Militarization of Conservation

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Militarization of Conservation

By

Daniel Ryan Michel

A master’s thesis submitted to the Graduate Faculty in Liberal Studies in partial fulfillment of the requirements for the degree of Master of Arts, The City University of New York

2018
Militarization of Conservation

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Daniel Ryan Michel

This manuscript has been read and accepted for the Graduate Faculty in Liberal Studies
in satisfaction of the thesis requirement for the degree of Master of Arts.

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ABSTRACT

Militarization of Conservation

By

Daniel Ryan Michel

Advisor: Karen Miller

The world is facing biological diversity extinction of its wildlife solely caused by humans. One of the leading causes of the extinction crisis is attributed to poaching and the illegal trade of wildlife products. In search of finding suitable methods to curb the crisis, a dichotomy of overarching solutions has arisen: those who have advocated for community-based natural resource management and those who support militarized conservation. The focus of this paper is to delineate which method is, if any, the most appropriate when combatting poaching and the illegal wildlife trade. Concentrating on elephants (both African and Asian) and the rhinoceros, two of the most threatened species of these crimes, this paper looks at a multitude of factors gathered through past literature to determine the best method to conserve endangered species when faced with poaching. Community-based natural resource management, when used alone, has been shown to be incapable of stopping the threat when foreigners and professional criminals are involved. Although militarization of conservation is faced with a lot of critics and leaves the possibility of corruption and human right violations to occur, militarization of wildlife conservation has proven to be an effective method to protect animals against those who have their mind set on breaking the law. The only solution is a more adaptive and holistic one, which combines the two strategies of community-based natural resource management and conservation militarization. To chastise the idea and utility of conservation militarization is to leave an invaluable tool in the bag when combatting those who are set on poaching and participating in the lucrative illegal wildlife trade.
# Table of Contents

1.0 Introduction...........................................................................................................1

2.0 Elephants.............................................................................................................2
   • African Elephants.............................................................................................4
     o Savannah Elephants....................................................................................4
     o Forest Elephants.........................................................................................6
   • Asian Elephants..............................................................................................7

3.0 Rhinoceros..........................................................................................................8
   • White Rhinoceros............................................................................................8
   • Black Rhinoceros............................................................................................9
     o Poaching of White and Black Rhinos.........................................................9
   • Sumatra, Javan, and Indian Rhinos...............................................................11

4.0 Basic Economics and Politics.............................................................................13
   • Uganda, Democratic Republic of Congo and South Sudan........................13
   • Tanzania.........................................................................................................14
   • Kenya.............................................................................................................15
   • Sudan and Central African Republic.........................................................16
   • Gabon............................................................................................................17
   • Zimbabwe.......................................................................................................18
   • Zambia...........................................................................................................19
   • Angola...........................................................................................................19
   • Mozambique.................................................................................................20
• Botswana and Namibia ................................................................. 20
• India and Nepal ................................................................. 20
• Vietnam ........................................................................... 21
• Thailand ........................................................................... 21
• Myanmar and Laos ................................................................ 21
• China ................................................................................ 22

5.0 Poachers and Traffickers .......................................................... 22
• Subsistence Poachers .......................................................... 23
• Commercial Poachers ........................................................ 24
• Crime Syndicates ............................................................... 25
• Wildlife Traffickers ............................................................. 27
• Rebels, Militias, and Terrorist Groups .......................................... 28
  o Janjaweed ....................................................................... 28
  o Lord’s Resistance Army (LRA) ........................................... 29
• Corrupt Government Officials or Military .................................. 30

6.0 Cost of Being a Park Ranger ......................................................... 30
• Park Ranger Life Threats and Murder Rates in Africa and Asia .......... 31
• Ranger murders in the Democratic Republic of Congo (DRC), Gabon, Kenya, and Uganda ................................................................. 32
• Ranger murders in South Africa ................................................. 33
• Central African Republic, Tanzania, Mozambique, Sudan and South Sudan ........................................................................... 33
List of Figures

