dismantle a lot of ivory traffic network in the region" (field interviews, October 2016). Likewise, one of the villagers said "the army arrested a lot of people who were killing animals in the forests. I didn't even know that there were so many foreign people in the forests" (field interviews, October 2016).

Other activities impacting the relatively undisturbed nature of the park range from garbage disposal to infrastructure development. Ivindo National Park does not have an

established program to control garbage from visitors. INP has few visitors' excursions into the deep tropical forest to its camps. These excursions usually take at least two days and visitors bring food and drinks with them. Eco-guards are responsible for educating tourists about reducing their garbage deposits in the forest; however, it is not always easy to control garbage in the middle of the dense tropical forest. Also, infrastructure impacts, especially road construction, are important issues which are related to the creation of the park. The extension of the National 1 Road between Ovan and Makokou is currently being constructed to facilitate access to INP (Appendix P). This new road cut through the forest destroyed a significant portion of wildlife habitat, which impacts their migratory path. According to residents in Makokou, it is not safe to travel the new road at night because of wildlife, such as gorillas and elephants, which cross the road and can be disturbed by cars' lights.

In addition to environmental impacts, the establishment of the park has significant impacts on local communities. People living around the parks relied on the resources, which are now placed under protection, for food, medicines, and traditional activities. In INP, villagers have been restricted from practicing their traditional subsistence agriculture, hunting, fishing, and gathering and from conducting their traditional and cultural spiritual activities within the park (Weghe 2013). One of the villagers said, "we are not allowed to hunt and fish within the park and in the rivers like we used to" (field interviews, 2016). Another said, "we cannot conduct our traditional circumcision ceremonies the way we used because we do not have access to the deep forest anymore and we have to ask permission to collect the skins and the medicinal trees that we use to cure malaria and other diseases. Getting this permission is difficult it takes days and

sometimes weeks" (field interviews, 2016). The restrictive conservation management policies of the national parks have affected the livelihoods of local communities.

3- Builds Environmental Awareness

Honey's third characteristic is about building environmental awareness through the education of not only visitors but also local communities. This education includes information about the biodiversity of the place being visited as well as the people living in the region.

PNP has taken significant steps in educating visitors and the surrounding population about the value of its biodiversity. PNP has an eco-museum with information about the fauna and flora in the region. The museum has information about the landscape and the wildlife including the endangered leather back turtle. The eco-guards at the park provide detailed information about the behavior of wildlife and why they are important for the ecosystem of the region. Eco-guards also encourage visitors and, especially, local communities to support conservation initiatives. PNP also has a sea turtle research station in Point Denis. Many environmental organizations, including the Gabon's Turtle Partnership, Wildlife Conservation Society (WCS), and Aventure Sans Frontiere (ASF) work with the park for the protection of turtles and other marine wildlife (Agence Nationale des Parcs Nationaux). Each year the PNP, in collaboration with its partners and other parks on the coast of Gabon, organizes a "turtle day" which has the primary object of educating visitors and local population about the value of marine turtles and other marine animals. During the turtle day, the park organizes many activities such as clean-up campaigns, turtle parades, turtle film festivals, and field camp visits.

PNP also works in collaboration with many public and private schools in the region to educate young people about the importance of conservation and environmental protection. The manager of PNP elaborated on the importance of education to promote conservation in Gabon; he said "education is important for the future of conservation in Gabon. Young people need to be educated to be able to carry out this conservation movement. There should be environmental education programs in our schools to ensure that young people are going to continue to conserve Gabon's green richness" (field interviews, November 2016). PNP emphasizes education and is dedicated to building environmental awareness in the region.

In contrast, INP is known for scientific research. The Ipassa Research Station (IRS), the oldest research station in the country, is in the buffer zone of the INP. Ipassa hosts many Gabonese researchers from the Gabon Institute of Research in Tropical Ecology (IRET) as well as international researchers. IRET has over 600 publications, which increase knowledge about the biodiversity of the region. Many of the visitors to the park are connected to the research station. INP has work in collaboration with the research station to educate surrounding populations about the value of the biodiversity and importance of conservation in the region. During my visit to the park, the biodiversity research program from Duke University was conducting a training for data collection. A group of villagers from surrounding villages participated in this training to help researchers collect information about wildlife in the region. INP focuses on spreading environmental awareness regionally as well as internationally.

However, in both Pongara and Ivindo National Parks there, there is a lack of cultural learning. The parks do not conduct any cultural learning programs to build

awareness about the peoples living around the parks. The eco-guards often give out some information about the ethnic groups living in the region, but this information is basic and is usually based on stereotypes. One reason is that eco-guards often do not have knowledge about the culture of the region because they are not from that region. Often, eco-guards, in national parks, are not from the same region where they work. The manager of PNP and the Director of Communication of the ANPN explained that for conservation reasons the ANPN had to move local eco-guards to different parks because eco-guards were subject to pressure from their own communities (field interviews, November 2016). For example, eco-guards working at PNP could have been recruited from villages around Akanda National Park or Minkébé National Park. Thus, many eco-guards in the national parks are less knowledgeable about the culture, traditions, and the people of the surrounding communities. Neither INP nor PNP strive to build cultural awareness.

4- Provides Direct Financial Benefits for Conservation

In this fourth characteristic, Honey wants to highlight one of the main objectives of ecotourism, which is to generate funds to sustain conservation efforts. Honey (2008) observes, "Many national park systems were first created to protect the land, facilitate scientific research, and, in Africa, promote sports hunting" (p.30). This is also a reality in Gabon. When created, Gabon's national parks were not open to the public, but were focused on protecting pristine landscapes and promoting scientific research. This is one of the reasons why ecotourism is still not well developed in Gabon.

The ANPN controls all entrances to the parks. Entrance fees are often one of the

main sources of income generation in the parks (Coria, 2012; Reimer, 2013). However, in Gabon, to enter the park, one must get an authorization from the ANPN. There is no publicly known standard entrance fee in the parks. Thus, it is difficult to know how ecotourism development in parks contributes directly to conservation. The ANPN receives a financial support from the government and local and international environmental organization to manage all the parks, including operational and administrative expenses as well as research expenses (Agence National des Parcs Nationaux). However, funding has been a concern for many conservation authorities. The managers of Pongara and Ivindo parks have commented on the issue of lack of funding to manage the parks. The manager of INP said that "research alone cannot support the park and I have to fight with higher authorities to increase my funding because what I receive to manage the park is not enough" (field interviews, 2016). Ecotourism in Gabon does not generate enough financial benefits to support conservation efforts.

5- Provides Financial Benefits and Empowerment for Local People

The fifth characteristic of Honey's analytical framework for ecotourism is about providing financial and empowerment benefits to local communities. Honey (2008) writes "the local community must be involved with and receive income and other tangible benefits (potable water, roads, health clinics, etc.) from the conservation area and its tourist facilities. Campsites, lodges, guide services, restaurants, and other concessions should be run by or in partnership with communities surrounding national parks or other tourist destinations" (p 31).

In Gabon, the creation of the parks brought direct and indirect employment in the

surrounding regions. Many eco-guards were hired from the communities surrounding national parks to work in the park as either guards or guides or both. This direct employment policy promoted by the ANPN has provided direct benefits to local communities. Also, the ANPN has created a local advisory committee called CCGL (Comité Consultatif de Gestion Local) which include representatives from the village communities and other stakeholders. Each park has a local advisory committee which works in collaboration with park administration to manage the park and the surrounding communities. Village representatives can use the platform of the advisory committee to voice the concerns of the villagers to the park managers, the ANPN, and the other stakeholders. The CCGLs were created to empower local communities and increase their participation in conservation and ecotourism efforts.

However, other than some direct employment in the parks and the CCGL, local communities do not receive other financial support from the parks. The money generated from the research and the few ecotourism activities are directed toward the management of the parks. Also, during my visit in the both parks, I observed that campsites are owned and managed by the parks and lodges, hotels, and restaurants are owned and managed by foreigners. Local communities do not provide cultural or artisanal touristic activities, which are great sources of income generation. The manager of INP said that "local communities could perform traditional activities that will attract tourism or sell artisanal products to tourists. However, they do not know anything about tourism and many of the traditional activities are considered sacred" (field interviews, 2016). Lack of knowledge about the tourism industry is one of the reasons why there is no local community-based ecotourism in Gabon. The creation of the parks provided some direct financial and

empowerment benefit to local communities. However, more needs to done to increase the benefits of ecotourism development to local communities. Communities need to be trained to be able to fully participate in the ecotourism development in Gabon.

6- Respects Local Culture

Honey (2008) argues that "ecotourism is not only 'greener' but also less culturally intrusive and exploitative than conventional tourism" (p.32). Tourists, beforehand, must be aware of the local culture and should be informed about traditions and customs of the location they are going to visit. Stronza (2001) explains that ecotourism can be destructive to local culture through its commodification and the spread of stereotypes.

Direct cultural impacts from the creation of the parks in Gabon are not related to ecotourism activities, but they are connected to restrictive conservation policies. Both parks, Pongara and Ivindo, do not regularly conduct cultural ecotourism activities in the villages or with the local communities. The restrictive conservation management policies in Gabon do not consider the respect of local cultures because local communities are not allowed to enter the park or collect resources from the park without permission. These restrictive policies impact locals' ability to conduct certain traditional activities and ceremonies. Sassen and Wan (2006) conducts a study in Laolao village near INP and reported that residents, who depend on forest resources in the park, have complained about the restrictive regulations over access and use resources, especially for traditional purposes. Likewise, the villagers that I interviewed in INP mentioned that many of their sacred ceremonial sites are now part of the national park; they do not have free access to these sites anymore. So, they are sometimes unable to perform some of their rituals (field

interviews, October 2016). However, some customary use rights are granted to local people, but they are often not applied on the ground. Yobo et al (2016) reports that "customary use rights granted by the state to local people tend to be poorly regulated on the ground due to personnel shortage" (p.50).

Ecotourism development in Gabon is not intrusive to local cultures, but it hinders local cultures because local people have restricted access to their traditional cultural places or traditional resources within the parks. However, sometimes tourists want to visit villages around the park. The manager of INP explained that "only occasionally visitors to the park want to visit villages surrounding the park. So, I contact the chief of the villages and ask permission to bring foreigners in the village" (field interviews, 2016). This way, although informal, the visit of the tourists in the village is supervised by eco-guards who usually plays the role of translator between villagers and visitors. To a significant extent, the restrictive use policies, which came with the establishment of the parks, have affected local cultures and traditions.

7- Supports Human Rights and Democratic Movements

The last characteristic of Honey's ecotourism concerns human rights and democracy. Honey (2008) contents that ecotourists

> need to be sensitive to the host country's political environment and social climate and need to consider the merits of international boycotts called by those supporting democratic reforms, majority rule, and human rights...Responsible travelers must carefully assess the consequences of travel both on a country's ecosystem and cultural norms and on movements for social and political democratization and human rights (p.33).

Gabon carries the status of one of the most peaceful countries in Central Africa. However, the lack of democracy led to the recent political crisis in the country. During my time in Gabon, I witnessed a civil arousal against the contested presidential election of August 2016. Gabon's former president, Omar Bongo Ondimba, governed the country for 42 years. After his death, President Ali Bongo Ondimba, his son, won election to the presidency of the country in 2009 and recently in 2016. Opposition to the reelection of President Ali Bongo Ondimba led to the recent democratic crisis. This political crisis has affected the image of Gabon as a peaceful and attractive destination for tourism and research. Also, the high level of corruption in Gabon has maintained a high level of poverty in the country. Rural communities have been marginalized from development. The democratic crisis and the high level of corruption in Gabon are becoming more visible in the international arena due to an increasing number of international visitors and the increasing use of social media in the country.

The creation of the parks in general and, more specifically, Pongara and Ivindo National Parks, might have mixed effects on human rights and democracy in their specific regions. The parks might promote greater marginalization of local communities through restrictive conservation policies and displacement of certain communities. Martin (2003) argues that "if the strict preservationist model is to be enforced, it implies the removal of resident people. As such, conservation raised important issues of human rights" (p.23). I did not have access to information about population displacement in the each of the parks, but Schmidt-Soltau (2003) reports that pygmy groups and villages have been displaced from the INP and native people have been expropriated of traditional land use titles. Also, Brockington and Igoe (2006) reports that "while the Wildlife

Conservation Society stated that there were no people settled in the boundaries" of the Gabon's thirteen national parks, "an independent researcher suggested that there were almost 7000 people living in these new parks" (as cited in Sunderland et al, 2007, p.277). Evidence of marginalization, displacement, and dispossession of rural and indigenous people in Gabon raise questions about issues of human rights, which are related to ecotourism development in the country. Tourists should be aware of these issues when traveling to Gabon. However, the creation of the parks might have also shed light on the issues of democracy and human rights in Gabon through greater international exposure of the faults of the Gabonese governing system.

In this chapter, I have analyzed ecotourism development in Pongara and Ivindo National Parks using Honey's seven characteristics of ecotourism. The results of this analysis suggest that both PNP and INP provides are natural destinations and they reduce impacts on the environment. However, both parks have substantial impacts on local people's livelihoods. PNP and INP build awareness about their natural biodiversity through education and research. However, they do not emphasize education and awareness of the local cultures and traditions. Also, other than direct employment of eco-guards and the creation of the CCGL, the parks do not provide other direct financial and empowerment benefits for local communities; neither do the parks generate enough income to support conservation. Both national parks impact local culture through the implementation of restrictive use policies and both parks might aggravate the issue of human rights in their surrounding communities. However, these national parks might serve as a medium to increase awareness about the needs of local communities and the

issues of human rights, as well as expose the faults of the Gabonese system of governance.

The above analysis shows that much needs to be done about the development of ecotourism in Gabon. Among the most important issues that need attention in Gabon's ecotourism development is the active participation of local communities. The National Park Agency of Gabon needs to consider more effective ways of integrating local communities in tourism development, otherwise, tourism in Gabon will be a replica of destructive mass tourism. The active participation and representation of local people are part of the core principles of ecotourism (Honey, 2008; Coria, 2012). There is no conservation without the implication of the local population. Honey (2008) contends that conservation is only possible with 'happy people' living around protected. Local people's negative perception of parks can undermine conservation as well as ecotourism development. This negative perception creates conflicts between people and the parks as well as protected wildlife. The next chapter discusses the specific human-wildlife conflict related to conservation in the PNP and INP.

CHAPTER V

HUMAN-WILDLIFE CONFLICT: COMPARING PONGARA AND IVINDO NATIONAL PARKS

Human-wildlife conflict is getting global attention, especially in this era of widespread conservation movements. This conflict is neither new nor uncommon. However, it has become more visible within conservation studies due to its implications for human development and conservation efforts (Woodroffe et al., 2005; Seiler, 2016). The growth of the human population, as well as the increasing destruction of wildlife habitat, leads to increasing interactions between people and wildlife competing over space and resources. Human-wildlife conflict is a global issue; however, this conflict is experienced differently in different regions of the world. The human-wildlife conflict, depending on the location, has different causes and implications. In developing countries, where many people rely on livestock and crops for their livelihoods, human-wildlife conflicts have stronger impacts on local populations and conservation than in more diversified economies.

In Gabon, the main conflict with wild animals revolves around crop-raiding and its impacts on food security and conservation efforts. Famers living in villages around the parks regularly report cases of crop-raiding mainly by elephants and primates such as chimpanzees and gorillas (Appendix Q). The National Park Agency (ANPN) and local communities are the main entities involved in addressing this issue. However, conflicting relationships between these two entities undermine their ability to effectively address conflicts between local farmers living around national parks and protected wildlife,

especially elephants. Human-wildlife conflict is common in many of Gabon's national parks; however, this conflict is experienced differently in different parks. This chapter provides an overview of the human-wildlife conflict in Gabon. It then compares the impacts of this conflict in Pongara and Ivindo National Parks. Finally, propose recommendations for effective ways to address this conflict in Gabon.

Human Conflicts with Wildlife in Gabon

The discussion of human-wildlife conflict in Gabon is centered on crop-raiding and the killing of people, primarily by elephants. Elephants and primates are major crop-raiders around African parks and protected areas (Naughton-Treves et al., 1998; Naughton-Treves et al., 2005). Gabon has significant populations of primates with about nineteen different species including the well-known lowland silver back gorillas and the endemic sun tail monkey, *Cercopithecus solatus* (Wilks, 1990). African elephants, *Loxodonta Africana*, which are listed by the IUCN as vulnerable endangered species, range across 37 different countries on the continent; however, the majority of them are in eastern and central Africa (Pinter-Wollman, 2012). With about half of the estimated 100,000 forest elephants in the central African forest, Gabon has the highest density (Poulsen et al, 2017). Therefore, Gabon is considered an elephant sanctuary. Also, the difficulty of access to the forest for non-locals and sometimes locals enabled elephants to survive over the years. However, between 2004 and 2014, 25,000 forest elephants were killed in Gabon, especially in Minkébé National Park, the largest and the most remote national park of the country (Poulsen et al, 2017; Morell, 2017; Bittel, 2017). Nevertheless, the high density of elephants in the country brings chronic crop raiding which fuels conflict between people, elephants, and conservationists. Many authors

suggested that crop raiding by wild animals creates socio-economic and conservation problems (Mackenzie et al., 2012; Naughton-Treves et al., 1998; Chiyo et al., 2005). These problems include food insecurity, opportunity cost, property damage, human injury, and poaching or illegal killing of animals (Mackenzie and Ahabyona, 2012; Seiler and Robbins, 2015). Crop-raiding by elephants in Gabon is an important socio-economic and conservation problem because of the level of damage even one elephant can create in village's farms.

Crop raiding by elephants and other primates, such as gorillas and chimpanzees, impacts livelihoods and increases food insecurity, especially in villages adjacent to the parks. Weber et al (2007) find that in Tanzania and Uganda up to 88% of farmers living adjacent to national parks lost their crops to wildlife animals (as cited in Mackenzie and Ahabyona, 2012). Studies of spatial and temporal patterns of crop raiding found that location of farms and availability of crops have significant implications on risks of crop raiding (Naughton-Treves, 1998; Seiler, and Chiyo, 2005). Naughton-Treves et al (1998) reports that "Due to land scarcity, farmers, are often forced to farm at the forest edge" of protected areas (p.603).

In Gabon, land scarcity, associated with the creation of the national parks, has led many villagers to farm at the edge of the national parks. This is because some of the national parks were created near villages and some villages are found within the five kilometers of buffer zone that surrounds the national park (Appendix R). In PNP there are about nine villages that are found within the boundaries of the parks; including the villages of Pointe-Dénis, Matek-Mavi, Oveng, Alarmeke, Chinchoua, Mvan Ayong, Atonda Simba, Bissobinam and Odoko ("Mapping for Right"). Walker (2012) observes

that the conflict between wildlife and villagers in Gabon has become more visible and important due to the newly created national parks and the fact that increasing number of crop-raiding is being reported at the border of the parks. Elephants and other wildlife are not confined within the boundaries of the park, they range freely in the forest and in surrounding villages, and they easily get into farmers' fields including those close to communities (Ngama et al., 2016). Crop raiding in Gabon has significant impacts on people's livelihoods and conservation efforts.

Crop-raiding by wildlife in Gabon also causes food insecurity. Protected wildlife, especially elephants, feed on villagers' plantation fields causing losses of monthly and sometimes yearly food supply. A related study indicated that "Chimpanzees at Bossou in the Republic of Guinea, West Africa, consume 17 different types of cultivated foods that are grown extensively throughout their small, fragmented home range." (Hockings et al, 2009). Elephants in Africa are often found in plantations of maize, sweet potatoes, beans, sorghum, cassava, and bananas (Kamweya et al., 2012; Chiyo et al., 2005). Walker (2012) finds that crop loss to wildlife in Africa varies from 30% to 100% depending on the region. In Gabon, crop loss to elephants is significant because villagers often have limited sources of livelihoods. Foerster (2011) observes that villagers around the parks have a mixed livelihood which includes subsistence agriculture and hunting in the forest surrounding their villages and the sale of agricultural and hunting products as well as handicrafts items. Also, Nguema (2005) (as cited in Walker, 2012) reports that "80% of Gabon's agricultural production occurs on smallholder farms in these rural lands" (p.62) and Lahm (1994) (as cited in Woodroffe et al., 2005) reports that "Average loss of crop damage by wildlife reach 61% in Gabon" (p.25). This average crop loss is high and

alarming considering that village farmers in Gabon highly depend on their plantations for sources of food for the entire year and other income generating activities. Therefore, Gabonese villagers are highly intolerant of elephants, now protected by the national parks.