1.0 Zambia Elephant Poaching..............................................................4
2.0 Kenya Elephant Poaching.............................................................5
3.0 India Elephant Poaching.............................................................7
4.0 Kenya Rhino Poaching...............................................................10
5.0 South Africa Rhino Poaching.......................................................10
6.0 Nepal Rhino Poaching...............................................................11
7.0 India Rhino Poaching...............................................................12
8.0 Reported Ranger Deaths from 2009-2016......................................32
9.0 Park Rangers Murders by Country from 2015-2016..........................34
**Introduction**

There can be little debate that planet Earth is facing a severe biodiversity crisis. According to the Center for Biological Diversity, in the past five hundred years, approximately one thousand species have gone extinct. Unlike the other events of mass extinction throughout geological history, the alarming rates of these extinctions are caused by a single species, Homo sapiens. In the last century, the conservation of threatened animals and their habitats has been becoming a more pressing concern for people around the world. Many researchers, non-governmental organizations (NGO), and governments have formulated and implemented various strategies to thwart the rapid decline in biodiversity, all with varying degrees of success. One of the strategies implemented is the use of military tactics to protect wildlife for conservation.

The militarization of conservation or “green militarization” has been on the rise in recent years, creating a divide amongst the people. Some view it as an effective strategy while others view it as counterproductive. The purpose of this paper is to illuminate the necessity for the acceptance and utilization of the militarization of conservation efforts to thwart the extinction of endangered species. Those who oppose the strategy of using militarized tactics for conservation, mostly vehemently condemn it. They believe it alienates the surrounding communities instead of working with them to understand the importance of a threatened species within their geographical habitat. They advocate for a multigenerational information campaign to educate the affected communities, providing them with knowledge of the importance of biological diversity within their ecosystem. The fact remains that the most affected species cannot rely on a multigenerational informational dissemination strategy alone, as they will be extinct before it ever takes root. Those that support the use of militarization in conservation efforts see it as a vital tool to be used and adapted in the preservation of wildlife. Realizing that a more securitized and
forced effort is needed to inform the local communities and global populations to get them to change current practices, especially in the most severe cases.

Two of the biggest species threatened by humans in the way of poaching are the elephant and rhinoceros. Though there are many other species affected by poaching around the world, such as the majority of the big cats or pangolin, the most academically studied cases would be that of elephants and rhinoceros. This paper will consist of six major sections. The first two sections will be individual parts that give a brief description of each species, followed by population and poaching numbers historically up to the most present available numbers from the most affected countries. The next section will look at the basic economics and politics of the countries affected by the poaching or involved in the illicit trade market. Followed by a section that will take an in-depth typology of the poachers and traffickers with examples. Then a part that is looking at the life threatening cost of being a park ranger tasked with protected elephants and rhinoceros within affected countries. Finally and perhaps most importantly, a section looking at the current laws and enforcement being used around the world to protect elephants and rhinoceros from the poaching threat around the world. The overall intention is to prove that all evidence points to the need to utilize a militarized strategy to prevent the extinction of species before community outreach strategies can take hold. First, let's look at the two species that will be the focal point of this paper.

**Elephants**

Elephants are the largest terrestrial mammals alive today; they can weigh from 2-6 tons, stand 8-13 feet in height and live up to 70 years of age. They are among the smartest animals on the planet. Studies have shown that elephants distinguish different characteristics in humans voice, use tools, understand body language and have excellent memories (McComb, 2014).
Furthermore, elephants express emotions such as empathy and grief, with the ritualistic mourning of the dead (King, 2013; Plotnik, 2014). It is estimated that there were once more than 350 species of elephants in the world. Today, we have two genera of living elephants left: African (Loxodonta) and Asian (Elephas). African elephants have two species, Savannah elephants (Loxodonta africana) and Forest elephants (Loxodonta cyclotis). The main differences between them are that the forest elephants are much smaller (sometimes referred to as the “dwarf elephant”) and tusks are much straighter than its Savannah counterpart. The African elephant is the larger of the two genera left in the world. They have extremely large ears, and both the males and the females grow tusks. The Asian Elephant (Elephas maximus) has a massive body but with ears that are smaller than those of close African relatives. The males develop tusks, but the females do not develop tusks.

Elephants are illegally killed for a number of reasons (meat, skins, trophies and human wildlife conflict), the majority are poached for one reason and one reason only, their tusks. The tusks of the elephant are made out of ivory. The ivory is used to create a vast variety of objects from small trinkets and jewelry that can range in the hundreds of dollars or one tusk, intricately carved into a piece of art to be displayed in one’s home or office costing tens of thousands of dollars. Owning such an “exotic” piece of art is seen, as a status symbol of upper-class taste in Asian societies. The Asian market, more specifically China, dominates the world’s demand for ivory. The booming Chinese middle class has caused the demand to increase tenfold (Gao, 2014). With the growth of the market, the amount of poaching around the world has also increased, causing a dramatic drop in the elephant population. With fewer elephants, the price of the ivory only gets higher. Creating a vicious cycle that this world has observed before, with the human demand of wildlife products causing the extinction crisis of a different species.
African Elephants

The African elephant once had a range that covered much of the continent, but since 1978 they have lost 50% of its territory. A population that once numbered from 3-5 million in the early 20th century, now estimates are around 415,000 in the wild (Allen, 2014). With less than 20% of the African elephant's habitat protected, numerous governments and NGOs have implemented specific strategies to thwart the current poaching crisis facing the country and/or national park. The relative success of anti-poaching enforcement and conservation efforts varies across the countries and the national parks. However, the more severe the threat becomes, the more militarized tactics are being deployed.

Savannah Elephants

Savannah elephants are located in many countries in Africa, with the highest population densities found in the countries of Zambia, Tanzania, Kenya, South Africa, Botswana, and Zimbabwe. The Savannah elephant population has declined by 30% (equivalent to 1444,000 individuals) from 2007-2014 and a current rate of decline of 8% a year, primarily due to poaching (Allen, 2014). In Zambia, elephant population was estimated at 200,000 during the 70s and 80s. In 2008 the number dramatically dropped to a population of 26,000 elephants, according to a paper presented by Zambian tourism and arts minister Sylvia Masebo at illegal Wildlife Trade Conference in London (2014). In figure (1) you can see the specifically reported years of poached savannah elephants in Zambia. Tanzania population in 1979 was an estimated at 316,300 individuals but dropped to just 50,500 in 2013, which is a
loss of 84.1% of the county’s entire elephant population in 34 years (Kideghesho, 2016). The country of Kenya, which has some of the highest numbers in poached elephants in recent years and is a known international export hub has some staggering numbers as well. In 1973 it was estimated that the country contained 167,000 individual elephants and only 16,000 in 1989 when the International Ivory Ban was enacted (Storey, 1994). The most recent census in 2012 estimates Kenya population at 38,000 elephants, which is an improvement from 1989 numbers, but is still a 77.3% decrease since 1973 estimate (KWS, 2012). Increasingly concerning, is the reported cases of poaching over the last decade in Kenya that could be seen in figure (2). South Africa over the last 25 years has unreliable numbers of elephants poached; this is because the only numbers available are from Kruger National Park and don’t encompass the entire country. The highest number recorded within the park was in 1981 before the ivory ban at 102 individuals (Cites, 1999). The park even went the span of 2000-2013 without a single recorded poaching of an elephant. The last two years there has been a slight uptick of 22 in 2015 and 36 as of September 2016 (Oxpeckers, 2016). Nevertheless, this is dramatically less than other countries have been recently experiencing. Zimbabwe by any measure has a positive history of protecting and conserving its elephant population. It has been estimated that in 1900, Zimbabwe had little more than 4000 elephants left. Today it boasts a stable population of 82,304

![Kenya Elephants Poached 2005-2014 per year](image_url)
individuals (Allen, 2014). Although it should be pointed out that since 2005 the northwestern population in Zimbabwe has decreased, at the same time the southeastern population has increased (Allen, 2014). Botswana’s population and poaching numbers are scarce, but it’s estimated to have a stable population of 130,451 as of 2014. One notable mention is Mozambique as it has been a crucial haven for poachers for many years. It has lost 70% of wildlife its population since 1975 and lost 53% of the elephant population (Allen, 2014). All other countries in Africa were left out of this section due to small elephant population and/or unreliable censuses. Though, some will be mentioned in later sections of the paper.