Crop raiding does not only affect Gabonese farmer's livelihood but also their ability to support conservation. Ngama (2016) suggests that “crop damage also contributes to a negative perception of wildlife, deteriorating support for conservation from local people as they feel powerless to stop the loss of their labor and food” (p.2). Many animals, such as elephants, chimpanzees, and western low land gorillas, that destroy farmer’s fields in Gabon, are listed as endangered species and are protected by conservation laws in Gabon (Table 3). Farmers are not allowed to kill protected animals unless under circumstances of life and death, which they should prove to conservation agents. Article 10 of the Gabonese Law of the Parks states that the killing of protected animals is strictly prohibited and can only be done under a justified authorization for the conservation purposes and the well-being of people (Loi des Parcs # 003, 2007). Apparently in this law the well-being of people does not include food security, because farmers do not have the right to kill animals over crop raiding. In a case of crop loss from elephants, farmers must contact the park administration and report crop damaged in order to receive support and compensation from the government for their crop loss.

Table 3: List of Endangered Mammals in Gabon

1	African Elephant	Loxodonta Africana	Mammals	Africa
2	African Golden Cat	Caracal aurata	Mammals	Africa
3	African White-bellied Pangolin	Phataginus tricuspis	Mammals	Angola, Benin, Cameroon, Central African Republic, Cote d'Ivoire, Democratic Republic of Congo (Zaire), Equatorial Guinea, Gabon, Ghana, Kenya, Liberia, Nigeria, Republic of Congo, Rwanda, Sierra Leone, Sudan, Tanzania, Togo, Uganda, Zambia
4	African Wild Dog	Lycaon pictus	Mammals	Sub-saharan Africa
5	Atlantic Humpbacked Dolphin	Sousa teuszii	Mammals	Angola, Cameroon, Cote d'Ivoire, Gabon, Gambia, Guinea, Guinea-Bissau, Liberia, Mauritania, Nigeria, Republic of Congo, Senegal, Western Sahara
6	Black Colobus Monkey	Colobus satanas	Mammals	Cameroon, Equatorial Guinea, Gabon, Republic of Congo
7	Bongo	Tragelaphus eurycerus	Mammals	Africa
8	Chimpanzee	Pan troglodytes	Mammals	Africa
9	Common Hippopotamus	Hippopotamus amphibius	Mammals	Africa
10	Dark-brown Serotine	Pipistrellus brunneus	Mammals	Cameroon, Cote d'Ivoire, Equatorial Guinea, Gabon, Ghana, Liberia, Nigeria, Republic of Congo, Sierra Leone
11	Giant Ground Pangolin	Smutsia gigantea	Mammals	Africa
12	Mandrill	Mandrillus sphinx	Mammals	Equatorial West Africa
13	Straw-coloured Fruit Bat	Eidolon helvum	Mammals	Africa, Asia, Middle East
14	Sun-tailed Monkey	Cercopithecus solatus	Mammals	Gabon
15	West African Manatee	Trichechus senegalensis	Mammals	Africa
16	White-collared Mangabey	Cercocebus torquatus	Mammals	Nigeria to Gabon, Senegal to Ghana

Source: Earth's Endangered Creatures http://earthsendangered.com/search-regions3.asp

However, this compensation process is long and parks are understaffed. Sometimes park agents cannot come the same day that the crops were damaged. Also, to qualify for compensation, farmers are responsible for justifying that crop-raiding was caused by protected species. Farmers often have difficulty proving to conservation agents that crop damage was done by elephants because animals crop-raid at night when farmers are at sleep or when farmers are not in their plantations. This justification process is one

of the elements that makes compensation ineffective in addressing the human-wildlife conflict. Mackenzie (2012) reports that compensation programs, especially in Africa, are not sustainable because of the considerable risks of fraud, corruption, lack of sustainable funding, and ineffectiveness in addressing the human-wildlife conflict. Since farmers have many restrictions placed upon their ability to defend their crops against raiders, local populations have a negative perception of wildlife. This, in turn, is reflected on their relationship with conservationists and park agents who have yet to come up with effective ways to address the issue. However, many authors have stressed the importance of managers of protected areas to effectively address the issues of crop raiding to lessen threats to wildlife and create a harmonious relationship with local communities (Fungo 2011, Mackenzie 2012, Ngama et al 2016).

Human-wildlife Conflict in Pongara and Ivindo

Pongara and Ivindo National Parks experience the human wildlife conflict differently based on their location and their level of tourism activities. Located in the province of Estuaire, Pongara National Park (PNP) is about thirty minutes boat ride away from Libreville, the capital city of Gabon. Pongara is classified as an urban park because of its location and easy access from the capital city. PNP is on the Atlantic Ocean coast and is relatively easy to access compared to Ivindo National Park (INP) and the other national parks in Gabon. The creation of the PNP and its proximity to the capital city has accentuated movements of people and goods between Libreville and Pongara region. Rural exodus increased and local communities can easily travel back and forth between their villages and the capital city. Most of the local population lives in Libreville and people who are in the villages buy their product from the city. Guy Sounguet, the

conservator of PNP, explained that the villages around the park are empty. Most people who are from these villages live in Libreville and usually visit during weekends and vacation time. Most of the permanent residents in these villages are either retired or foreigners who work in plantation fields which they have either bought or lease from locals (field work, October 2016). The low density of people in villages surrounding this national park lessens the intensity of the human-wildlife conflict in the region. On the question of human-wildlife conflict, one of the eco-guards commented that:

> Compared to other parks, where I have previously served, I have fewer cases of crop raiding reported by local people because many of the locals live in the city; the cases of crop raiding I received are often from foreign people who are employed by locals to work in agricultural fields. Also, the cases are less critical because local people have other means of livelihoods and income generation and they do not entirely rely on the destroyed crop for food (field interviews, November 2016).

Since, most people, from the villages surrounding Pongara National Park, live in the city, they have paid jobs and they do not rely on the resources from the national parks or plantation fields for food and livelihoods. This reduces the impacts of crop raiding by elephants and other primates on local communities.

However, INP, located in eastern part of the country, is one of the largest and least accessible parks in Gabon. INP extends to two provinces, the Ogooué-Ivindo and the Ogooué-Lolo, and the nearest city to this park is Makokou, which is the major city of the Ogooué-Ivindo Province. The park is classified as a rural park because of its location and its remoteness. There are about 100 kilometers of unpaved laterite road between Ovan, the nearest city with a paved road on Major National 1 Road, and Makokou. This laterite road is slippery and dangerous, especially during the rainy season when the road

becomes almost impassable and cars and trucks get bogged down (Appendix P). Also, transportation to Ivindo National Park from the city is difficult and it is only operated by the few vehicles allocated for research purposes to the park staff.

In addition to location and difficulty of access, villagers around INP, compared to PNP, rely heavily on their subsistence agriculture and hunting for food. Roads from the surrounding villages to the main city are not paved, thus reducing people's ability to travel back and forth from villages to the nearest city. Weghe (2013) reports that subsistence agriculture remains the main activity in the villages surrounding INP. Corn and peanuts are grown close to habitations and plantations of cassava, banana, yam, and sugar cane are further away in the forest because they take a longer to grow. Foerster et al (2011) conducted a comparative study of the livelihood of people in villages closer to and farther away from national parks in Gabon, including INP. They reported that villagers living closer to the national parks rely more on products from subsistence agriculture, hunting, and other products from the park than villagers living farther from the parks. Coad et al (2010) conducted a study in two villages in Central Gabon and reported that hunting and agricultural activities contribute to 15% and 75% of household income respectively. Local communities, near Ivindo National Park, rely on resources near and inside parks and are more likely to be impacted by restrictive conservation managements and crop damages from wildlife (Foerster 2011). This heavy reliance on subsistence hunting and agriculture coupled with the restrictive conservation policies in Gabon does not only result in conflict between local communities and the park managers but also aggravate conflict between people and protected wildlife. Coad et al (2008) argues that "strictly protected areas with top-down management structures (generally associated with

IUCN management categories I-II) can result in major livelihood costs and cause conflict between local communities and protected area management" (p.1). When asked about conflict with wildlife, all the villagers that were interviewed reported that it was a serious issue that affected their ability to survive. One of the villagers put it this way:

> I and many other people in my village have been severely affected by crop raiding from elephants. I have lost an entire year of food supplies because of elephants and I am not allowed to kill an elephant to replace the food that I lost. I and my family have less food, we manage reserves from last year and we gather fruit from the forest. I have request compensation and I am still waiting. (field interviews, October 2016).

The conservator of INP, Rostand Aba'A Nseme, expressed the critical issue of crop raiding around his park. He explained that compared to other parks in Gabon, they have severe cases of crop raiding because they have a significant portion of the elephant population and other primates in Gabon (field interviews, October 2016). He added that the number crop raiding cases around INP and the requests for compensation are higher than what the park can attend to because of limited finances. Aba' A Nseme commented: "I am trying my best to compensate these people (villagers who have lost their crops due to elephant raiding), but the park's budget is very limited to compensate everyone" (field work, October 2016). There were no available data on the number of crop raiding cases registered in PNP or INP. The managers of both parks said that they did not keep a record of the crop-raiding cases that they have received from surrounding communities. However, Walker (2012) conducted a study on the labor cost of crop-raiding by elephants in several parks in Gabon. Walker (2012) finds that the intensity of elephant visits (Crop-raiding) in the region of INP is higher than that in PNP (figure 1).

Figure 1: The intensity of elephant visits in villages surrounding national parks in Gabon on an ordinal scale from 0 (no elephants in at least 10 years) to 9 (frequent visits to village centers throughout the previous 12 months)

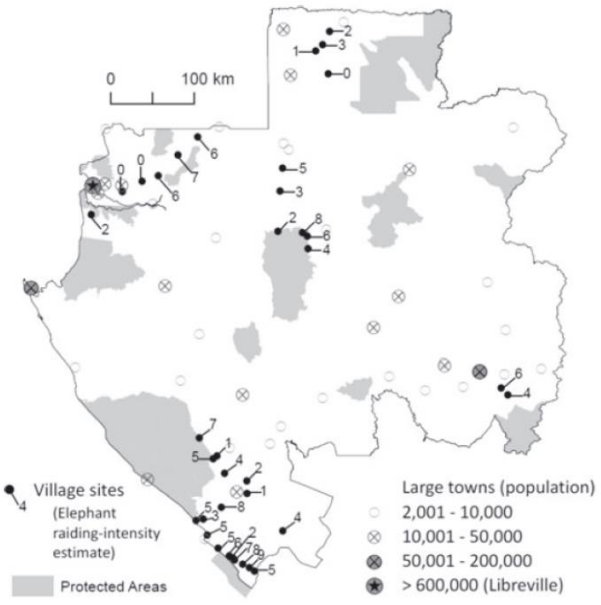


Fig. 1. Map of village study sites in relation to protected areas and large towns in Gabon. Numbers indicate estimate of elephant intensity in area on ordinal scale from 0 (no elephants in at least 10 years) to 9 (frequent visits to village center throughout previous 12 months). Details on this measure are provided in Appendix C (available online).

PNP was one of Walker's site and according to his figure, the elephant raiding intensity in this park is level "2". This shows not only that the elephant population in PNP is low but also that the human-wildlife conflict in this region is less intense compared to other parks, such as Lope National Park where the elephant raiding intensity is up to level "8". Although, INP was not park of the study, when looking at the figure of Walker's study we can imply that INP might be in the same rage of elephant-raiding intensity as Lope National Park.

The remoteness of INP and its surrounding villages do not provide local communities with alternatives livelihoods. All the villagers that I interviewed expressed their frustration about feeling less important than animals as wells as the need for

conservation authorities to create alternative sources of income for villagers. One of the villagers said “I am not against conservation; I think it is a good thing to protect elephants. However, I am against the fact that conservation authorities care more about elephants than us, people” (field interviews, October 2016). Another villager said “Now that we cannot freely hunt and elephants are destroying our plantations, how are we going live? The park needs to give us jobs now, so we can have money to buy food for our families” (October 2016). Because local communities near INP rely heavily on agricultural and hunting products, the human-wildlife conflict is more critical in this region than in PNP.

Furthermore, the level of tourism development in PNP compared to INP has a significant influence on the impact of the human-wildlife conflict on local communities and conservation in these regions. Ecotourism activities and infrastructures are more developed in PNP compared to INP. Pongara National Park takes advantages of the fact that Gabon has the highest population of leatherback turtles, which is listed as an endangered species, and the highest nesting density in Africa (Gabon Sea Turtle Partnership). Pointe Denis is one of the most visited tourist sites of PNP because it is a common site for the nesting of leatherback sea turtles, watching dolphins and humpback whales during the dry season (July to October) and it is also the location of the sea turtle research station.

La Baie de Tortue Hotel and Pongara Lodge are the most popular well-functioning hotels park in Gabon with world class standards (Appendix S). These hotels are located near the PNP and they attract and accommodate visitors to the park. This infrastructure supports tourism activities in the parks and generates revenues from the

park, which benefits the local population. This also facilitates communication between surrounding communities and park managers. One local resident in Pongara commented that she sees tourists from every part of the world. The fact that local people can see tourists and the development of tourism activities in PNP help them understand that the park could be a benefit to them. Also, the increasing tourism activities in the Pongara national park create jobs for people in the community, alternative livelihoods that help gain conservation support from the local community.

In contrast to PNP, Ivindo National Park is more known for scientific research. The Ipassa Research Station (IRS), the oldest research station in the country, created in 1962, is in the buffer zone of the INP (Agence Nationale des Parcs Nationaux, 2012, p.39). The National Park Agency uses the research station for the administration of INP. Also, IRS hosts Gabonese researchers from the Gabon Institute of Research in Tropical Ecology (IRET) as well as international researchers from different institutions and organizations. For example, INP is currently the field base study for the Duke University ecological research program in Gabon and researchers from this program use the IRS for accommodation, research, training activities. IRET has been managing IRS since 1979, and its mission is to improve scientific and technical capacity and knowledge in conservation and management of the Gabonese forest as well as the central African forest (Agence Nationale des Parcs Nationaux, 2012). Consequently, biodiversity research has been a priority in INP and tourism is less developed compared to Pongara. While INP has great potential for adventure tourism, it lacks important tourism infrastructures including functioning tourist lodge or hotel and transportation to the park.

The few visitors to INP are often associated with the IRS since there is no tourism

operator in the area. Thus, INP is losing potential revenues from ecotourism development which could be used to ease tensions between the local population and protected wildlife. Also, the lack of tourism development reduces opportunities for alternative sources of income, which could reduce local communities' heavy reliance on subsistence agriculture and products from the protected areas.

From the above comparison, one can see that the human-wildlife conflict has different implications depending on the idiosyncrasy of the region. The impact of human-wildlife conflict, especially crop raiding, on the local population in PNP is less severe compared to INP. The location of and the tourism development in PNP help reduce the severity of crop raiding because the majority of the population live in the capital city and the development of tourism activities create alternative sources of livelihood which are beneficial for local communities and increase their tolerance to wildlife and their support for conservation.

Approaches to Human-wildlife Conflicts in Gabon

Around the world and in Gabon, several non-lethal management techniques have been developed, tested, and implemented to address the conflict between people and wildlife, especially near protected areas. Non-lethal control techniques include compensation, fencing, translocation, and zoning (Woodroffe et al., 2005). However, the effectiveness of these techniques is context dependent and many of these techniques have not been studied extensively. Woodroffe et al (2005) observes that there is lack of systematic studies on the effectiveness of many wildlife management practices and there is a lack of data availability, especially in Africa and Asia. However, authors have

published research on many traditional and modern non-lethal techniques used to manage wildlife in Africa. In Gabon, these techniques include traditional fences, and use of scarecrows, compensation, beehives, and electric fences.

Farmers in Gabon have been forced by law to stop killing animals to defend their crops. Now, more than before, villagers have focused on using traditional non-lethal strategy to deter and prevent wild animals, especially elephants, from destroying their crops. These techniques include building fences with traditional available materials, such as wood and ropes, and placing scarecrows in many places in their farming fields (Appendix S). Ngama (2016) observes that farmers around protected areas in Gabon often erect scarecrows and set up metal strings with noisemakers to deter elephants from plantations. However, these methods have not been successful in keeping animals away from farmer's crops. Wildlife, especially elephants, still find easy access to farmer's plantations (Ngama, 2016)

In addition to the traditional use of scarecrows and wood fences to address the issue of crop-raiding, local communities can request financial compensation from the National Park Agency for crop losses from protected wildlife. Financial compensation is one of the common non-lethal techniques, which has been adopted in many African countries, including in Gabon, as a direct measure to address crop-raiding by protected wildlife. Many farmers agree to receive money as compensation for their crop losses. When studying the financial and social cost of crop raiding, Mackenzie (2012) finds that residents near Kibale National Park (Kenya), wanted to be financially compensated for crop losses. However, one issue with compensation is that farmers and park agents do not evaluate crop losses the same way. Fungo (2011) explains that it is complex and

sometimes controversial to measure crop losses and that farmers often overestimate their losses. In this perspective, Mackenzie suggests that for compensation to be satisfying for farmers, the perceived benefits from the compensation should be disproportionately higher than the perceived losses. Ineffective compensation programs, like the one in Gabon, aggravate conflicts between local communities and park managers and put wildlife at risk of more poaching. Thus, evaluation of crop losses and the creation of effective compensation programs need to consider both farmers' perception of losses and the ability for conservation agencies to sustainably provide compensations which meet the farmers' perceived losses. It requires intense collaboration between park managers and local communities to design an evaluation system which satisfied both parties.

Beehives and electric fences are other non-lethal mitigation strategies to the human- wildlife conflict which have been and are recently introduced in Gabon (Appendix S). Ngama et al (2016) conducted a research project in Gabon around the use of beehives as a deterrent for elephants. In the Gamba Complex of Protected Areas in Gabon, which include Loango and Moukalaba-Doudou National Parks, Ngama and a group of researchers recorded elephants' behaviors around selected attractive trees in which they hung beehives and they compared it to the trees in which there were no beehives. Ngama finds that beehives have the potential of deterring elephants because "elephants visited trees with beehives less frequently and spent less time on them compared to trees without beehives" (p.7). Ngama reports that similar findings have been recorded in studies of elephants' behavior in East Africa.

The use of electric fence has recently been approved in Gabon as a tool for conservation and a pilot project has been conducted in Lope National Park. The project is

called “Project Wildlife Wire” and it involves building electric fences around national parks address to prevent crop-raiding by wildlife, especially elephants (Gabon News, 2016). “The barriers consist of posts 90 cm high; 2 rows of electrified wire at a voltage of 8000 volts and wires connected to the spikes and pointing towards the outside of the zone under protection” (Gabon News, 2016). It costs around 60 thousand dollars to build the fence (APF, 2016). Gabon has received technical support from Kenyan experts and financial support from the “The Giants Club”, a pan-African conservation initiative uniting Gabon, Kenya, Uganda, and Botswana (Secorun, 2016). Results from this new project are yet to be published. But, already Lee White, the executive secretary of the ANPN, is calling for more fences to be built (AFP 2017). Electric fences could be effective, but also expensive to maintain.

The human-wildlife conflict is increasingly becoming a prominent issue in conservation studies. Globally it is recognized that people living near protected areas disproportionately bear the cost of conserving wildlife and biodiversity. People living close to national parks and protected areas face many restrictive policies which significantly impact their ways of life, their ability to survive, their relationship with wildlife, and their perception of conservation. In Gabon, the human-wildlife conflict evolves around crop-raiding, primarily from elephants. Crop-raiding is a chronic issue in Gabon since it has important impacts population of most of the major African “crop pest” including forest elephants (Osborn and Hill 2005).

However, issues with wildlife in Gabon is not experienced in the same way in all the thirteen national parks. In some parks, the conflict between people and wildlife has critical implications compared to other. The specific characteristics of each park

significantly influence the impacts of the human-wildlife conflict. The human-wildlife conflict in PNP has less critical impacts on local communities compared to INP. The location of and the level of tourism development in each of the park influence the severity of the conflict in each region. Because of its close location to the capital city, PNP has a lower local population density compared to INP. Local communities in PNP have alternatives sources of revenues and they rely less on subsistence agriculture compared to communities in INP. Also, PNP has more tourism development compared to INP. Ecotourism development is a popular tool in human-wildlife conflict resolution (Walpole and Thouless 2005). These characteristics make local people in PNP more receptive to conservation activities and more tolerant to wildlife compared to local people in INP.

Villagers and park managers in Gabon have employed different techniques to address the issue of crop-raiding. Local farmers use techniques such as traditional fences around farms, use of scarecrows as a deterrent to wildlife, and use of noise to chase wildlife away from fields. The ANPN uses financial compensation to mitigate the crop losses and is testing the use of beehives and electric fences to deter and prevent elephants and other wildlife to enter farmer's fields. However, none of these techniques have effectively addressed the issues of Human-wildlife in Gabon. Human- wildlife conflict, the failure of park authorities to effectively address this issue, and the lack of empowerment of citizens, prevent local people from enjoying the benefits of wildlife conservation and ecotourism. This exclusion can lead to increased hostility and anger toward the park and conservation efforts (Naughton-Treves & Treves, 2005).

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

The human-wildlife conflict is a growing issue in conservation It requires special attention because of its direct impacts on food security and poverty. The lack of systematic data on this conflict, especially in Gabon, as well as on the effectiveness of the different mitigation strategies constituted limitations to my research. The lack of available data on the number of cases reported in each PNP and INP, the number of tourists visiting the parks, and revenues generated from ecotourism activities made it difficult to conduct a more in-depth analysis of human-wildlife conflict in each park.

Solving the human-wildlife conflict in Gabon is a complex task. This conflict is experienced differently in different parks and there is no one lethal or non-lethal management strategy that will work in Gabon. I recommend that conservation authorities and local communities work on "adaptive management" techniques that will involve both local communities and park managers (Osborn and Hill 2005, p. 85). As many authors have suggested, involvement of local communities in conservation efforts and ecotourism development is essential for the survival of national parks, especially in developing countries (Western and Wright 1994; Naughton-Treves & Treves, 2005; Coria, 2012). The active engagement of surrounding communities in Pongara and Ivindo National Parks is indispensable if these communities are to support conservation efforts and ecotourism development. Also, ecotourism development requires some degree of environmental destruction, especially with the construction of roads and hotels. However, a sustainable development of infrastructure is possible if the government invests in

extensive environmental impact studies on construction projects. Ecotourism infrastructure development should be small-scale and compatible with the surrounding ecological system.

Many authors have acknowledged that no one technique or management strategy will be effective to address the human-wildlife conflict, but rather a combination of many management techniques is more effective (Osborn and Hill; Breitenmoser et al; Walpole and Thouless). Osborn and Hill (2005) explains that an adaptive management technique requires the full cooperation of farmers as well as the decentralization of power from governmental conservation organization in the process of solving conflicts between humans and wildlife. The implication of local population in conservation efforts, including mitigations of the human-wildlife conflict, is the key for successful conservation in Africa. Anderson et al (1987) write: "while many African governments now consider conservation to be a 'good thing', policies for National Parks, game reserves, forest protection and soil conservation programs are unlikely to be successfully implemented if they fail to involve the participation and cooperation of the rural people whose lives they will invariably alter" (p.9). If farmers in Gabon are to take responsibility for the problems of crop-raiding, the local authorities need to start sharing power with local communities. This requires major changes in the conservation system.

These necessary changes in the conservation system of Gabon will enable local authorities and communities to address many of the related issues to the human-wildlife conflict. These related issues include conflicts between conservation authorities and local populations, the lack of active participation and representation of local communities in conservation efforts and ecotourism development, and local communities' development.

This study calls for further research on the topic of conflict between human and wildlife in Gabon, more specifically on the socio-economic characteristics of this conflict in each of Gabon's national parks. Systematic collection of data about the human-wildlife conflict and the effectiveness of currently used mitigation strategies is necessary to effectively design adaptive management strategies for each of Gabon's national parks.

APPENDIX A

MAP OF THE MEGA-TRANSECT

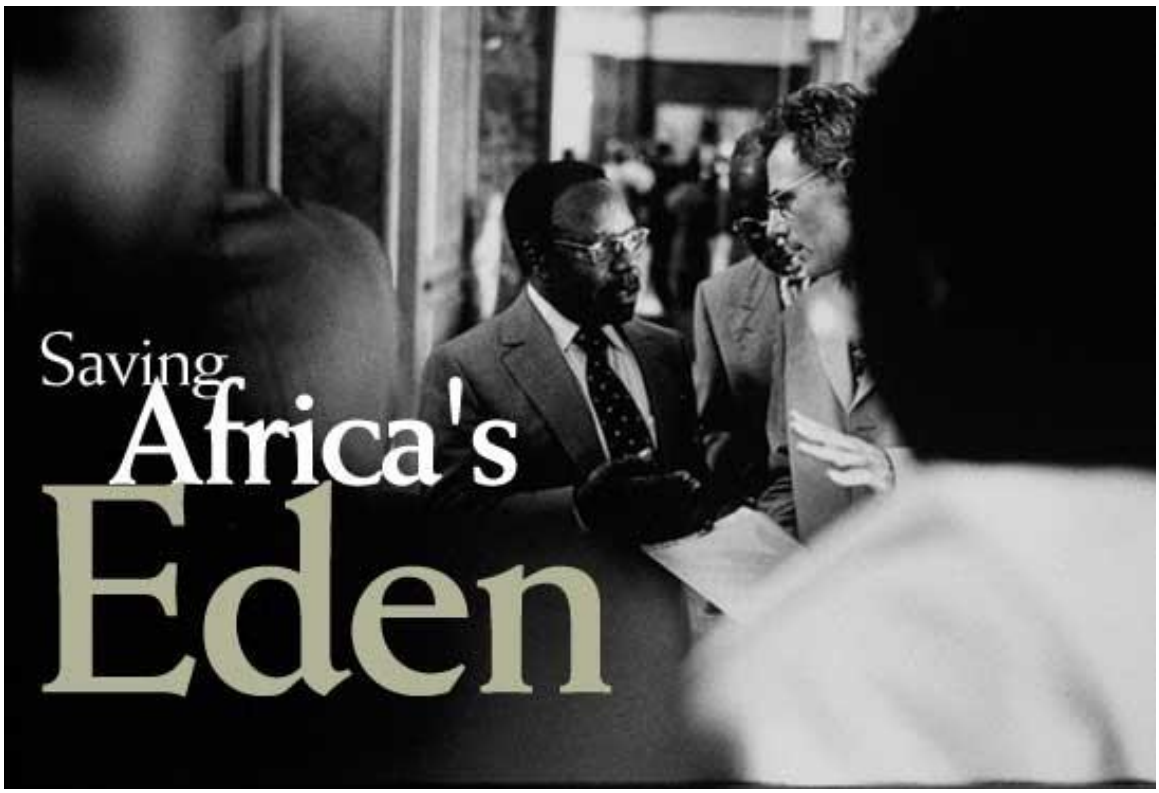
Source : http://yellow0eye.blogspot.com/2005/10/mike-fay-for-peace.html

Picture of the Mega-Transect

APPENDIX B

AFRICA'S LAST EDEN

michael fay presentation of its findings to late president omar bongo ondimba of gabon



Source: http://ngm.nationalgeographic.com/ngm/0309/feature3/

APPENDIX C

MAP OF GABON'S NATIONAL PARKS

Source : http://www.mappery.com/map-of/Gabon-National-Park-Map

APPENDIX D

IUCN PROTECTED AREAS CATEGORIES

IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognised by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation.

IUCN Protected Areas Categories System

Ia Strict Nature Reserve: Category **Ia** are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

Ib Wilderness Area: Category **Ib** protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park: Category **II** protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature: Category **III** protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area: Category **IV** protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape: A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources: Category **VI** protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.

APPENDIX E

LIST OF INTERNATIONAL CONVENTIONS ON WILDLIFE

1900 : Convention de Londres (1)
Convention pour la préservation des animaux sauvages, des oiseaux et poissons d'Afrique

1933 : Convention de Londres (2)
Convention relative à la conservation de la faune et de la flore à l'état naturel en Afrique

1968 : Convention d'Alger
Convention relative à la conservation de la nature et des ressources naturelles en Afrique

1971 : Convention de Ramsar
Convention pour les habitats d'oiseaux d'eau et zones humides d'importance internationale

1972 : Convention de Stockholm
Convention sur la protection du Patrimoine mondial, culturel et naturel

1973 : Convention de Washington (CITES[3])
Convention sur le commerce international des espèces sauvages menacées d'extinction

1979 : Convention de Bonn
Convention sur la conservation des espèces migratrices appartenant à la faune sauvage

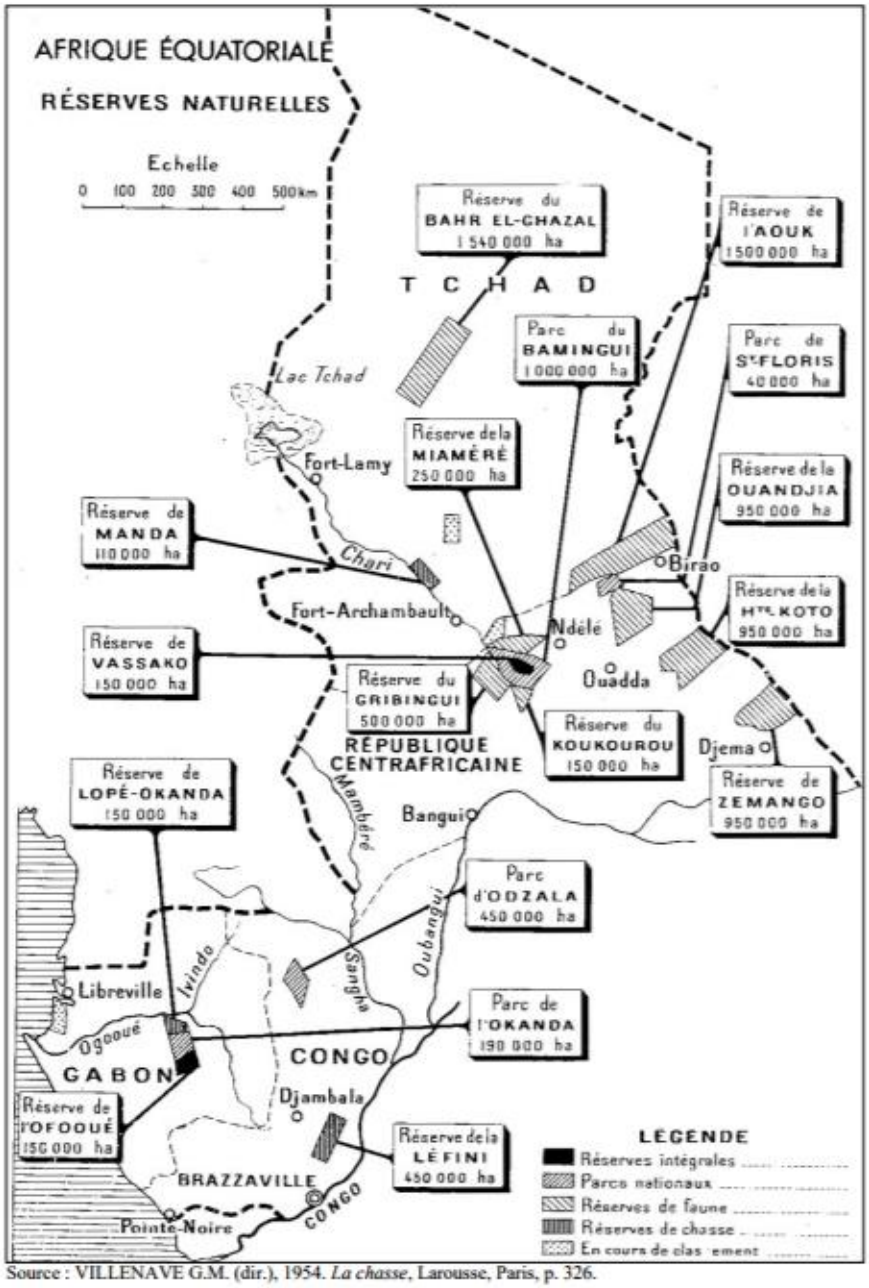
1992 : Convention de Rio
Convention des Nations Unies sur l'Environnement, le Développement et la Biodiversité

Source: Roulet, 2004, p. 99

APPENDIX F

PROTECTED AREAS OF THE FRENCH EQUATORIAL AFRICA 1954

Carte 5 : Les Aires protégées d'Afrique Equatoriale Française en 1954



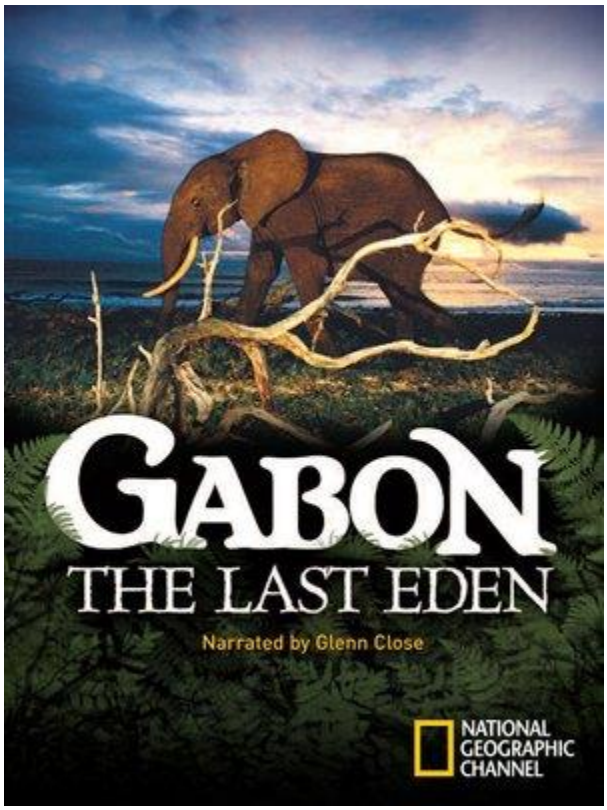
Source : VILLENAVE G.M. (dir.), 1954. *La chasse*, Larousse, Paris, p. 326.

Source: Roulet, 2004, p. 103

APPENDIX G

GABON: THE LAST EDEN

The National Geographic documentary about Gabon's biodiversity and ongoing conservation struggles.



Overview:

"Gabon is an unlikely Eden where relentless predators stalk prey in lush forests, and primates, who have not yet learned to fear man, live right alongside forest elephants. Against all odds, one visionary African leader and a group of dedicated scientists defied the conventional wisdom that insists oil and logging are the only way to bring prosperity to an impoverished land. Out of the wild they created 13 new national parks—and are now developing an eco-tourism industry to sustain them. Gabon: The Last Eden tells this amazing story with stunning footage— silverback gorillas defending territory, mandrill baboons' faces splashed with day-glow color, and hippos wallowing in the ocean—exploring one of the planet's last true wildernesses and what is being done to save it"

Source: National Geographic

https://shop.nationalgeographic.com/product/dvds/animals-and-nature/gabon%3A-the-last-eden-dvd

APPENDIX H

GABON'S LAW OF THE NATIONAL PARKS (LOI #003/2007)

Loi n° 003/ 2007 du 27 août 2007

Relative aux parcs nationaux

L'Assemblée Nationale et le Sénat ont délibéré et adopté, Le Président de la République, Chef de l'Etat, Promulgue la loi dont la teneur suit :

Article premier : La présente loi, prise en application des dispositions de l'article 47 de la Constitution, est relative aux parcs nationaux.

Titre PREMIER – DES DISPOSITIONS GENERALES

Article 2 : La présente loi vise, dans le cadre du processus de développement de la conservation du patrimoine naturel et culturel national, à promouvoir une politique de protection et de valorisation durable des parcs nationaux, notamment par : la création d'un réseau de parcs représentatif de la diversité biologique du Gabon et couvrant au moins dix pour cent du territoire national ; la mise en place des principes, règles et assises institutionnelles devant servir de base juridique et organique à cette politique ; le rattachement des parcs nationaux au domaine public de l'Etat ; la création du service public chargé de la gestion des parcs nationaux ; l'information, l'éducation et la communication environnementales ainsi que l'écotourisme et la recherche scientifique ; la mise en place d'un mécanisme de financement pérenne ; la définition des modalités d'intervention de l'Etat et des différents partenaires dans la gestion des parcs ; le transfert des pouvoirs de police des autorités locales à l'organisme de gestion des parcs ; le renforcement de la collaboration et de la coopération sous-régionale et internationale, conformément aux conventions internationales.

Article 3 : Au sens de la présente loi, on entend par :

aire protégée, l'espace naturel terrestre ou aquatique géographiquement délimité qui est défini, réglementé et géré pour la protection et la gestion durable du patrimoine naturel et culturel ;

conservation, la protection de la nature et des ressources naturelles renouvelables, ainsi que leur utilisation rationnelle au profit des générations présentes et futures lorsque tout danger d'extinction est écarté ;

contrat de fiducie, la convention par laquelle un constituant ou mandant transfère tout ou partie de ses biens et droits à un gestionnaire qui, tenant ces biens et droits séparés de son patrimoine personnel, agit dans un but déterminé au profit d'un ou de plusieurs bénéficiaires ;

contrat de gestion de terroir, le contrat passé entre le gestionnaire d'un parc et les communautés rurales de la zone périphérique, définissant les modalités d'intervention de ces communautés dans la conservation de la diversité biologique du parc ou de sa zone périphérique en vue de favoriser les retombées économiques à leur profit ;

diversité biologique, la variabilité des organismes vivants de toute origine, y compris les écosystèmes terrestres, marins et autres écosystèmes aquatiques ainsi que les complexes écologiques dont ils font partie ; elle comprend la diversité au sein des espèces et entre les espèces, ainsi que celle des écosystèmes ;

écotourisme, le tourisme organisé dans un souci d'assurer la pérennité des écosystèmes en respectant l'environnement et les populations tout en assurant une redistribution équitable des retombées économiques au profit des communautés locales ;

gestion durable, l'ensemble des mesures, des processus et des modalités de gestion des parcs et de leurs ressources naturelles définis et mis en oeuvre en vue de maintenir l'équilibre des écosystèmes, au profit des utilisateurs actuels et aux fins de leur transmission dans les meilleures conditions aux générations futures ;

parc national, une aire protégée établie sur une portion du territoire où des écosystèmes terrestres ou marins, des sites géomorphologiques, historiques et autres formes de paysage, jouissent d'une protection particulière avec l'objectif de maintenir la diversité biologique et les processus de régulation écologique naturels en y autorisant des activités réglementées d'écotourisme, de recherche scientifique et d'éducation tout en contribuant au développement économique et social des communautés locales ;

plan de gestion, le document et ses annexes présentant, sur la base d'une planification quinquennale, les mesures envisagées pour assurer la conservation d'un parc national ;

terroir, une aire géographique homogène au regard de sa population, de son histoire et de son organisation ;

valorisation durable, l'usage ou la consommation des ressources naturelles renouvelables d'une manière et à un rythme qui sauvegardent leur potentiel pour satisfaire les besoins et aspirations des générations présentes et futures ;

zone périphérique, l'espace géographique environnant un parc visant à prévenir et limiter les impacts négatifs sur le parc ainsi qu'à développer des actions écologiquement

adaptées à la conservation de la diversité biologique, sans préjudice des droits d'usage coutumiers ;

zone tampon, l'espace géographique de protection contigu à un parc national.

Titre II - DES PRINCIPES

Article 4 : Les parcs nationaux relèvent du domaine public de l'Etat. Ils comprennent, selon le cas et indistinctement, un domaine public terrestre, maritime, lacustre, lagunaire, fluvial ou aérien.

Les parcs nationaux sont créés, classés ou déclassés, totalement ou partiellement, par une loi, en tenant compte des droits coutumiers des communautés locales. Tout projet de loi portant création, classement ou déclassement, total ou partiel, d'un parc national est soumis à l'organisme de gestion des parcs nationaux qui, après consultation des communautés et autorités locales ainsi que du Comité scientifique prévu au Titre III de la présente loi, émet un avis motivé.

Article 5 : La loi portant création ou modification d'un parc national en précise selon le cas la dénomination, la localisation, les limites et la superficie. Elle comporte en annexe une carte indiquant la superficie du parc. Cette superficie est définie par coordonnées géographiques et limites naturelles.

Article 6: Les aires protégées, figurant dans le tableau annexé à la présente loi, sont classées parcs nationaux.