**Forest Elephants**

Forest elephants are found in the Rainforest zone of central and west Africa. They are located in the countries of Gabon, the Democratic Republic of Congo (DRC), Central African Republic (CAR) and Cameroon in central Africa and Ghana, Liberia, and Côte d’Ivoire in west Africa. Accurate numbers of forest elephants are hard to estimate for two reasons. First, the habitat of dense rainforest makes it tough for researchers to gain actual numbers with dense jungle canopy that make aerial surveys impossible. Census of dung piles is the basis of the majority of population estimates but that is an unreliable way of obtaining accurate assessments of the population (Maisels, 2013). Second, the majority of the countries in which they are located intend to be some of the most dangerous and unstable countries on the entire continent of Africa. Over the last several decades the population of forest elephants was estimated to have dropped from 700,000 to 100,000 individuals, as well as being reduced to 25% of historic range (Maisels, 2013). One study, states the population has declined 62% from 2002-2013. Gabon that has half of the population left lost 25,000 elephants from 2004-2014, nearly 80% of the entire population in one decade (Allen, 2014).
Asian Elephants

The Asian elephant species contains three subspecies, the Indian, Sumatran & Sri Lankan. In the early 1900’s it was estimated that there were 100,000 Asian elephants, now the population has dropped to 40,000 - 50,000 with 40% living in captivity (Sukumar, 2004). Living only 15% of its original range, the Asian elephant only rides in the countries of Laos, Vietnam, Nepal, India, Bhutan, Myanmar, Thailand and Sri Lanka. Out of all the subspecies left, the Indian accounts for the majority of the population and the widest range. The Sumatran has lost 70% of habitat, and the Sri Lankan lives in fragmented populations on parts of the island (WWF, 2017). In recent years, Asian elephants are not poached as much as African elephants as stated earlier. Only the males are poached; this is because only the males have tusks. Males with tusks led to the cultivation of a genetic mutation among the male population that has seen the proliferation of a tuskless males gene (Kurt, 1995). Also, Asian elephants are captured for trade and the logging industry more than poached throughout Asia. In India, a mere 2,000 Asian elephants live in the wild (Sukumar, 2004). However, among ivory carvers it is said that Asian ivory is of higher quality. Legal & illegal hunting has taken a dramatic effect on the population of elephants within the country. India is one of the only countries to provide numbers of poached elephants, which can be seen in figure (3). Which is relatively low when comparing it to the African elephant.
Rhinoceros

The there are four extant genera of rhinoceros in the family Rhinocerotidae that exist today: White rhinoceros (*Ceratotherium simum*), Black rhinoceros (*Diceros bicornis*), Indian/Javan rhinoceros (*Rhinoceros*), and Sumatran rhinoceros (*Dicerorhinus sumatrensis*). The word rhinoceros means “nose horn” which is the most significant and odd feature of this animal family. It is also the reason that they are illegally hunted and killed for financial gain. The rhinoceros horn has a high demand in the black market of Asia, more so than the ivory produced by the elephant. The horn is used for ornamental means, similar to the utilization of ivory, and it also has a much bigger market in the traditional medicinal use of it within Asian folklore medicine. They use the horn for a variety of reasons, but the most popular one is to cure cancer. It has been reported that ground up horn material is used to make wine or a drink for an aphrodisiac, which denotes a sign of sophisticated taste and status (Hübschle, 2016). The horn has a going price of $60,000 per kilogram on the illegal black market. The horn is made out of keratin, which is the same protein that the human fingernail or hair is made out of. All of these uses for the horn are unfounded. There has been no clinical evidence that the use of rhinoceros horn has any medicinal use or beneficial properties to promote health (Milliken, 2012).