Article 7 : Toute modification des limites d'un parc national ou de sa zone périphérique est obligatoirement précédée d'une étude d'impact environnemental, après consultation des autorités et des communautés locales.

Article 8 : Tout déclassement d'un parc national doit être justifié par des impératifs d'intérêt national. Il donne lieu à une compensation territoriale préalable définie par la loi portant classement d'une zone d'étendue similaire représentative du même écosystème et du même niveau de diversité biologique.

Le déclassement ouvre également droit à une compensation financière au bénéfice des parcs nationaux, dans les conditions fixées par la loi portant déclassement.

Article 9 : Toute activité de quelque nature que ce soit, non conforme aux dispositions de la présente loi, est interdite sur toute l'étendue d'un parc national.

Article 10 : Sous réserve des impératifs de conservation du patrimoine naturel et culturel ainsi que des droits d'usage coutumier, l'organisme de gestion des parcs nationaux peut, sur présentation d'un dossier technique, autoriser : - les activités de recherche scientifique ; - les activités d'exploitation à des fins touristiques, compatibles avec les objectifs de protection et de gestion des ressources naturelles ; - la circulation d'engins à

moteur et l'atterrissage d'aéronefs ; - l'abattage et la capture d'animaux, la destruction et la collecte de plantes et de minéraux se trouvant à la surface du sol, justifiés par des raisons scientifiques ou par des besoins d'aménagement ou d'ordre public ; - les travaux de terrassement ou constructions nécessaires à la gestion d'un parc national ainsi qu'aux activités touristiques, culturelles, d'éducation ou de recherche, après étude d'impact environnemental.

Article 11 : Le bénéficiaire d'une des autorisations mentionnées à l'article 10 cidessus est tenu au paiement d'une redevance dont les modalités et le taux sont fixés conformément aux textes en vigueur. Il est civilement responsable de tout dommage causé au parc national du fait de son activité.

Article 12 : Toute prospection minière dans un parc national ne peut être autorisée que par décret pris en Conseil des Ministres, après avis de l'organisme de gestion et sur rapport du Comité scientifique visé à l'article 37 ci-dessous. En cas de découverte minière ou pétrolière, il pourra être procédé à une exploitation, après déclassement de tout ou partie du parc conformément aux dispositions de l'article 8 ci-dessus.

Article 13 : Chaque parc national comprend une zone périphérique incluant, le cas échéant, une zone tampon dont les superficies sont fixées par voie réglementaire. L'étendue de la zone périphérique intègre les villages, les collectivités locales et d'autres aires protégées dans leurs limites administratives.

Article 14 : Dans la zone tampon, ne peuvent être autorisées que des activités anthropiques n'ayant pas d'impact négatif sur le parc. Cette autorisation est délivrée par arrêté du Ministre de tutelle, après avis de l'organisme de gestion des parcs nationaux, selon les modalités fixées par voie réglementaire.

Article 15 : La zone périphérique assure la transition entre le parc national et le monde rural ou tout autre espace l'environnant. Elle permet, en outre, l'identification des communautés, opérateurs économiques et collectivités locales avec lesquels l'administration du parc peut établir et formaliser des relations de gestion concertée des ressources naturelles en vue de la réalisation des objectifs de la présente loi.

Article 16 : Dans les zones périphériques des parcs nationaux, l'exercice des droits d'usage coutumiers, notamment la pêche, la chasse, l'abattage et la capture de faune sauvage, les activités agricoles et forestières, la cueillette de plantes, la collecte de minéraux ou fossiles est libre, sous réserve du respect des textes en vigueur et, le cas échéant, des stipulations des contrats de gestion de terroir ou du plan de gestion.

Article 17 : Dans les zones périphériques des parcs nationaux, les projets industriel, minier, de carrière, de barrage hydroélectrique, de lotissement, d'équipement touristique ou de réalisation d'infrastructures linéaires, notamment les routes, lignes électriques, oléoducs, gazoducs et les voies ferrées, sont subordonnés à une étude d'impact environnemental. Nonobstant les dispositions de droit commun en matière d'études d'impact environnemental, l'étude visée ci-dessus est soumise pour avis à l'organisme de

gestion des parcs nationaux. En cas d'opposition, l'organisme de gestion est tenu de motiver sa décision. Dans ce cas, le projet considéré est soumis à l'arbitrage du Conseil des Ministres. Si le projet est alors agréé, tout ou partie du parc peut être déclassé.

Article 18 : Dans le cadre des activités de protection et de valorisation durable des parcs nationaux, les responsables des parcs coopèrent avec les autorités locales, notamment au sein des comités consultatifs de gestion locaux des parcs prévus à l'article 44 de la présente loi.

Article 19 : Des contrats de gestion de terroir peuvent être conclus entre l'administration d'un parc national et les communautés locales de sa zone périphérique. Ils sont approuvés par l'organisme de gestion des parcs nationaux avant leur entrée en vigueur et portent notamment sur la surveillance, la gestion, l'entretien, l'animation culturelle et touristique du parc ou de sa zone périphérique.

Article 20 : Les administrations publiques peuvent, en collaboration avec l'organisme de gestion des parcs, aménager les zones périphériques des parcs nationaux en procédant aux réalisations et améliorations d'ordre social, économique et culturel contribuant à la protection de la nature dans les parcs, dans le respect des dispositions de l'article 17 de la présente loi

Article 21 : Chaque parc est doté d'un plan de gestion spécifique élaboré par l'administration du parc, après consultation de toutes les parties intéressées, dont les communautés de la zone périphérique et celles vivant, le cas échéant, à l'intérieur du parc au moment de sa création. Il tient compte des usages et droits coutumiers de ces communautés. Le plan de gestion doit obligatoirement comporter : des mentions rappelant succinctement : l'historique, la situation et le statut du parc national concerné ; les composantes physiques et biologiques qui le constituent ; les éléments de son milieu socio-économique ; le diagnostic de l'état actuel du parc et de sa gestion ; la description détaillée : des objectifs de conservation à court et moyen terme ; des stratégies, modalités d'aménagement et mesures envisagées sur une base quinquennale ; des indicateurs de la mise en oeuvre du plan ; du budget ; des modalités de contrôle.

Article 22 : Tout ou partie des missions non régaliennes dévolues à l'autorité de gestion d'un parc, notamment l'aménagement à des fins touristiques ou scientifiques, peuvent être concédées par l'organisme de gestion des parcs nationaux à une personne morale de droit privé, après examen d'un dossier technique et dans le cadre d'une convention de concession. La convention de concession ne peut donner droit à exclusivité.

Titre III -DU CADRE INSTITUTIONNEL

Article 23 : Pour l'application de la présente loi, il est mis en place un cadre institutionnel comprenant notamment : un Haut Conseil des Parcs Nationaux ; une Agence Nationale des Parcs Nationaux ; un Comité scientifique.

Chapitre 1 : Du Haut Conseil des Parcs Nationaux

Article 24 : Le Haut Conseil des Parcs Nationaux assiste le Président de la République et le Gouvernement dans la détermination et la mise en œuvre de la politique nationale en matière de parcs nationaux.

Article 25 : Le Haut Conseil des Parcs Nationaux est composé des membres suivants : Le Premier Ministre où son représentant ; Le Ministre Chargé de l'Economie Forestière, des Eaux, de la pêche et des Parcs Nationaux où son représentant ; Le Ministre chargé de l'Environnement et de la Protection de la Nature où son représentant ; Le Ministre chargé de l'Aménagement du Territoire et des collectivités locales ou son représentant ; Le Ministre chargé de la Recherche Scientifique où son représentant ; Le Ministre chargé de l'Economie et des Finances où son représentant ; Le Ministre chargé de l'Intérieur où son représentant ; Le Ministre chargé de la Défense Nationale où son représentant ; Le Ministre chargé des Mines, de l'Energie et du Pétrole où son représentant ; Le Responsable de l'organisme chargé du tourisme où son représentant ; Un Député Un Sénateur.

Article 26 : Les attributions, l'organisation et le fonctionnement du Haut Conseil des Parcs Nationaux sont fixés par voie réglementaire.

Chapitre II : De l'Agence Nationale des Parcs Nationaux

Article 27 : L'Agence Nationale des Parcs Nationaux est un établissement public à caractère scientifique et environnemental, en abrégé ANPN, ci-après dénommé l'Agence. Elle est dotée de la personnalité morale et de l'autonomie administrative et financière. Son siège est établi à Libreville.

Article 28 : L'Agence est placée sous la tutelle technique du Ministre chargé des parcs nationaux et sous la tutelle financière des Ministres chargés des Finances et de la Planification.

Article 29 : L'Agence est affectataire du domaine public de l'Etat constituant les parcs nationaux. Elle dispose d'un patrimoine propre.

Article 30 : L'Agence est l'organisme de gestion des parcs nationaux. A ce titre, elle est notamment chargée de : mettre en œuvre la politique nationale en matière de protection des ressources naturelles et des processus écologiques ainsi que de valorisation du patrimoine naturel et culturel des parcs nationaux, en tenant compte de l'équilibre et de la stabilité des écosystèmes ; mettre en place les moyens et les procédures de protection des habitats naturels et de la vie sauvage, en particulier des espèces de faune et de flore rares ou en danger de disparition, in situ et ex situ ; approuver le plan de gestion de chaque parc national et apporter son appui technique à sa mise en oeuvre ; conclure des conventions de concession par appel d'offres après avis de l'autorité de gestion du parc concerné et consultation des communautés locales ; préparer tout document stratégique

relatif à la gestion des parcs et à la conservation de la diversité biologique ; coordonner les activités des institutions scientifiques, techniques et des associations de conservation de la nature dont les programmes sont liés aux parcs nationaux ; promouvoir et réglementer les activités d'écotourisme dans les parcs nationaux ; planifier et assurer la formation continue des personnels chargés de la gestion des parcs nationaux et de leurs ressources naturelles ;

centraliser, traiter et diffuser des informations relatives aux parcs nationaux afin de permettre un suivi national des indicateurs de conservation des parcs ;

faciliter des initiatives locales en faveur de la conservation de la diversité biologique ;

promouvoir l'information générale, l'éducation et la communication sur les parcs nationaux ; promouvoir toute forme de gestion participative des parcs nationaux et de conservation des ressources naturelles ; rechercher et sécuriser les financements des parcs nationaux ; veiller, sur l'ensemble des parcs nationaux, à la gestion du patrimoine foncier ainsi qu'à l'exercice de la police administrative et de la police judiciaire.

Article 31 : L'Agence comprend : le Comité de gestion, organe délibérant ; le Secrétaire Exécutif, organe de gestion ; L'Agence comptable.

Article 32 : Le Comité de gestion est présidé par un haut fonctionnaire nommé par décret pris en Conseil des Ministres.

Article 33 : Le Secrétaire Exécutif est nommé par décret pris en Conseil des Ministres sur proposition du Ministre chargé des parcs nationaux. Les candidats soumis à nomination sont sélectionnés par le Comité de gestion, après appel public à candidature.

Article 34 : Le Secrétaire Exécutif est l'ordonnateur principal de l'Agence.

Article 35 : L'Agent comptable est nommé par décret pris en Conseil des Ministres, sur proposition du Ministre chargé des finances.

Article 36 : Les personnels de l'Agence comprennent : des fonctionnaires en détachement ou mis à sa disposition ; des agents contractuels de droit privé.

Article 37 : L'organisation et le fonctionnement de l'Agence sont fixés par ses statuts approuvés par décret pris en Conseil des Ministres.

Chapitre III : Du Comité scientifique des Parcs Nationaux

Article 38 : Il est créé un conseil scientifique, dénommé Comité scientifique des parcs nationaux.

Article 39 : Le Comité scientifique est constitué de personnalités de toute nationalité issues des milieux scientifiques et de la recherche, choisies pour leur compétence et leur expérience, ainsi que leur complémentarité, en matière de conservation de la diversité

biologique et des parcs nationaux. Les membres du Comité scientifique sont désignés par le Comité de gestion pour un mandat de trois ans renouvelable, sur proposition du Secrétaire Exécutif et après consultation des organes habilités. Une fois désignés, les membres du Comité scientifique agissent es qualité, de manière indépendante dans l'exercice de leur fonction.

Article 40 : L'avis du Comité scientifique est requis pour toute question relative à la conservation des parcs nationaux et au maintien de la diversité biologique, notamment : sur toute activité, projet et programme ayant une incidence sur la diversité biologique ou la conservation des ressources naturelles et culturelles des parcs nationaux ; sur tout projet de texte pouvant avoir une incidence sur la conservation de la nature et de ses ressources ainsi que sur la diversité et les équilibres biologiques dans les parcs nationaux ; sur tout projet de loi de classement ou de déclassement d'un parc national.

En outre, le Comité examine les rapports annuels sur l'état de conservation des parcs nationaux et fait toute recommandation utile.

Article 41 : Les travaux du Comité sont consignés dans un rapport adressé à l'Agence.

En plus des rapports portant sur des questions spécifiques, le Comité élabore un rapport annuel qu'il adresse au Haut Conseil des Parcs Nationaux avant publication. Article 42 : Le Comité scientifique fixe les modalités de son fonctionnement interne.

Titre IV -DU CONSERVATEUR ET DU COMITE CONSULTATIF DE GESTION LOCAL

Article 43 : Chaque parc national est placé sous l'autorité d'un Conservateur. Le Conservateur assure la gestion administrative, technique et financière du parc ainsi que les missions de police.

Article 44 : Le Conservateur est administrateur délégué des crédits du parc.

Article 45 : Dans chaque parc national, il est constitué un Comité consultatif de gestion local. Le Comité consultatif assiste le Conservateur dans les conditions fixées par voie réglementaire.

Article 46 : Les dispositions, autres que celles prévues par la présente loi, relatives aux attributions du Conservateur et au fonctionnement des parcs et des comités consultatifs de gestion locaux, sont fixées par l'Agence et matérialisées par un décret pris en Conseil des Ministres.

Titre V -DES RESSOURCES ET DU FINANCEMENT

Chapitre premier : Des ressources

Article 47 : Les ressources de l'Agence sont constituées par : les ressources propres ou recettes des activités conduites au sein des parcs ; les produits de ses prestations de services ; les subventions et concours financiers de l'Etat ; les transferts opérés au titre des contrats de fiducie ; le produit des taxes ou prélèvements obligatoires qui lui sont affectés ; le produit des amendes et confiscations affecté par l'Etat et réparti suivant une clé définie par voie réglementaire ; les subventions, dons et legs de toute nature.

Article 48 : Les charges de l'Agence sont constituées par : les dépenses de fonctionnement, notamment : les indemnités et primes des agents ; les rémunérations versées aux communautés rurales au titre des vacations ; la rémunération éventuelle des conventions d'exploitation, des prestations de service et des contrats de gestion de terroir ;les autres charges d'exploitation ; les dépenses relatives aux travaux d'aménagement et d'investissement.

Article 49 : Le régime financier de l'Agence est déterminé par les règles et principes régissant la comptabilité publique.

Chapitre II : Du financement

Article 50 : Toute personne morale de droit public ou privé, nationale ou étrangère, contribuant au financement des parcs nationaux peut conclure des contrats de fiducie. Ces contrats de fiducie peuvent stipuler que les fonds concernés seront confiés à un gestionnaire de patrimoine établi dans une place financière disposant d'un régime juridique et fiscal approprié. Les termes et conditions de placement et de gestion de ces fonds font l'objet d'un accord entre l'Agence et la ou les personnes morales concernées. Cet accord est soumis à l'approbation du Ministre chargé des Finances.

Article 51 : Tout financement, public ou privé, destiné au soutien des activités de conservation de la diversité biologique est exonéré de tout impôt et taxe. Cette exemption s'applique aux revenus générés par les contrats de fiducie mentionnés à l'article 49 ci-dessus.

Article 52 : Les revenus résultant de la valorisation des parcs, y compris ceux issus des conventions de concession, sont affectés aux budgets des parcs nationaux selon des modalités de répartition définies par l'Agence.

Titre VI -DES DISPOSITIONS REPRESSIVES

Chapitre premier : De la constatation des infractions

Article 53 : Dans le cadre de leur mission de gestion des parcs nationaux, le Conservateur et le personnel habilité sont investis des missions de police judiciaire. A ce titre et sans préjudice des prérogatives des officiers de police judiciaire, le Conservateur et le personnel visé à l'alinéa ci-dessus sont habilités à rechercher et à constater les infractions à la législation sur les parcs.

Article 54 : Avant d'entrer dans leur fonction d'officier de police judiciaire, le Conservateur et le personnel habilité prêtent serment devant la juridiction compétente, dans les formes et conditions fixées par voie réglementaire.

Article 55 : Par l'effet des dispositions des articles 52 et 53 de la présente loi, le Conservateur et le personnel habilité sont astreints au port d'armes, d'un uniforme et d'insignes distinctifs dont les caractéristiques sont définies par voie réglementaire.

Article 56 : Les infractions sont constatées sur procès-verbal établi, sous peine de nullité, selon les modalités définies par les textes en vigueur.

Chapitre II : Des sanctions

Article 57 : Toute arme, tout engin ou autre matériel introduit frauduleusement ou ayant servi à la commission d'une infraction dans un parc national est saisi et déposé à la juridiction compétente en même temps que le procès-verbal de constatation de l'infraction.

Il sera soit détruit, soit vendu aux enchères, selon les dispositions prévues par les textes en vigueur.

Article 58 : Les gibiers saisis sont, après contrôle sanitaire dans un laboratoire agréé, détruits ou déposés dans des établissements publics à caractère social en présence d'un officier de police judiciaire local.

Article 59 : Sont punis d'une amende de 20.000 à 250.000 francs CFA, les auteurs des infractions suivantes : pénétration non autorisée sans arme dans un parc national ; circulation et stationnement en dehors des pistes balisées ; divagation d'animaux domestiques dans les parcs nationaux. En cas de récidive ou de fuite, la sanction est portée au double.

Article 60 : Sont punis d'un emprisonnement d'un mois à trois mois et d'une amende de 25.000 à 1.000.000 de francs CFA ou de l'une de ces deux peines seulement, les auteurs des infractions suivantes : pénétration non autorisée avec arme dans un parc national ;

collecte ou prélèvement de la flore non autorisée ; récolte de plantes, fruits ou produits végétaux non autorisée ; violation de la réglementation des visites et de la circulation dans les parcs. En cas de récidive ou de fuite, la sanction est portée au double.

Article 61 : Sont punis d'un emprisonnement de trois à six mois et d'une amende de 100.000 à 10.000.000 de francs CFA ou de l'une de ces deux peines seulement, les auteurs des infractions suivantes : chasse ou pêche non autorisée ; empoisonnement des points et cours d'eau ; création de villages, campements ou voies de communication privées ; entrave volontaire à l'accomplissement des devoirs des agents de l'Agence. En cas de récidive ou de fuite, la sanction est portée au double.

Article 62 : Sont punis d'un emprisonnement de deux mois à deux ans et d'une amende de 1.000.000 à 25.000.000 de francs CFA ou de l'une de ces deux peines seulement, les auteurs des infractions suivantes : toute construction non autorisée ; tous travaux de fouille, prospection, sondage ou terrassement non autorisés ; exploitations agricoles. La peine est portée au double en cas de fuite ou de récidive et si les dommages causés au milieu naturel sont irréversibles.

Article 63 : Sont punis d'un emprisonnement de six mois à deux ans et d'une amende de 2.000.000 à 50.000.000 de francs CFA ou de l'une de ces deux peines seulement, les auteurs d'actes de chasse avec aéronef, véhicule terrestre ou embarcation à moteur. En cas de récidive ou de fuite, la sanction est portée au double.

Article 64 : Sont punis d'un emprisonnement de un an à dix ans et d'une amende de 20.000.000 à 50.000.000 de francs CFA ou de l'une de ces deux peines seulement les auteurs d'exploitation de bois d'oeuvre et d'ébénisterie à l'intérieur d'un parc national. La peine est portée au double en cas de récidive ou de fuite et s'il s'agit d'un acte volontaire.

Article 65 : Sont punis d'un emprisonnement de deux mois à deux ans et d'une amende de 500.000 à 100.000.000 de francs CFA ou de l'une de ces deux peines seulement, les auteurs de déversements, écoulements, rejets et dépôts de substance de toute nature susceptibles de porter atteinte à l'intégrité d'un parc national ou aux activités de son exploitation touristique. La peine est portée au double en cas de fuite ou récidive et s'il s'agit de substances toxiques.

Article 66 : Est punie d'une amende de 100.000 à 500.000 francs et d'un emprisonnement de quarante-cinq jours à trois mois, ou de l'une de ces deux peines seulement, toute personne qui, sans consultation préalable du gestionnaire d'un parc national, entreprend, dans la zone périphérique, des travaux nécessitant une étude d'impact environnemental.

Article 67 : Sans préjudice des dispositions des articles 56, 58, 59, 60, 62 et 63 de la présente loi, toute infraction commise en matière de chasse ou d'exploitation forestière dans un parc national peut donner lieu, selon le cas et dans les conditions fixées par voie réglementaire, à : la confiscation de produits fauniques ou forestiers ou au paiement

d'une pénalité égale à leur valeur s'ils n'ont pu être saisis ; la suspension, le retrait du permis ou de la licence dont disposerait, le cas échéant, l'auteur de l'infraction.

Article 68 : Au sens de la présente loi, le délai de récidive est de six mois à compter de la date d'établissement du procès-verbal constatant le précédent délit.

Titre VII -DISPOSITIONS TRANSITOIRES

Article 69 : Les limites d'un parc national, telles que définies à la date de promulgation de la présente loi, en constituent la délimitation légale. Pendant une période de cinq ans à compter de la promulgation, ces limites peuvent être modifiées par décret pris en Conseil des Ministres, sans qu'il puisse en résulter une diminution supérieure à deux pour cent (2 %) de la superficie du parc concerné.

Article 70 : Les conservateurs en fonction doivent prêter serment devant la juridiction compétente en vue de leur entrée dans leur fonction d'officier de police judiciaire dans un délai de six mois à compter de la promulgation de la présente loi.

Titre VIII -DISPOSITIONS DIVERSES

Article 71 : Les personnels de surveillance de l'Agence perçoivent, sur les produits issus des amendes, confiscations et sanctions pécuniaires, des ristournes dont le taux, les modalités de prélèvement et la répartition sont fixés par voie réglementaire.

Article 72 : L'Etat, l'Agence, les collectivités territoriales, les associations ou organisations non gouvernementales dont l'objet spécifique est la défense de l'environnement et la protection de la nature, peuvent se constituer partie civile dans tout procès relatif à la violation de la législation sur les parcs nationaux.

Titre IX -DISPOSITIONS FINALES

Article 73 : Des textes réglementaires déterminent, en tant que de besoin, les dispositions de toute nature nécessaire à l'application de la présente loi.

Article 74 : La présente loi abroge toutes les dispositions antérieures contraires, notamment celles de la loi n° 16/01 du 31 décembre 2001 portant code forestier en République Gabonaise, n° 16/93 du 26 août 1993 relative à la protection et à l'amélioration de l'environnement, la loi n° 5/2000 du 12 octobre 2000, portant code minier en République Gabonaise et des décrets n° 607 à 619/PR/MEFEPEPN du 30 août 2002 portant r classement des parcs nationaux.

Article 75 : La présente loi sera enregistrée, publiée selon la procédure d'urgence et exécutée comme loi de l'Etat.

Fait à Libreville, le 27 Août 2007 Par le Président de la République, Chef de l'Etat ; EL HADJ OMAR BONGO ONDIMBA

LISTE DES PARCS NATIONAUX DU GABON

Parc national Références du décret de classement

Akanda 608/PR/MEFEPEPN du 30 août 2002

Estuaire 53 780 Les plus grandes concentrations d'oiseaux migrateurs du Gabon

Birougou 610/PR/MEFEPEPN du 30 août 2002

Ngounié ; OgoouéLolo

69 021 Des paysages de montagne, un refuge forestier d'une grande richesse biologique

Ivindo 612/PR/MEFEPEPN du 30 août 2002

Ogooué-Ivindo ; Ogooué-Lolo

300 274 D'impressionnants éléphants et gorilles, dans des conditions de visibilité exceptionnelles ; chutes d'eau grandioses

Loango 613/PR/MEFEPEPN du 30 août 2002

Ogooué-Maritime 155 224 Des éléphants sur la plage, des hippopotames surfant sur les vagues et, en mer, un ballet de baleines à bosse

Lopé 607/PR/MEFEPEPN du 30 août 2002

Ogooué-Ivindo ; Ogooué-Lolo ; Moyen-Ogooué ; Ngounié

491 291 Les plus grandes concentrations de mandrills en Afrique ; un réceptif hôtelier existant et des traces de la présence de l'homme datant de plus de 400 000 ans

Mayumba 614/PR/MEFEPEPN du 30 août 2002

Nyanga 97 163 Le premier site du monde pour la ponte des tortues luth

Minkébé 615/PR/MEFEPEPN du 30 août 2002

Woleu-Ntem ; Ogooué-Ivindo

756 669 Des dômes rocheux surplombant la forêt ; le plus grand bloc forestier inhabité du Gabon

Monts de Cristal 611/PR/MEFEPEPN du 30 août 2002

Estuaire ; Woleu-Ntem

119 636 La zone de forêt la plus riche en espèces de plantes en Afrique

Moukalaba-Doudou

616/PR/MEFEPEPN du 30 août 2002

Nyanga ; OgoouéMaritime

449 548 D'impressionnantes populations de faune sauvage, comprenant les densités les plus élevées de gorilles

Mwagna 617/PR/MEFEPEPN du 30 août 2002

Ogooué-Ivindo 116 475 La plus grande clairière du Gabon, où abondent gorilles et éléphants

Plateaux Batéké 609/PR/MEFEPEPN du 30 août 2002

Haut-Ogooué 204 854 Une avifaune exceptionnellement diverse, des gorilles habitués à la présence humaine

Pongara 618/PR/MEFEPEPN du 30 août 2002

Estuaire 92 969 De belles plages et mangroves en face de Libreville ; un site de loisirs ; l'endroit où les éléphants se trouvent le plus près d'une capitale sur le continent d'Afrique

Waka 619/PR/MEFEPEPN du 30 août 2002

Ngounié 106 938 Une profonde faille de 100 km de long, en forêt et au coeur du pays

3013842

APPENDIX I

GOLD MINING IN MINKÉBÉ NATIONAL PARK

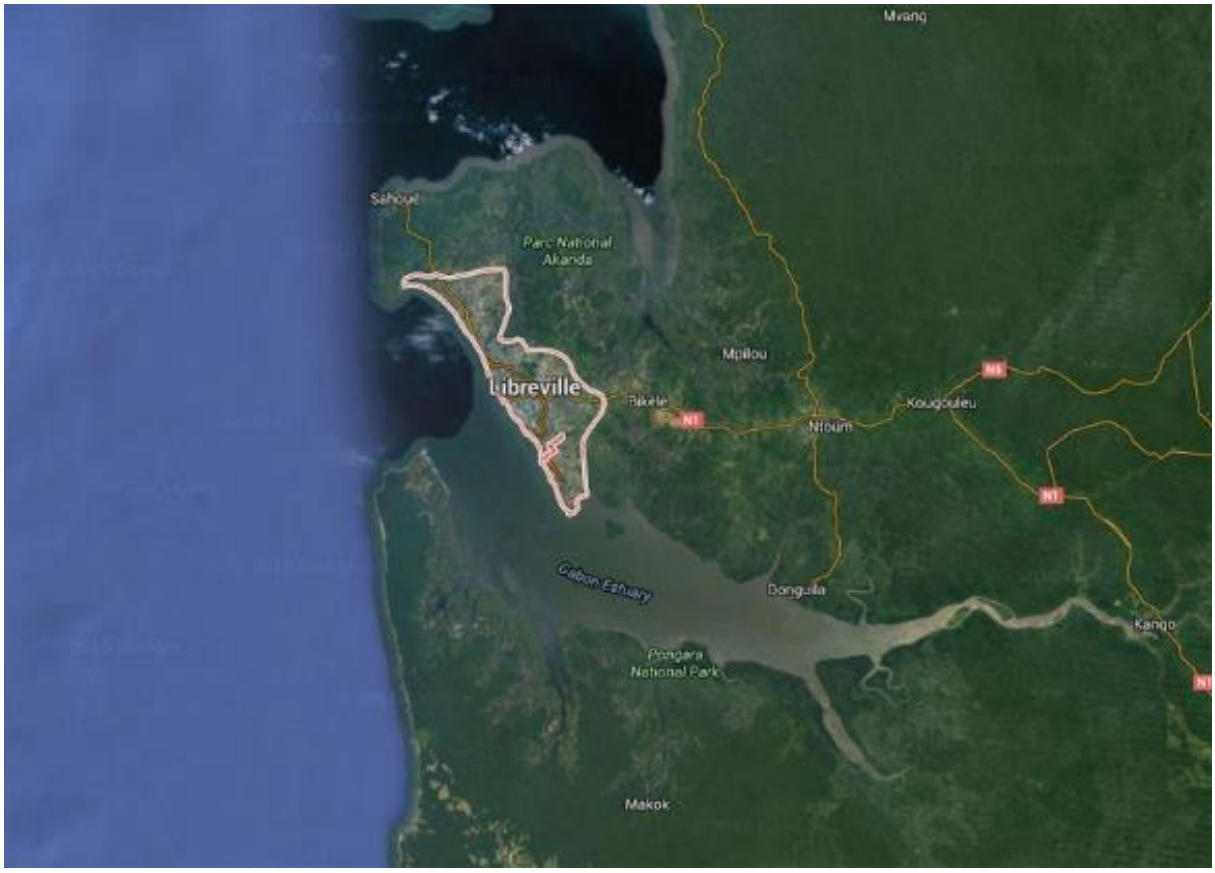
Men and women working in an illegal mine in Minké**é**b**é** National Park, Gabon in 2011. Photo credit: Richard Ruggiero / USFWS

Source : USFWS https://www.fws.gov/international/wildlife-without-borders/africa/illegal-mining.html

APPENDIX J

PONGARA LOCATION FROM LIBREVILLE

Pongara National Park (location from the capital city, Libreville)



Source: http://coastalcare.org/2016/08/pongara-beach-gabon-by-andrew-g-cooper-orrin-h-pilkey/

APPENDIX K

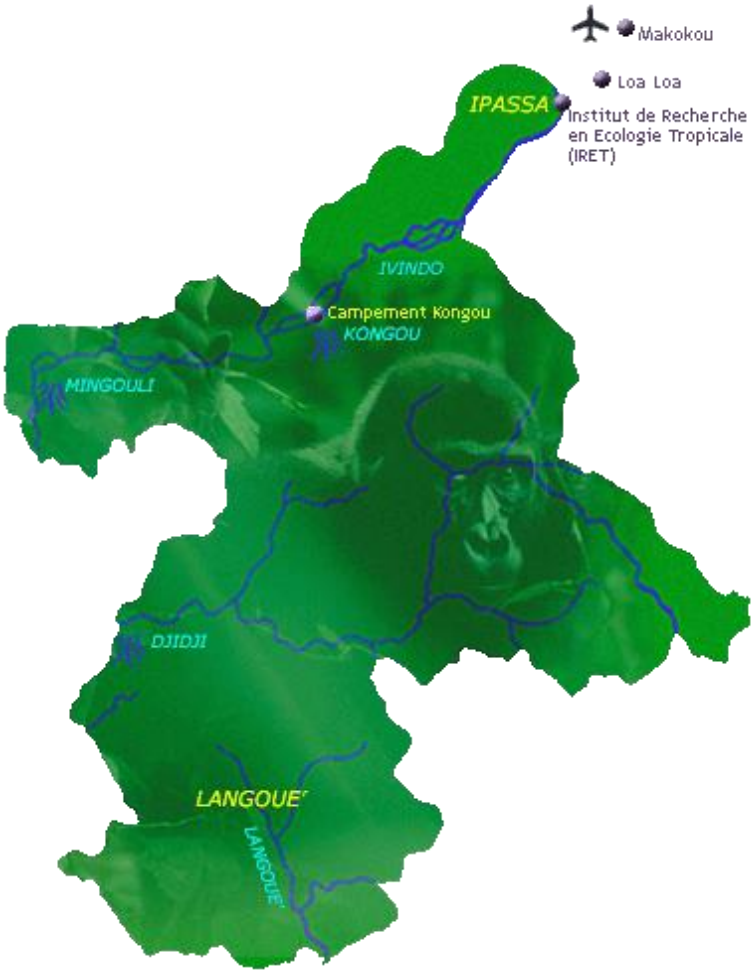
DAMARA TERNS IN PONGARA

spot the increasingly rare Damara terns at this beautiful national park © Magnus Manske

Source : https://www.bradtguides.com/destinations/africa/gabon/pongara-national-park.html

APPENDIX L

MAP OF INVINDO NATIONAL PARK



Source: http://www.ivindo.org/ivindo_en.html

APPENDIX M

LIST OF BIRDS IN GABON

Country or region: Gabon

Number of species: 748

Number of globally threatened species: 17

Date last reviewed: 2016-07-01

ANSERIFORMES: Anatidae		
White-faced Whistling Duck	Dendrocygna viduata	
Fulvous Whistling Duck	Dendrocygna bicolor	
Egyptian Goose	Alopochen aegyptiaca	
Hartlaub's Duck	Pteronetta hartlaubii	
Common Pochard	Aythya ferina	Vulnerable
Garganey	Spatula querquedula	
African Black Duck	Anas sparsa	
Northern Pintail	Anas acuta	Rare/Accidental
Spur-winged Goose	Plectropterus gambensis	
Comb Duck	Sarkidiornis melanotos	
African Pygmy Goose	Nettapus auritus	
GALLIFORMES: Numididae		
Helmeted Guineafowl	Numida meleagris	
Black Guineafowl	Agelastes niger	
Plumed Guineafowl	Guttera plumifera	
Crested Guineafowl	Guttera pucherani	
GALLIFORMES: Odontophoridae		
Stone Partridge	Ptilopachus petrosus	
GALLIFORMES: Phasianidae		
Harlequin Quail	Coturnix delegorguei	
Blue Quail	Synoicus adansonii	
Scaly Francolin	Pternistis squamatus	
Red-necked Spurfowl	Pternistis afer	
Coqui Francolin	Peliperdix coqui	
White-throated Francolin	Peliperdix albogularis	
Forest Francolin	Peliperdix lathami	
Finsch's Francolin	Scleroptila finschi	

PHOENICOPTERIFORMES: Phoenicopteridae		
Greater Flamingo	Phoenicopterus roseus	
Lesser Flamingo	Phoeniconaias minor	Near-threatened
PHOENICOPTERIFORMES: Podicipedidae		
Little Grebe	Tachybaptus ruficollis	
Great Crested Grebe	Podiceps cristatus	
COLUMBIFORMES: Columbidae		
Rock Dove	Columba livia	
Afep Pigeon	Columba unicincta	
Western Bronze-naped Pigeon	Columba iriditorques	
Lemon Dove	Aplopelia larvata	
European Turtle Dove	Streptopelia turtur	Vulnerable
Red-eyed Dove	Streptopelia semitorquata	
Ring-necked Dove	Streptopelia capicola	
Laughing Dove	Streptopelia senegalensis	
African Green Pigeon	Treron calvus	
Emerald-spotted Wood Dove	Turtur chalcospilos	
Blue-spotted Wood Dove	Turtur afer	
Tambourine Dove	Turtur tympanistria	
Blue-headed Wood Dove	Turtur brehmeri	
Namaqua Dove	Oena capensis	
PHAETHONTIFORMES: Phaethontidae		
Red-billed Tropicbird	Phaethon aethereus	Rare/Accidental
CAPRIMULGIFORMES: Caprimulgidae		
European Nightjar	Caprimulgus europaeus	
Rufous-cheeked Nightjar	Caprimulgus rufigena	
Fiery-necked Nightjar	Caprimulgus pectoralis	
Swamp Nightjar	Caprimulgus natalensis	
Plain Nightjar	Caprimulgus inornatus	Rare/Accidental
Freckled Nightjar	Caprimulgus tristigma	
Bates's Nightjar	Caprimulgus batesi	
Long-tailed Nightjar	Caprimulgus climacurus	
Mozambique Nightjar	Caprimulgus fossii	
Standard-winged Nightjar	Caprimulgus longipennis	
Pennant-winged Nightjar	Caprimulgus vexillarius	
Brown Nightjar	Veles binotatus	
CAPRIMULGIFORMES: Apodidae		

Mottled Spinetailed Swift	Telacanthura ussheri	
Black Spinetailed Swift	Telacanthura melanopygia	
Sabine's Spinetailed Swift	Rhaphidura sabini	
Cassin's Spinetailed Swift	Neafrapus cassini	
African Palm Swift	Cypsiurus parvus	
Alpine Swift	Tachymarptis melba	
Mottled Swift	Tachymarptis aequatorialis	
White-rumped Swift	Apus caffer	
Bates's Swift	Apus batesi	
Horus Swift	Apus horus	
Little Swift	Apus affinis	
Nyanza Swift	Apus niansae	
Common Swift	Apus apus	
CUCULIFORMES: Cuculidae		
Gabon Coucal	Centropus anselli	
Black-throated Coucal	Centropus leucogaster	
Senegal Coucal	Centropus senegalensis	
Blue-headed Coucal	Centropus monachus	
White-browed Coucal	Centropus superciliosus	
African Black Coucal	Centropus grillii	
Yellowbill	Ceuthmochares aereus	
Jacobin Cuckoo	Clamator jacobinus	
Levaillant's Cuckoo	Clamator levaillantii	
Great Spotted Cuckoo	Clamator glandarius	Rare/Accidental
Thick-billed Cuckoo	Pachycoccyx audeberti	
Yellow-throated Cuckoo	Chrysococcyx flavigularis	
Klaas's Cuckoo	Chrysococcyx klaas	
African Emerald Cuckoo	Chrysococcyx cupreus	
Diederick Cuckoo	Chrysococcyx caprius	
Dusky Long-tailed Cuckoo	Cercococcyx mechowi	
Olive Long-tailed Cuckoo	Cercococcyx olivinus	
Red-chested Cuckoo	Cuculus solitarius	
Black Cuckoo	Cuculus clamosus	
Common Cuckoo	Cuculus canorus	
African Cuckoo	Cuculus gularis	
GRUIFORMES: Rallidae		
Nkulengu Rail	Himantornis haematopus	
Grey-throated Rail	Canirallus oculeus	
African Rail	Rallus caerulescens	

African Crake	Crex egregia	
Corncrake	Crex crex	Rare/Accidental
Black Crake	Zapornia flavirostra	
Little Crake	Zapornia parva	
Striped Crake	Amaurornis marginalis	
Purple Swamphen	Porphyrio porphyrio	Rare/Accidental
Allen's Gallinule	Porphyrio alleni	
Common Moorhen	Gallinula chloropus	
Lesser Moorhen	Gallinula angulata	
GRUIFORMES: Sarothruridae		
White-spotted Flufftail	Sarothrura pulchra	
Buff-spotted Flufftail	Sarothrura elegans	
Red-chested Flufftail	Sarothrura rufa	
Chestnut-headed Flufftail	Sarothrura lugens	
Streaky-breasted Flufftail	Sarothrura boehmi	
GRUIFORMES: Heliornithidae		
African Finfoot	Podica senegalensis	
GRUIFORMES: Gruidae		
Black Crowned Crane	Balearica pavonina	Vulnerable
OTIDIFORMES: Otididae		
Black-bellied Bustard	Lissotis melanogaster	
Denham's Bustard	Ardeotis denhami	Rare/Accidental Near-threatened
White-bellied Bustard	Eupodotis senegalensis	
MUSOPHAGIFORMES: Musophagidae		
Great Blue Turaco	Corythaeola cristata	
Western Grey Plantain-eater	Crinifer piscator	
Green Turaco	Tauraco persa	
Yellow-billed Turaco	Tauraco macrorhynchus	
Ross's Turaco	Tauraco rossae	
SPHENISCIFORMES: Spheniscidae		
Jackass Penguin	Spheniscus demersus	Rare/Accidental Endangered
PROCELLARIIFORMES: Oceanitidae		
Wilson's Storm-petrel	Oceanites oceanicus	
PROCELLARIIFORMES: Diomedeidae		
Wandering Albatross	Diomedea exulans	