White Rhinoceros

The white rhinoceros has two extant subspecies alive today, the northern white rhino (*Ceratotherium simum simum*) and the southern white rhino (*Ceratotherium simum cottoni*). The northern white rhino no longer lives in the wild, with only three left living in captivity today, one male and two female. They reside at the Ol Pejeta Conservancy in Kenya. The southern white rhinoceros was once estimated to number less than 100 in 1895, it now has the highest population and largest range of all the rhinoceros left today in the world (Milliken, 2012).
Successful management and conservation of the southern white rhino increased the populations to an estimated 21,177 animals in 2015. South Africa contains a little over 93% of the remaining population. They have been reintroduced in Botswana, Swaziland, and Zimbabwe after the native populations went extinct, as well as being introduced in Kenya and Namibia to bolster conservation efforts (Emslie, 2012).

**Black Rhinoceros**

The black rhinoceros had four subspecies in existence up to 2011 when the West African black rhinoceros (*Diceros bicornis longipes*) were declared extinct. The remaining three subspecies: south central (*Diceros bicornis minor*), south-western (*Diceros bicornis bicornis*) and East African (*Diceros bicornis michaeli*) had a combined population of 2,475 animals in 1993. However, with effective conservation, the numbers have bounced back to around 5000 animals. The remaining residents live in a fragmented habitat, with 98% residing in the four countries of Zimbabwe, Namibia, Kenya and South Africa (Emslie, 2012).

**Poaching of White & Black Rhinoceros**

The white and black rhinoceros have overlapping ranges and often the poaching numbers are combined or not delineated between the two species when reporting poaching incidents. For that reason, this section will be a combined section of the reported numbers from specific countries of both animals. From 2004 - 2014 Namibia reported 103 rhinoceros were poached in time frame. The following two-years had seen a dramatic increase of 24 in 2014 and 80 rhinoceros poached in 2015, only to slightly drop to 60 in a final report of 2016 (Republic of Namibia 2017). Another country that has seen a spike in the poaching of rhinoceros is the country of Kenya, after having some success in increasing numbers of the black rhinoceros in recent years. Then again, the numbers of poached animal over the last decade are not
encouraging as seen in figure (4).

There is limited data on the poaching of rhinoceroses in Botswana and Zimbabwe, for that reason, it will not be included. Perhaps the richest and robust data comes from South Africa, which also contains the highest population of rhinoceros than any other country in the world. From 1990-2009 the country of South Africa only reported 379 rhinoceroses poached. Then in 2010, there was a spike to 333, almost eclipsing the amount that had occurred over the previous decade (Milliken, 2012). Since, then, the numbers have only increased significantly as shown in figure (5), only to decline slightly this year. However, in 2016 a total of 1054 rhinos were illegally hunted and killed (Molewa, 2017). South Africa is ground zero for the poaching war on rhinos, and if numbers do not drastically decrease, they soon might find themselves with minimal populations like neighboring countries in Africa.
Sumatran, Javan and Indian Rhinoceroses