Yellow-nosed Albatross	Thalassarche chlororhynchos	
PROCELLARIIFORMES: Hydrobatidae		
Madeiran Storm-petrel	Hydrobates castro	
PROCELLARIIFORMES: Procellariidae		
Southern Giant Petrel	Macronectes giganteus	
Sooty Shearwater	Ardenna grisea	Near-threatened
Great Shearwater	Ardenna gravis	Rare/Accidental
Little Shearwater	Puffinus assimilis	
PELECANIFORMES: Ciconiidae		
Marabou	Leptoptilos crumenifer	
Yellow-billed Stork	Mycteria ibis	
African Openbill	Anastomus lamelligerus	
Abdim's Stork	Ciconia abdimii	
Woolly-necked Stork	Ciconia episcopus	
European White Stork	Ciconia ciconia	
Saddle-bill Stork	Ephippiorhynchus senegalensis	
PELECANIFORMES: Pelecanidae		
Great White Pelican	Pelecanus onocrotalus	
Pink-backed Pelican	Pelecanus rufescens	
PELECANIFORMES: Scopidae		
Hamerkop	Scopus umbretta	
PELECANIFORMES: Ardeidae		
White-crested Tiger Heron	Tigriornis leucolopha	
Eurasian Bittern	Botaurus stellaris	Rare/Accidental
Little Bittern	Ixobrychus minutus	
Dwarf Bittern	Ixobrychus sturmii	Rare/Accidental
White-backed Night Heron	Gorsachius leuconotus	
Black-crowned Night Heron	Nycticorax nycticorax	
Striated Heron	Butorides striata	
Squacco Heron	Ardeola ralloides	
Cattle Egret	Bubulcus ibis	
Grey Heron	Ardea cinerea	
Black-headed Heron	Ardea melanocephala	
Goliath Heron	Ardea goliath	
Purple Heron	Ardea purpurea	
Great Egret	Ardea alba	

Intermediate Egret	Ardea intermedia	
Black Heron	Egretta ardesiaca	Rare/Accidental
Little Egret	Egretta garzetta	
Western Reef Egret	Egretta gularis	
PELECANIFORMES: Threskiornithidae		
African Sacred Ibis	Threskiornis aethiopicus	
African Spoonbill	Platalea alba	
Olive Ibis	Bostrychia olivacea	
Spot-breasted Ibis	Bostrychia rara	
Hadada Ibis	Bostrychia hagedash	
Glossy Ibis	Plegadis falcinellus	
PELECANIFORMES: Sulidae		
Cape Gannet	Morus capensis	Vulnerable
Brown Booby	Sula leucogaster	
PELECANIFORMES: Phalacrocoracidae		
Long-tailed Cormorant	Microcarbo africanus	
Great Cormorant	Phalacrocorax carbo	
Cape Cormorant	Phalacrocorax capensis	Rare/Accidental Endangered
PELECANIFORMES: Anhingidae		
African Darter	Anhinga rufa	
CHARADRIIFORMES: Burhinidae		
Water Thick-knee	Burhinus vermiculatus	
Spotted Thick-knee	Burhinus capensis	
CHARADRIIFORMES: Pluvianidae		
Egyptian Plover	Pluvianus aegyptius	
CHARADRIIFORMES: Haematopodidae		
Eurasian Oystercatcher	Haematopus ostralegus	
CHARADRIIFORMES: Recurvirostridae		
Pied Avocet	Recurvirostra avosetta	
Black-winged Stilt	Himantopus himantopus	
CHARADRIIFORMES: Charadriidae		
Grey Plover	Pluvialis squatarola	
Pacific Golden Plover	Pluvialis fulva	
Common Ringed Plover	Charadrius hiaticula	

Little Ringed Plover	Charadrius dubius	
Kittlitz's Plover	Charadrius pecuarius	
Three-banded Plover	Charadrius tricollaris	
Forbes's Plover	Charadrius forbesi	
White-fronted Plover	Charadrius marginatus	
Kentish Plover	Charadrius alexandrinus	
Lesser Sand Plover	Charadrius mongolus	Rare/Accidental
Greater Sand Plover	Charadrius leschenaultii	Rare/Accidental
Caspian Plover	Charadrius asiaticus	Rare/Accidental
White-headed Lapwing	Vanellus albiceps	
Senegal Lapwing	Vanellus lugubris	
African Wattled Lapwing	Vanellus senegallus	
Brown-chested Lapwing	Vanellus superciliosus	
CHARADRIIFORMES: Rostratulidae		
Greater Painted-snipe	Rostratula benghalensis	
CHARADRIIFORMES: Jacanidae		
African Jacana	Actophilornis africanus	
CHARADRIIFORMES: Scolopacidae		
Upland Sandpiper	Bartramia longicauda	Rare/Accidental
Whimbrel	Numenius phaeopus	
Eurasian Curlew	Numenius arquata	Near-threatened
Bar-tailed Godwit	Limosa lapponica	Near-threatened
Black-tailed Godwit	Limosa limosa	Rare/Accidental Near-threatened
Ruddy Turnstone	Arenaria interpres	
Red Knot	Calidris canutus	Near-threatened
Ruff	Calidris pugnax	
Broad-billed Sandpiper	Calidris falcinellus	Rare/Accidental
Curlew Sandpiper	Calidris ferruginea	Near-threatened
Long-toed Stint	Calidris subminuta	
Sanderling	Calidris alba	
Little Stint	Calidris minuta	
Buff-breasted Sandpiper	Calidris subruficollis	Rare/Accidental Near-threatened
Pectoral Sandpiper	Calidris melanotos	Rare/Accidental
Great Snipe	Gallinago media	Near-threatened
Common Snipe	Gallinago gallinago	
Terek Sandpiper	Xenus cinereus	Rare/Accidental
Common Sandpiper	Actitis hypoleucos	
Green Sandpiper	Tringa ochropus	

Spotted Redshank	Tringa erythropus	
Common Greenshank	Tringa nebularia	
Common Redshank	Tringa totanus	
Wood Sandpiper	Tringa glareola	
Marsh Sandpiper	Tringa stagnatilis	
CHARADRIIFORMES: Turnicidae		
Common Buttonquail	Turnix sylvaticus	
Black-rumped Buttonquail	Turnix hottentottus	
CHARADRIIFORMES: Glareolidae		
Bronze-winged Courser	Rhinoptilus chalcopterus	Rare/Accidental
Temminck's Courser	Cursorius temminckii	
Collared Pratincole	Glareola pratincola	
Black-winged Pratincole	Glareola nordmanni	Rare/Accidental Near-threatened
Rock Pratincole	Glareola nuchalis	
Grey Pratincole	Glareola cinerea	
CHARADRIIFORMES: Stercorariidae		
Long-tailed Skua	Stercorarius longicaudus	
Arctic Skua	Stercorarius parasiticus	
Pomarine Skua	Stercorarius pomarinus	
CHARADRIIFORMES: Laridae		
Brown Noddy	Anous stolidus	Rare/Accidental
Black Noddy	Anous minutus	Rare/Accidental
African Skimmer	Rynchops flavirostris	Near-threatened
Sabine's Gull	Xema sabini	
Black-headed Gull	Chroicocephalus ridibundus	Rare/Accidental
Little Gull	Hydrocoloeus minutus	Rare/Accidental
Audouin's Gull	Ichthyaetus audouinii	
Kelp Gull	Larus dominicanus	
Lesser Black-backed Gull	Larus fuscus	
Caspian Gull	Larus cachinnans	
Little Tern	Sternula albifrons	
Damara Tern	Sternula balaenarum	Vulnerable
Caspian Tern	Hydroprogne caspia	
White-winged Tern	Chlidonias leucopterus	
Black Tern	Chlidonias niger	
Common Tern	Sterna hirundo	
Arctic Tern	Sterna paradisaea	
Sandwich Tern	Thalasseus sandvicensis	

Royal Tern	Thalasseus maximus	
ACCIPITRIFORMES: Sagittariidae		
Secretary-bird	Sagittarius serpentarius	Vulnerable
ACCIPITRIFORMES: Pandionidae		
Osprey	Pandion haliaetus	
ACCIPITRIFORMES: Accipitridae		
Black-winged Kite	Elanus caeruleus	
Scissor-tailed Kite	Chelictinia riocourii	
European Honey Buzzard	Pernis apivorus	
Oriental Honey Buzzard	Pernis ptilorhynchus	Rare/Accidental
African Cuckoo Hawk	Aviceda cuculoides	
African Harrier Hawk	Polyboroides typus	
Palm-nut Vulture	Gypohierax angolensis	
Congo Serpent Eagle	Dryotriorchis spectabilis	
Bateleur	Terathopius ecaudatus	Near-threatened
Black-chested Snake Eagle	Circaetus pectoralis	Rare/Accidental
White-headed Vulture	Trigonoceps occipitalis	Critically endangered
White-backed Vulture	Gyps africanus	Critically endangered
Bat Hawk	Macheiramphus alcinus	
Crowned Eagle	Stephanoaetus coronatus	Near-threatened
Martial Eagle	Polemaetus bellicosus	Vulnerable
Long-crested Eagle	Lophaetus occipitalis	
Lesser Spotted Eagle	Clanga pomarina	
Tawny Eagle	Aquila rapax	
Steppe Eagle	Aquila nipalensis	Endangered
African Hawk Eagle	Aquila spilogaster	
Cassin's Hawk Eagle	Aquila africana	
Wahlberg's Eagle	Hieraaetus wahlbergi	Rare/Accidental
Ayres's Eagle	Hieraaetus ayresii	
Lizard Buzzard	Kaupifalco monogrammicus	
Dark Chanting Goshawk	Melierax metabates	Rare/Accidental
Gabar Goshawk	Micronisus gabar	
Western Marsh Harrier	Circus aeruginosus	
African Marsh Harrier	Circus ranivorus	
African Goshawk	Accipiter tachiro	
Chestnut-flanked Sparrowhawk	Accipiter castanilius	
Shikra	Accipiter badius	
Red-thighed Sparrowhawk	Accipiter erythropus	

Little Sparrowhawk	Accipiter minullus	
Black Sparrowhawk	Accipiter melanoleucus	
Long-tailed Hawk	Urotriorchis macrourus	
African Fish Eagle	Haliaeetus vocifer	
Black Kite	Milvus migrans	
Red-necked Buzzard	Buteo auguralis	
Eurasian Buzzard	Buteo buteo	
STRIGIFORMES: Tytonidae		
African Grass Owl	Tyto capensis	
Common Barn Owl	Tyto alba	
STRIGIFORMES: Strigidae		
Pearl-spotted Owlet	Glaucidium perlatum	
Red-chested Owlet	Glaucidium tephronotum	
Sjöstedt's Owlet	Glaucidium sjostedti	
Sandy Scops Owl	Otus icterorhynchus	
African Scops Owl	Otus senegalensis	
Northern White-faced Owl	Ptilopsis leucotis	
Southern White-faced Owl	Ptilopsis granti	
Marsh Owl	Asio capensis	
African Wood Owl	Strix woodfordii	
Maned Owl	Jubula lettii	Data deficient
Spotted Eagle Owl	Bubo africanus	
Fraser's Eagle Owl	Bubo poensis	
Verreaux's Eagle Owl	Bubo lacteus	
Shelley's Eagle Owl	Bubo shelleyi	Near-threatened
Akun Eagle Owl	Bubo leucostictus	
Pel's Fishing Owl	Scotopelia peli	
Vermiculated Fishing Owl	Scotopelia bouvieri	
COLIIFORMES: Coliidae		
Speckled Mousebird	Colius striatus	
Red-backed Mousebird	Colius castanotus	
TROGONIFORMES: Trogonidae		
Narina's Trogon	Apaloderma narina	
Bare-cheeked Trogon	Apaloderma aequatoriale	
BUCEROTIFORMES: Bucerotidae		
African Pied Hornbill	Tockus fasciatus	
African Grey Hornbill	Tockus nasutus	

Black Dwarf Hornbill	Tockus hartlaubi	
Red-billed Dwarf Hornbill	Tockus camurus	
Long-tailed Hornbill	Tropicranus albocristatus	
Black-casqued Hornbill	Ceratogymna atrata	
Piping Hornbill	Bycanistes fistulator	
White-thighed Hornbill	Bycanistes albotibialis	
Brown-cheeked Hornbill	Bycanistes cylindricus	Vulnerable
Grey-cheeked Hornbill	Bycanistes subcylindricus	
BUCEROTIFORMES: Upupidae		
Common Hoopoe	Upupa epops	
BUCEROTIFORMES: Phoeniculidae		
Forest Wood-hoopoe	Phoeniculus castaneiceps	
Common Scimitarbill	Rhinopomastus cyanomelas	
PICIFORMES: Indicatoridae		
Cassin's Honeybird	Prodotiscus insignis	
Zenker's Honeyguide	Melignomon zenkeri	
Willcocks's Honeyguide	Indicator willcocksi	
Least Honeyguide	Indicator exilis	
Lesser Honeyguide	Indicator minor	
Spotted Honeyguide	Indicator maculatus	
Greater Honeyguide	Indicator indicator	Rare/Accidental
Lyre-tailed Honeyguide	Melichneutes robustus	
PICIFORMES: Picidae		
Rufous-breasted Wryneck	Jynx ruficollis	
African Piculet	Verreauxia africana	
Green-backed Woodpecker	Campethera cailliautii	
Buff-spotted Woodpecker	Campethera nivosa	
Brown-eared Woodpecker	Campethera caroli	
Cardinal Woodpecker	Dendropicos fuscescens	
Gabon Woodpecker	Dendropicos gabonensis	
Yellow-crested Woodpecker	Chloropicus xantholophus	
Elliot's Woodpecker	Mesopicos elliotii	
Grey Woodpecker	Mesopicos goertae	
PICIFORMES: Ramphastidae		
Yellow-breasted Barbet	Trachyphonus margaritatus	
Yellow-spotted Barbet	Buccanodon duchaillui	
Grey-throated Barbet	Gymnobucco bonapartei	

Bristle-nosed Barbet	Gymnobucco peli	
Naked-faced Barbet	Gymnobucco calvus	
Speckled Tinkerbird	Pogoniulus scolopaceus	
Red-rumped Tinkerbird	Pogoniulus atroflavus	
Yellow-throated Tinkerbird	Pogoniulus subsulphureus	
Yellow-rumped Tinkerbird	Pogoniulus bilineatus	
Hairy-breasted Barbet	Tricholaema hirsuta	
Black-backed Barbet	Pogonornis minor	
Double-toothed Barbet	Pogonornis bidentatus	
Yellow-billed Barbet	Trachylaemus purpuratus	
CORACIIFORMES: Meropidae		
White-fronted Bee-eater	Merops bullockoides	
Black-headed Bee-eater	Merops breweri	
White-throated Bee-eater	Merops albicollis	
Rosy Bee-eater	Merops malimbicus	
Blue-cheeked Bee-eater	Merops persicus	
European Bee-eater	Merops apiaster	
Swallow-tailed Bee-eater	Merops hirundineus	
Blue-breasted Bee-eater	Merops variegatus	
Little Bee-eater	Merops pusillus	
Black Bee-eater	Merops gularis	
Blue-headed Bee-eater	Merops muelleri	
CORACIIFORMES: Coraciidae		
Racquet-tailed Roller	Coracias spatulatus	
Lilac-breasted Roller	Coracias caudatus	
European Roller	Coracias garrulus	
Blue-throated Roller	Eurystomus gularis	
Broad-billed Roller	Eurystomus glaucurus	
CORACIIFORMES: Alcedinidae		
African Dwarf Kingfisher	Ispidina lecontei	
African Pygmy Kingfisher	Ispidina picta	
White-bellied Kingfisher	Corythornis leucogaster	
African Malachite Kingfisher	Corythornis cristatus	
Shining-blue Kingfisher	Alcedo quadribrachys	
Giant Kingfisher	Megaceryle maxima	
Pied Kingfisher	Ceryle rudis	
Chocolate-backed Kingfisher	Halcyon badia	
Grey-headed Kingfisher	Halcyon leucocephala	

Brown-hooded Kingfisher	Halcyon albiventris	
Striped Kingfisher	Halcyon chelicuti	
Blue-breasted Kingfisher	Halcyon malimbica	
Woodland Kingfisher	Halcyon senegalensis	
FALCONIFORMES: Falconidae		
Lesser Kestrel	Falco naumanni	
Common Kestrel	Falco tinnunculus	
Grey Kestrel	Falco ardosiaceus	
Red-footed Falcon	Falco vespertinus	Rare/Accidental Near-threatened
Amur Falcon	Falco amurensis	Rare/Accidental
Eleonora's Falcon	Falco eleonorae	
Eurasian Hobby	Falco subbuteo	
African Hobby	Falco cuvierii	
Lanner Falcon	Falco biarmicus	Rare/Accidental
Peregrine Falcon	Falco peregrinus	
PSITTACIFORMES: Psittacidae		
Grey Parrot	Psittacus erithacus	
Red-fronted Parrot	Poicephalus gulielmi	
PSITTACIFORMES: Psittaculidae		
Red-headed Lovebird	Agapornis pullarius	
Black-collared Lovebird	Agapornis swindernianus	
PASSERIFORMES: Pittidae		
African Pitta	Pitta angolensis	
PASSERIFORMES: Calyptomenidae		
African Broadbill	Smithornis capensis	
Grey-headed Broadbill	Smithornis sharpei	
Rufous-sided Broadbill	Smithornis rufolateralis	
PASSERIFORMES: Campephagidae		
Petit's Cuckooshrike	Campephaga petiti	
Red-shouldered Cuckooshrike	Campephaga phoenicea	
Purple-throated Cuckooshrike	Campephaga quiscalina	
Western Wattled Cuckooshrike	Lobotos lobatus	Vulnerable
Eastern Wattled Cuckooshrike	Lobotos oriolinus	Data deficient
Blue Cuckooshrike	Cyanograucalus azureus	
PASSERIFORMES: Oriolidae		

Western Black-headed Oriole	Oriolus brachyrynchus	
Black-winged Oriole	Oriolus nigripennis	
Eurasian Golden Oriole	Oriolus oriolus	Rare/Accidental
African Golden Oriole	Oriolus auratus	
PASSERIFORMES: Platysteiridae		
Chinspot Batis	Batis molitor	
Von Erlanger's Batis	Batis erlangeri	
Angola Batis	Batis minulla	
Verreaux's Batis	Batis minima	Near-threatened
Bioko Batis	Batis poensis	
Chestnut Wattle-eye	Dyaphorophyia castanea	
White-spotted Wattle-eye	Dyaphorophyia tonsa	
Reichenow's Wattle-eye	Dyaphorophyia chalybea	
Yellow-bellied Wattle-eye	Dyaphorophyia concreta	
Brown-throated Wattle-eye	Platysteira cyanea	
PASSERIFORMES: Vangidae		
Red-billed Helmet-shrike	Prionops caniceps	
Red-eyed Shrike-flycatcher	Megabyas flammulatus	
Black-and-white Shrike-flycatcher	Bias musicus	
PASSERIFORMES: Malaconotidae		
Fiery-breasted Bush-shrike	Malaconotus cruentus	
Sabine's Puffback	Dryoscopus sabini	
Pink-footed Puffback	Dryoscopus angolensis	
Red-eyed Puffback	Dryoscopus senegalensis	
Northern Puffback	Dryoscopus gambensis	
Blackcap Bush-shrike	Bocagia minuta	
Brown-crowned Tchagra	Tchagra australis	
Black-crowned Tchagra	Tchagra senegalus	
Brubru	Nilaus afer	
Many-coloured Bush-shrike	Chlorophoneus multicolor	
Grey-green Bush-shrike	Chlorophoneus bocagei	
Lowland Sooty Boubou	Laniarius leucorhynchus	
Lühder's Bush-shrike	Laniarius luehderi	
Swamp Boubou	Laniarius bicolor	
Gorgeous Bush-shrike	Telophorus viridis	
PASSERIFORMES: Dicruridae		
Square-tailed Drongo	Dicrurus ludwigii	
Shining Drongo	Dicrurus atripennis	

Fork-tailed Drongo	Dicrurus adsimilis	
Velvet-mantled Drongo	Dicrurus modestus	
PASSERIFORMES: Laniidae		
Souza's Shrike	Lanius souzae	
Red-backed Shrike	Lanius collurio	
Turkestan Shrike	Lanius phoenicuroides	
Isabelline Shrike	Lanius isabellinus	Rare/Accidental
Mackinnon's Shrike	Lanius mackinnoni	
Lesser Grey Shrike	Lanius minor	
Northern Fiscal	Lanius humeralis	
Woodchat Shrike	Lanius senator	Rare/Accidental
PASSERIFORMES: Corvidae		
Pied Crow	Corvus albus	
PASSERIFORMES: Monarchidae		
Blue-headed Paradise-flycatcher	Trochocercus nitens	
African Paradise-flycatcher	Terpsiphone viridis	
Rufous-vented Paradise-flycatcher	Terpsiphone rufocinerea	
Bates's Paradise-flycatcher	Terpsiphone batesi	
Red-bellied Paradise-flycatcher	Terpsiphone rufiventer	
PASSERIFORMES: Eupetidae		
Grey-necked Rockfowl	Picathartes oreas	Vulnerable
PASSERIFORMES: Nectariniidae		
Fraser's Sunbird	Deleornis fraseri	
Brown Sunbird	Anthreptes gabonicus	
Western Violet-backed Sunbird	Anthreptes longuemarei	
Violet-tailed Sunbird	Anthreptes aurantius	
Little Green Sunbird	Anthreptes seimundi	
Grey-chinned Sunbird	Anthreptes rectirostris	
Collared Sunbird	Hedydipna collaris	
Reichenbach's Sunbird	Anabathmis reichenbachii	
Green-headed Sunbird	Cyanomitra verticalis	
Blue-throated Brown Sunbird	Cyanomitra cyanolaema	
Cameroon Sunbird	Cyanomitra oritis	
Olive Sunbird	Cyanomitra olivacea	
Carmelite Sunbird	Chalcomitra fuliginosa	
Green-throated Sunbird	Chalcomitra rubescens	
Amethyst Sunbird	Chalcomitra amethystina	

Olive-bellied Sunbird	Cinnyris chloropygius	
Tiny Sunbird	Cinnyris minullus	
Northern Double-collared Sunbird	Cinnyris reichenowi	
Congo Sunbird	Cinnyris congensis	
Purple-banded Sunbird	Cinnyris bifasciatus	
Orange-tufted Sunbird	Cinnyris bouvieri	
Splendid Sunbird	Cinnyris coccinigastrus	
Johanna's Sunbird	Cinnyris johannae	
Superb Sunbird	Cinnyris superbus	
Variable Sunbird	Cinnyris venustus	
Bates's Sunbird	Cinnyris batesi	
Copper Sunbird	Cinnyris cupreus	
PASSERIFORMES: Ploceidae		
Grosbeak Weaver	Amblyospiza albifrons	
Red-headed Quelea	Quelea erythrops	
Red-billed Quelea	Quelea quelea	
Yellow-crowned Bishop	Euplectes afer	
Red-collared Widowbird	Euplectes ardens	
Black-winged Bishop	Euplectes hordeaceus	
Yellow-mantled Widowbird	Euplectes macroura	
Fan-tailed Widowbird	Euplectes axillaris	
White-winged Widowbird	Euplectes albonotatus	
Hartlaub's Widowbird	Euplectes hartlaubi	
Bob-tailed Weaver	Brachycope anomala	
Black-chinned Weaver	Ploceus nigrimentus	
Slender-billed Weaver	Ploceus pelzelni	
Loango Weaver	Ploceus subpersonatus	Vulnerable
Spectacled Weaver	Ploceus ocularis	
Black-necked Weaver	Ploceus nigricollis	
Holub's Weaver	Ploceus xanthops	
Orange Weaver	Ploceus aurantius	
Heuglin's Masked Weaver	Ploceus heuglini	
Lesser Masked Weaver	Ploceus intermedius	
Village Weaver	Ploceus cucullatus	
Vieillot's Weaver	Ploceus nigerrimus	
Black-headed Weaver	Ploceus melanocephalus	
Yellow-mantled Weaver	Ploceus tricolor	
Maxwell's Weaver	Ploceus albinucha	
Compact Weaver	Ploceus superciliosus	
Dark-backed Weaver	Ploceus bicolor	

Preuss's Weaver	Ploceus preussi	
Yellow-capped Weaver	Ploceus dorsomaculatus	
Red-crowned Malimbe	Malimbus coronatus	
Black-throated Malimbe	Malimbus cassini	
Rachel's Malimbe	Malimbus racheliae	
Blue-billed Malimbe	Malimbus nitens	
Red-headed Malimbe	Malimbus rubricollis	
Red-bellied Malimbe	Malimbus erythrogaster	
Crested Malimbe	Malimbus malimbicus	
PASSERIFORMES: Estrildidae		
African Firefinch	Lagonosticta rubricata	
Brown Twinspot	Clytospiza monteiri	
Orange-winged Pytilia	Pytilia afra	
Green-winged Pytilia	Pytilia melba	
Blue-breasted Cordon-bleu	Uraeginthus angolensis	
Western Bluebill	Spermophaga haematina	
Black-bellied Seedcracker	Pyrenestes ostrinus	
Crimson Seedcracker	Pyrenestes sanguineus	
Grey Waxbill	Estrilda perreini	
Fawn-breasted Waxbill	Estrilda paludicola	
Orange-cheeked Waxbill	Estrilda melpoda	
Common Waxbill	Estrilda astrild	
Black-crowned Waxbill	Estrilda nonnula	
Black-headed Waxbill	Estrilda atricapilla	
Green-backed Twinspot	Mandingoa nitidula	
White-breasted Negrofinch	Nigrita fusconotus	
Chestnut-breasted Negrofinch	Nigrita bicolor	
Pale-fronted Negrofinch	Nigrita luteifrons	
Grey-headed Negrofinch	Nigrita canicapillus	
Woodhouse's Antpecker	Parmoptila woodhousei	
Black-chinned Quailfinch	Ortygospiza gabonensis	
Zebra Waxbill	Amandava subflava	
Bronze Mannikin	Spermestes cucullata	
Black-and-white Mannikin	Spermestes bicolor	
Magpie Mannikin	Spermestes fringilloides	
PASSERIFORMES: Viduidae		
Pin-tailed Whydah	Vidua macroura	
Wilson's Indigobird	Vidua wilsoni	

PASSERIFORMES: Passeridae		
Northern Grey-headed Sparrow	Passer griseus	
Yellow-throated Bush Sparrow	Gymnoris superciliaris	
PASSERIFORMES: Motacillidae		
Short-tailed Pipit	Anthus brachyurus	
Tree Pipit	Anthus trivialis	
Red-throated Pipit	Anthus cervinus	Rare/Accidental
Woodland Pipit	Anthus nyassae	
Plain-backed Pipit	Anthus leucophrys	Rare/Accidental
Tawny Pipit	Anthus campestris	
African Pipit	Anthus cinnamomeus	
Long-billed Pipit	Anthus similis	
Long-legged Pipit	Anthus pallidiventris	
Yellow-throated Longclaw	Macronyx croceus	
Mountain Wagtail	Motacilla clara	
African Wagtail	Motacilla aguimp	
White Wagtail	Motacilla alba	
PASSERIFORMES: Fringillidae		
Black-faced Canary	Crithagra capistrata	
Black-throated Canary	Crithagra atrogularis	
Yellow-fronted Canary	Crithagra mozambica	
PASSERIFORMES: Emberizidae		
Cabanis's Bunting	Fringillaria cabanisi	
Golden-breasted Bunting	Fringillaria flaviventris	
Cinnamon-breasted Bunting	Fringillaria tahapisi	
PASSERIFORMES: Hyliotidae		
Yellow-bellied Hyliota	Hyliota flavigaster	
Violet-backed Hyliota	Hyliota violacea	
PASSERIFORMES: Stenostiridae		
Dusky Crested-flycatcher	Elminia nigromitrata	
Blue Crested-flycatcher	Elminia longicauda	
PASSERIFORMES: Paridae		
Rufous-bellied Tit	Melaniparus rufiventris	
Northern Black Tit	Melaniparus leucomelas	
White-shouldered Black Tit	Melaniparus guineensis	
Dusky Tit	Melaniparus funereus	

PASSERIFORMES: Remizidae		
Forest Penduline Tit	Anthoscopus flavifrons	
Grey Penduline Tit	Anthoscopus caroli	
PASSERIFORMES: Nicatoridae		
Western Nicator	Nicator chloris	
Yellow-throated Nicator	Nicator vireo	
PASSERIFORMES: Alaudidae		
Rufous-naped Lark	Mirafra africana	
Flappet Lark	Mirafra rufocinnamomea	
Red-capped Lark	Calandrella cinerea	
PASSERIFORMES: Macrosphenidae		
Red-capped Crombec	Sylvietta ruficapilla	
Green Crombec	Sylvietta virens	
Lemon-bellied Crombec	Sylvietta denti	
Moustached Grass Warbler	Melocichla mentalis	
Yellow Longbill	Macrosphenus flavicans	
Grey Longbill	Macrosphenus concolor	
PASSERIFORMES: Cisticolidae		
Yellow-bellied Eremomela	Eremomela icteropygialis	
Green-capped Eremomela	Eremomela scotops	
Rufous-crowned Eremomela	Eremomela badiceps	
White-chinned Prinia	Schistolais leucopogon	
Yellow-breasted Apalis	Apalis flavida	
Masked Apalis	Apalis binotata	
Black-throated Apalis	Apalis jacksoni	
Black-capped Apalis	Apalis nigriceps	
Buff-throated Apalis	Apalis rufogularis	
Gosling's Apalis	Apalis goslingi	
Grey Apalis	Apalis cinerea	
Grey-backed Camaroptera	Camaroptera brachyura	
Yellow-browed Camaroptera	Camaroptera superciliaris	
Olive-green Camaroptera	Camaroptera chloronota	
Oriole Warbler	Hypergerus atriceps	
Red-faced Cisticola	Cisticola erythrops	
Singing Cisticola	Cisticola cantans	
Whistling Cisticola	Cisticola lateralis	
Chattering Cisticola	Cisticola anonymus	

Tinkling Cisticola	Cisticola rufilatus	
Winding Cisticola	Cisticola galactotes	
Stout Cisticola	Cisticola robustus	
Croaking Cisticola	Cisticola natalensis	
Short-winged Cisticola	Cisticola brachypterus	
Piping Cisticola	Cisticola fulvicapilla	
Zitting Cisticola	Cisticola juncidis	
Black-backed Cisticola	Cisticola eximius	
Dambo Cisticola	Cisticola dambo	
Pectoral-patch Cisticola	Cisticola brunnescens	
Pale-crowned Cisticola	Cisticola cinnamomeus	
Wing-snapping Cisticola	Cisticola ayresii	
Black-faced Rufous Warbler	Bathmocercus rufus	
Tawny-flanked Prinia	Prinia subflava	
Banded Prinia	Prinia bairdii	
PASSERIFORMES: Locustellidae		
Fan-tailed Grassbird	Schoenicola brevirostris	
Dja River Warbler	Bradypterus grandis	Near-threatened
PASSERIFORMES: Acrocephalidae		
Dark-capped Yellow Warbler	Iduna natalensis	
Icterine Warbler	Hippolais icterina	
Sedge Warbler	Acrocephalus schoenobaenus	
Common Reed Warbler	Acrocephalus scirpaceus	
Greater Swamp Warbler	Acrocephalus rufescens	
Great Reed Warbler	Acrocephalus arundinaceus	
PASSERIFORMES: Hirundinidae		
African River Martin	Pseudochelidon eurystomina	Data deficient
Grey-rumped Swallow	Pseudhirundo griseopyga	
Square-tailed Saw-wing	Psalidoprocne nitens	
Black Saw-wing	Psalidoprocne pristoptera	
Northern House Martin	Delichon urbicum	
Red-throated Swallow	Petrochelidon rufigula	
Preuss's Swallow	Petrochelidon preussi	
South African Swallow	Petrochelidon spilodera	Rare/Accidental
Forest Swallow	Petrochelidon fuliginosa	
Lesser Striped Swallow	Cecropis abyssinica	
Rufous-chested Swallow	Cecropis semirufa	
Mosque Swallow	Cecropis senegalensis	

Greater Striped Swallow	Cecropis cucullata	
Red-rumped Swallow	Cecropis daurica	
White-throated Swallow	Hirundo albigularis	
Wire-tailed Swallow	Hirundo smithii	
White-bibbed Swallow	Hirundo nigrita	
Barn Swallow	Hirundo rustica	
Angolan Swallow	Hirundo angolensis	
Red-chested Swallow	Hirundo lucida	
Rock Martin	Ptyonoprogne fuligula	
Banded Martin	Neophedina cincta	
Brazza's Martin	Phedinopsis brazzae	
Plain Martin	Riparia paludicola	
Congo Martin	Riparia congica	
Sand Martin	Riparia riparia	
PASSERIFORMES: Pycnonotidae		
Slender-billed Greenbul	Stelgidillas gracilirostris	
Golden Greenbul	Calyptocichla serinus	
Black-collared Bulbul	Neolestes torquatus	
Red-tailed Bristlebill	Bleda syndactylus	
Lesser Bristlebill	Bleda notatus	
Yellow-throated Greenbul	Atimastillas flavicollis	
Spotted Greenbul	Ixonotus guttatus	
Swamp Palm Bulbul	Thescelocichla leucopleura	
Honeyguide Greenbul	Baeopogon indicator	
Sjöstedt's Greenbul	Baeopogon clamans	
Yellow-necked Greenbul	Chlorocichla falkensteini	
Simple Greenbul	Chlorocichla simplex	
Yellow-whiskered Greenbul	Eurillas latirostris	
Little Greenbul	Eurillas virens	
Grey Greenbul	Eurillas gracilis	
Ansorge's Greenbul	Eurillas ansorgei	
Plain Greenbul	Eurillas curvirostris	
Eastern Bearded Greenbul	Criniger chloronotus	
Red-tailed Greenbul	Criniger calurus	
Yellow-bearded Greenbul	Criniger olivaceus	Vulnerable
White-bearded Greenbul	Criniger ndussumensis	
Xavier's Greenbul	Phyllastrephus xavieri	
Icterine Greenbul	Phyllastrephus icterinus	
White-throated Greenbul	Phyllastrephus albigularis	
Pale-olive Greenbul	Phyllastrephus fulviventris	

Leaf-love	Phyllastrephus scandens	
Common Bulbul	Pycnonotus barbatus	
PASSERIFORMES: Phylloscopidae		
Western Bonelli's Warbler	Rhadina bonelli	Rare/Accidental
Wood Warbler	Rhadina sibilatrix	
Willow Warbler	Phylloscopus trochilus	
Uganda Woodland Warbler	Seicercus budongoensis	
PASSERIFORMES: Scotocercidae		
Chestnut-capped Flycatcher Warbler	Erythrocercus mccallii	
Green Hylia	Hylia prasina	
Tit Hylia	Pholidornis rushiae	
PASSERIFORMES: Sylviidae		
Garden Warbler	Sylvia borin	
Common Whitethroat	Curruca communis	Rare/Accidental
PASSERIFORMES: Zosteropidae		
African Yellow White-eye	Zosterops senegalensis	
PASSERIFORMES: Pellorneidae		
Brown Thrush Babbler	Illadopsis fulvescens	
Pale-breasted Thrush Babbler	Illadopsis rufipennis	
Black-capped Thrush Babbler	Illadopsis cleaveri	
PASSERIFORMES: Leiothrichidae		
Blackcap Babbler	Turdoides reinwardtii	
Brown Babbler	Turdoides plebejus	
Arrow-marked Babbler	Turdoides jardineii	
PASSERIFORMES: Buphagidae		
Yellow-billed Oxpecker	Buphagus africanus	
PASSERIFORMES: Sturnidae		
Wattled Starling	Creatophora cinerea	
Chestnut-winged Starling	Onychognathus fulgidus	
White-collared Starling	Grafisia torquata	
Narrow-tailed Starling	Poeoptera lugubris	
Splendid Glossy Starling	Lamprotornis splendidus	
Purple Starling	Lamprotornis purpureus	
Amethyst Starling	Cinnyricinclus leucogaster	
Purple-headed Starling	Hylopsar purpureiceps	

PASSERIFORMES: Muscicapidae		
White-tailed Alethe	Alethe diademata	
Fire-crested Alethe	Alethe castanea	
White-browed Scrub Robin	Cercotrichas leucophrys	
Spotted Flycatcher	Muscicapa striata	
Ashy Flycatcher	Muscicapa caerulescens	
Cassin's Flycatcher	Muscicapa cassini	
Olivaceous Flycatcher	Muscicapa olivascens	
Little Grey Flycatcher	Muscicapa epulata	
Yellow-footed Flycatcher	Muscicapa sethsmithi	
Dusky-blue Flycatcher	Muscicapa comitata	
Tessmann's Flycatcher	Muscicapa tessmanni	Data deficient
Sooty Flycatcher	Muscicapa infuscata	
Grey-throated Tit Flycatcher	Myioparus griseigularis	
Grey Tit Flycatcher	Myioparus plumbeus	
Fraser's Forest Flycatcher	Fraseria ocreata	
White-browed Forest Flycatcher	Fraseria cinerascens	
Pale Flycatcher	Bradornis pallidus	
Northern Black Flycatcher	Melaenornis edolioides	
White-browed Robin Chat	Cossypha heuglini	
Snowy-crowned Robin Chat	Cossypha niveicapilla	
Red-capped Robin Chat	Cossypha natalensis	
Blue-shouldered Robin Chat	Cossypha cyanocampter	
Brown-chested Alethe	Chamaetylas poliocephala	
Red-tailed Palm Thrush	Cichladusa ruficauda	
Lowland Akalat	Sheppardia cyornithopsis	
Forest Robin	Stiphrornis erythrothorax	
European Pied Flycatcher	Ficedula hypoleuca	
Whinchat	Saxicola rubetra	
African Stonechat	Saxicola torquatus	
Sooty Chat	Myrmecocichla nigra	
Congo Moor Chat	Myrmecocichla tholloni	
Northern Wheatear	Oenanthe oenanthe	Rare/Accidental
Familiar Chat	Oenanthe familiaris	
PASSERIFORMES: Turdidae		
Red-tailed Ant Thrush	Neocossyphus rufus	
White-tailed Ant Thrush	Neocossyphus poensis	
Rufous Flycatcher Thrush	Stizorhina fraseri	
Crossley's Thrush	Geokichla crossleyi	Near-threatened

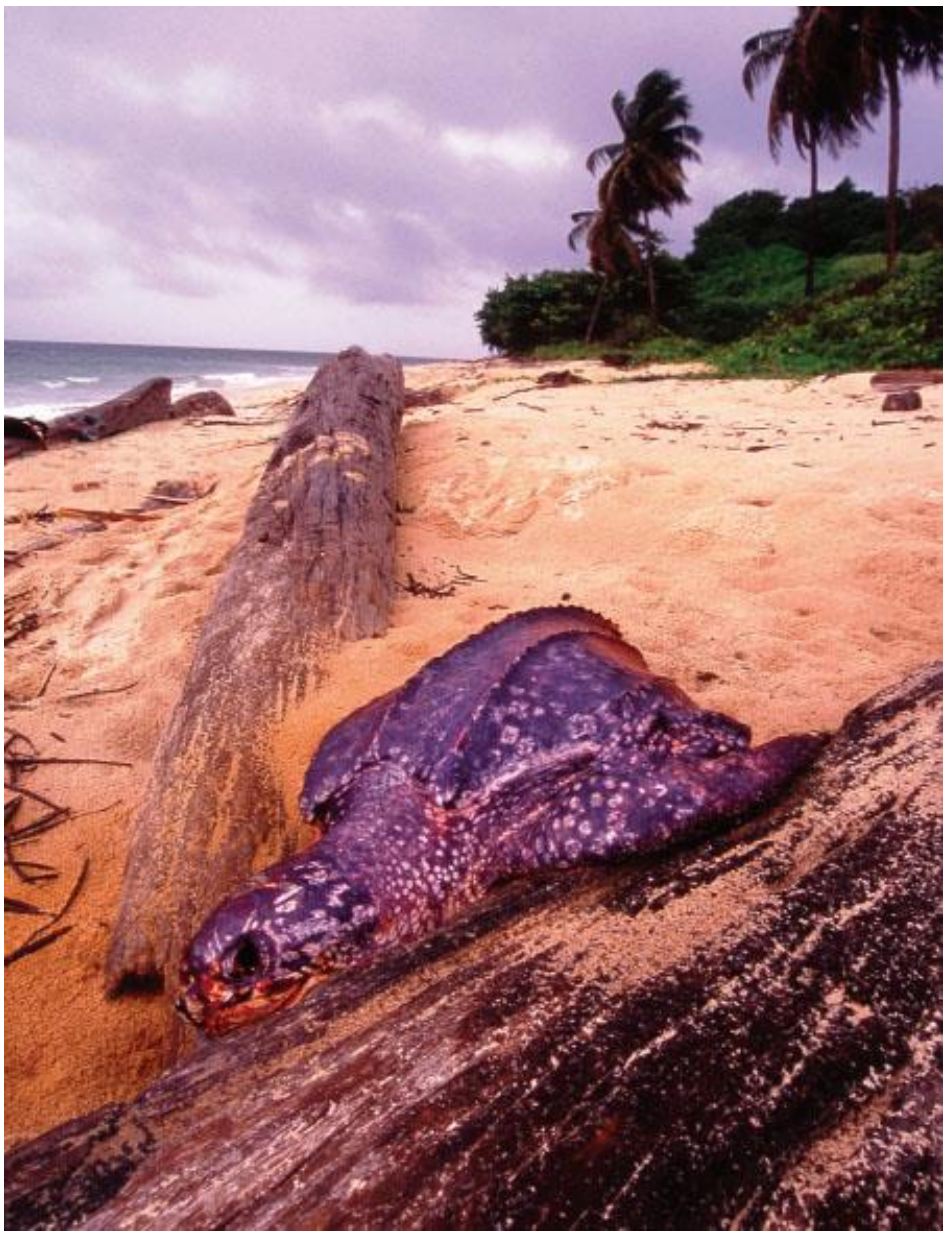
Black-eared Thrush	Geokichla camaronensis	
Grey Thrush	Geokichla princei	
African Thrush	Turdus pelios	

Source: Avibase, the world bird database
http://avibase.bsc-eoc.org/checklist.jsp?region=ga&list=howardmoore

APPENDIX N

LEATHERBACK TURTLE AT PONGARA BEACH

A female leatherback turtle trapped by beached logs at Pongara beach. the turtle's eyes were removed by ghost crabs.

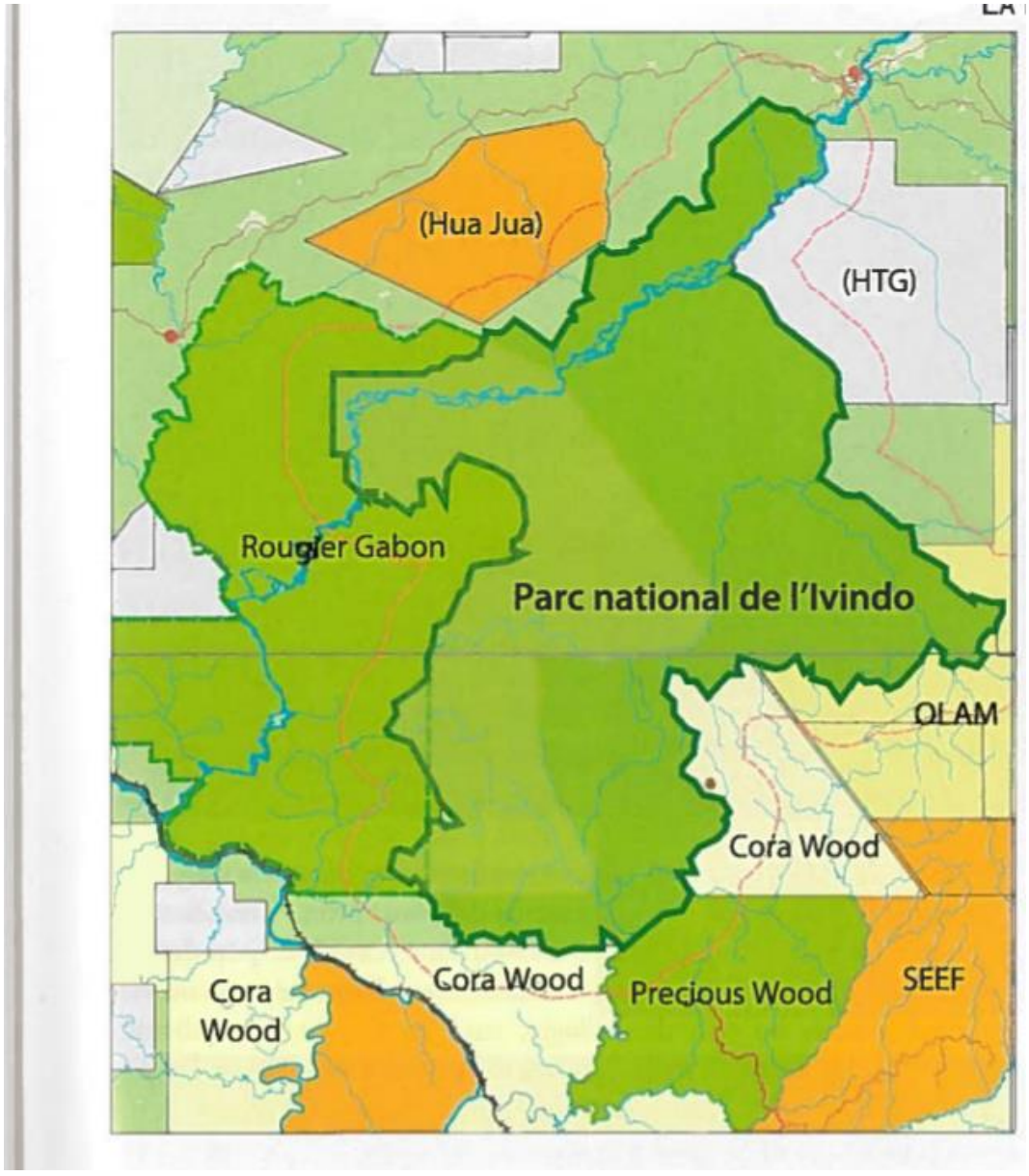


Source: Laurence et al., 2008

APPENDIX O

FOREST CONCESSIONS IN IVINDO NATIONAL PARK

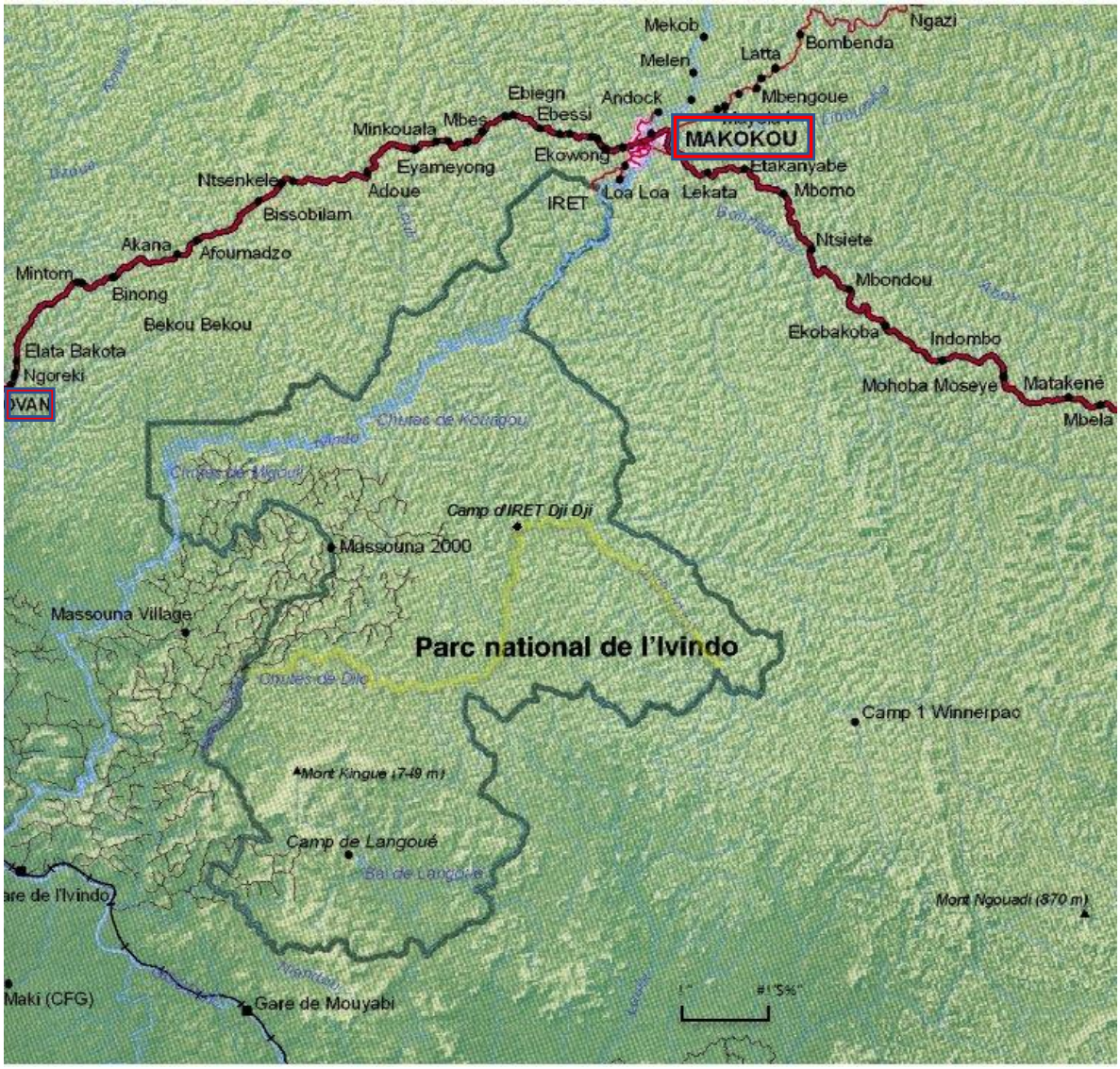
forest concessions of Rougier Gabon and other companies such as Cora Wood, Precious Wood, Olam, and HTG around Invindo National Park



Source: Weghe (2013). *Invindo et Mwagna*. P. 47

APPENDIX P

OVAN-MAKOKOU ROAD



Map of the road between Ovan and Makokou (~90 kilometers)

Source :
http://www.otterspecialistgroup.org/Bulletin/Volume28B/Davenport_et_al_2011.html

Road Ovan-Makokou cut through the dense tropical forest and destroyed wildlife habitat

Source : Sandy Avomo Ndong, field work 2016

APPENDIX Q

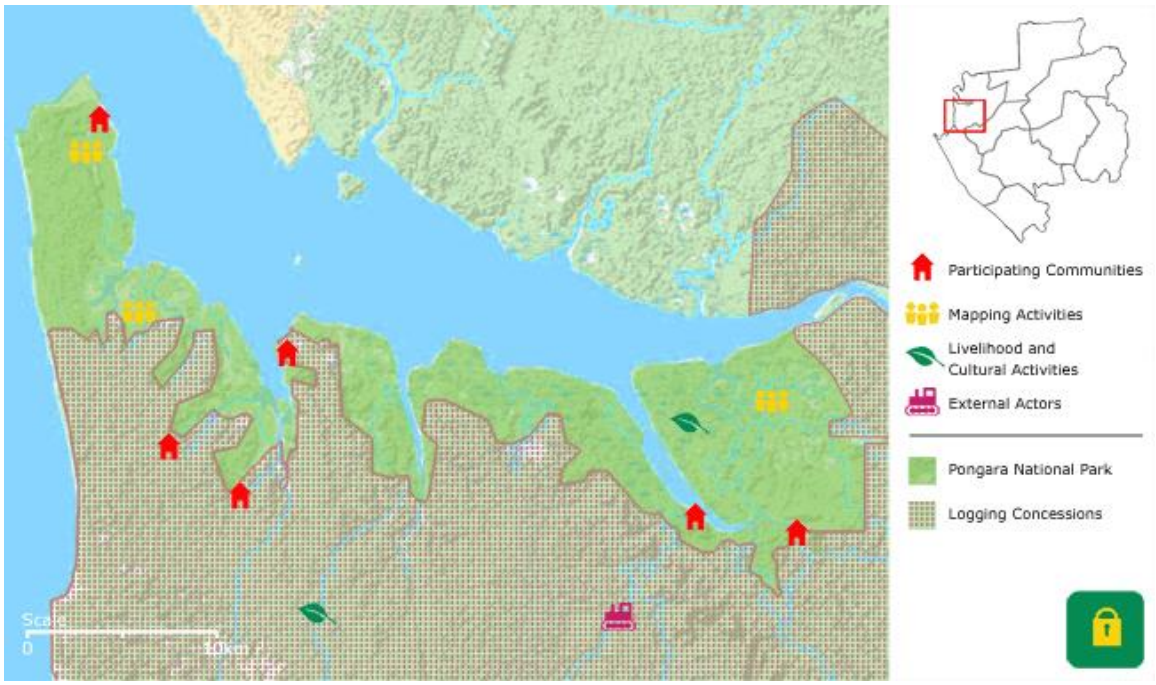
ELEPHANTS CROP-RAIDING IN GABON

Source: https://janegoodallcanadablog.wordpress.com/2013/08/01/crop-raiding-a-conservation-catastrophe/
http://www.thehindu.com/news/cities/Coimbatore/elephant-herd-destroys-banana-crops/article2876312.ece
Saving Gabon's Forest Elephants. (2017, May 5). Retrieved August 29, 2017, from https://nationalzoo.si.edu/ccs/news/saving-gabons-forest-elephants

APPENDIX R

MAP OF VILLAGES IN PONGARA NATIONAL PARK

Villages and livelihood areas around Pongara National Park



Pongara National Park, covering an area of 929 square kilometers, is located in the Estuaire Province in the West of Gabon, at its nearest point only 20km across the peninsula from Libreville. Despite its proximity to the capital, Pongara contains important humid forest coastal eco-systems and, along with nearby Akanda National Park, comprises 25% of the total conserved mangrove in the African continent. As well as important populations of chimpanzees and hippopotami, the area is also abundant with marine life such as the critically endangered Leatherback sea turtle. Threats to the Park include poaching, illegal exploitation of the mangroves (used for smoking fish), industrial scale fishing off the coast and logging to the south.

Pongara is not only characterized by an abundance of fauna and flora but by the diversity of its human inhabitants. Ethnic groups such as the Fang, Npongwé, Punu, Vungu, Giza and Bahumbu, as well as immigrant communities from Equatorial Guinea and Nigeria, are all to be found in the nine villages which fall within the boundaries of Pongara National Park (specifically, the villages of Pointe-Dénis, Matek-Mavi, Oveng, Alarmeke, Chinchoua, Mvan Ayong, Atonda Simba, Bissobinam and Odoko). Historically, the area is associated with the indigenous Akoa although it is unclear to what extent they have been assimilated. The area also boasts a royal lineage with a Princess Akombiet, granddaughter to the King Dénis Rapotchombo and guardian of the traditions of Point

Dénis. Pongara is home to a number of sacred sites and is a place of spiritual importance for local people and inhabitants of Libreville alike.

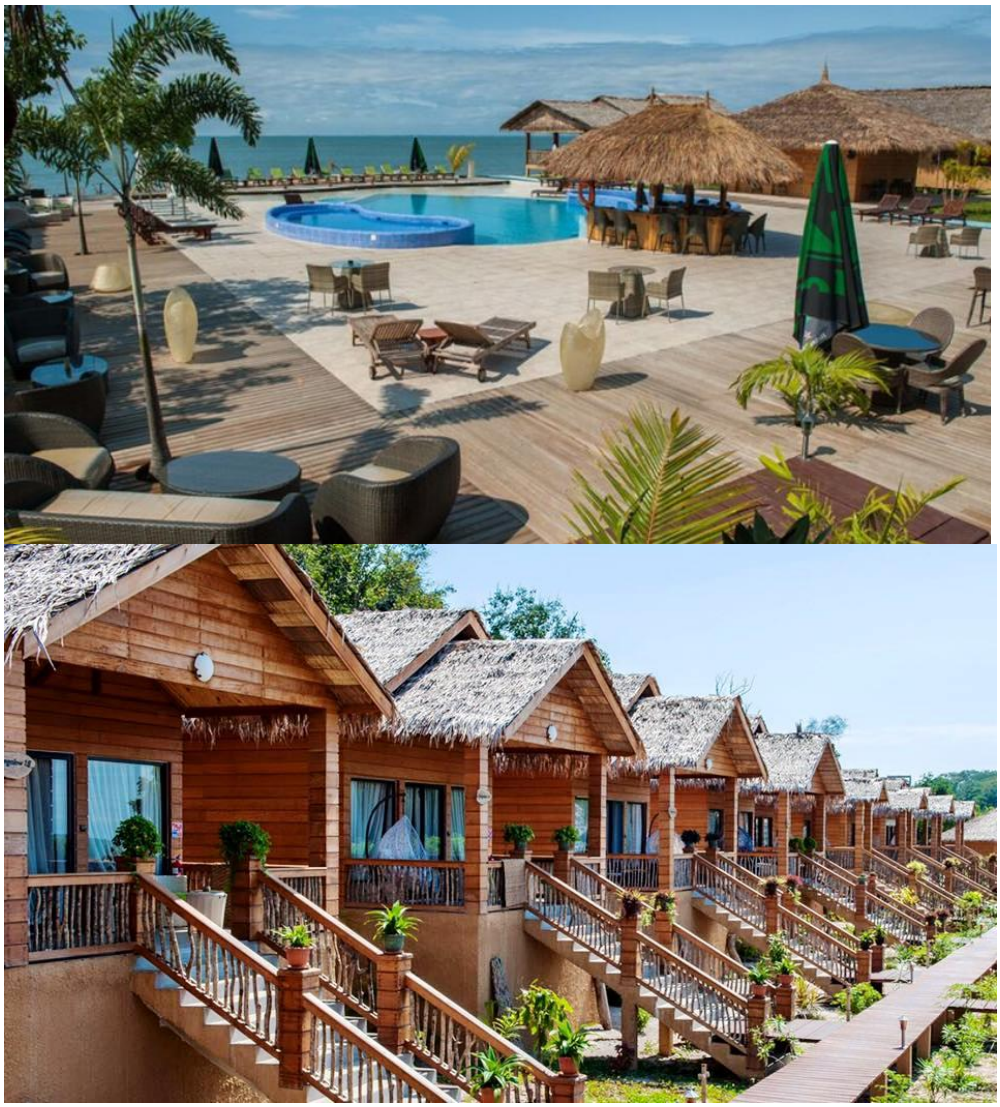
Despite the presence of the Park, many communities regard this area as their ancestral land, considering their traditional forms of land tenure and usage rights to still be applicable. These customs require that outsiders must seek prior authorization from traditional land owners in order to carry out activities on the land. Despite this, communities say that they were not fully consulted when the Park was created in 2002, and that their understanding of its boundaries and restrictions remain unclear. Other than the tourist resorts around the northern tip of the Park, communities here live primarily from subsistence farming, fishing and hunting, the latter two of which are now deemed illegal under the National Parks Law. Conflicts have also arisen over animals attacking plantations, a threat which communities report as having increased since 2002. Communities haven't been compensated for this loss, nor have they really benefited from the Park - either through employment, alternative livelihood opportunities or through the provision of schools, medical facilities or other services.

Source : http://www.mappingforrights.org/pongara

APPENDIX S

LA BAIE DES TORTUES LUTH HOTEL

Hotel in Pongara National Park



La Baie des Tortues Luth has a world class reputation for its unspoilt beaches, its lush tropical vegetation and its unique laying sites for leatherback turtles.

Its privileged location at the National Pongara Park is close to some of the world's most amazing fishing areas. In addition to spending your full time floating in the mild Atlantic Ocean, there are plenty of entertainment options at your disposal. Whether you are on holiday, or enjoying a well-deserved break on the beach, the luxury that La Baie des Tortues Luth represents will put your mind at ease and grants you a real African experience.

Source : http://labaiedestortues.com/

APPENDIX T

TRADITIONAL AND MODERN NON-LETHAL TECHNIQUES

The following techniques are used to address the human-wildlife conflict in Gabon. Scarecrows to deter elephants and other wildlife from plantations. Traditional fence made with wood, ropes, and empty cans to prevents elephants and other wildlife from entering plantations

Jaqueline Gnagne, the village chief in Kasamabika, made a fence with empty cans to deter elephants from running her crops in Lope National Park

Modern techniques employed by conservation organisms in Gabon include compensation, Electric fences, and Behives

Source: http://insider.si.edu/2016/07/study-managed-beehives-can-discourage-crop-raiding-elephants/

Source: www.nytimes.com/2016/08/27/world/africa/ali-bongo-gabon-election.html

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