Two out of the three species of rhinoceroses that home range is in Asia are critically endangered. One of those critically endangered species is the Sumatran rhinoceros. It is estimated that to only 100 animals currently live in Borneo and Sumatra. The Sumatran rhinoceros possibly only has one subspecies alive today in the wild (van Strien, 2008). The eastern Sumatran rhino \((Dicerorhinus sumatrensis harrissoni)\) was declared extinct in the wild by Masidi Manjun, the Tourism and Environment Minister, in 2015 (Hance). Then again, one was captured in 2016 to provide evidence that some may still survive in the wild (Howard, 2016). The western Sumatran rhino \((Dicerorhinus sumatrensis sumatrensis)\) is the only known Sumatran rhino that lives in the wild, which has only 75-85 animals that reside in two national parks in Sumatra (van Strien, 2008). Both of these subspecies were hunted for the same reason those in Africa were, just the Sumatran is considerably closer to extinction. The Javan rhinoceros or lessor one-horn rhino (Rhinoceros sondaicus) once had a range that encompassed the countries of Nepal, India, Burma, Malaysia and Sumatra. Today, only estimated 61-63 survives in Ujung Kulon National Park in Java, Indonesia (Save the Rhino, 2017). In comparison, the Javan’s closest relative is doing better than all other Asia dwelling rhinoceros combined. The Indian rhinoceros or the greater one-horn rhino (Rhinoceros unicornis) once
covered the entire northern region of the Indian subcontinent. After extensive sport hunting and killing those that invade agricultural lands, only 600, within a much smaller range, were estimated to exist in 1975 (Talukdar, 2008). With effective management and conservation, it is estimated that 2,863 are alive in Nepal and India today. A census conducted in 2011 approximated that 534 Greater One-horned Rhinos are now found in Nepal; 503 of these are in Chitwan National Park, 24 in Bardiya National Park and seven in Shuklaphanta Wildlife Reserve. Nepal’s poaching numbers are small compared to other areas, as seen in figure (6), but one thing that should stand out is that they have successfully claimed three zero-poached years in the recent years (Acharya, 2012). In India, the remaining 2,329 of the population reside in the Kaziranga National Park in India. Since anti-poaching and management efforts have increased, poaching has been sporadic, as can be seen in figure (7), which shows the numbers over the last decade.

![India Rhinos Poached 2006-2016 per year](Fig (7): (WPSI, 2015))
**Basic Economics & Politics**

**Uganda, Democratic Republic of Congo and South Sudan**

The political economy of the three countries has been shaped by conflicts in the past. The Lord Resistance Army (LRA), a rebel group that has for long fought against the Ugandan government is present in the three countries. The implication of this is that most of the resources available to these states are directed towards resolving such conflicts rather than economic development.

Of the three countries, Uganda presently has a significantly better political and economic environment; however, it still feels the ills of poaching due to the proximity of its two lawless neighbors, as well as rampant corruption in its public service.

Therefore, to an enormous extent, the poaching problems facing Uganda, other than inherently being due to internal structural weaknesses, can also be attributed to its war torn neighbors. The proportion of wildlife’s contribution to the economies of DRC and South Sudan is not as huge due to conflict. However, according to Okello (2014), the lost economic potential due to poaching in DRC, South Sudan, and Uganda is far greater due to their being landlocked, rendering them to lose any benefits from coastal tourism.

However, the situation has created a fertile ground for the militia to engage in the poaching business. According to a report by Born Free USA, militias in South Sudan and the DRC collude with the military whereby the militias poach on behalf of senior and corrupt military officers in exchange for arms and protection. Uganda emerges as a transit point for the poached game (Committee of Foreign Relations, 2014).

The LRA sourced most of its resources from the poaching of elephants and gorillas. To illustrate the expanse of the problem, the LRA had been active in Uganda, South Sudan, DRC,
and the Central African Republic (CAR). Therefore, while Uganda has managed to contain some of the conflicts with the militias, the shared borders and the underdeveloped nature of some of these areas make adequately addressing the problem difficult (Committee of Foreign Relations, 2014).

To a vast extent, high levels of poverty in these countries especially in the rural areas (where poaching is likely to take place) earn less per day, making them susceptible to the wishes of rebels. Poaching takes place on a multi-level hierarchy, with those at the bottom of the chain getting fewer returns despite the lucrative nature of the business (Duffy, 2010). Therefore, for those at the bottom of the chain to sustain their earnings, they must increase the frequency and volume of poached animals.

**Tanzania**

Tanzania is one of the countries in which wildlife tourism plays a central role in its economy. The Wild Wide Fund for Nature (WWF) estimates that tourism and travel contribute $5 billion to Tanzania’s economy, employing about 1.2 million people. The Selous Game Reserve, Tanzania’s largest protected area, provides about $6 million in revenue annually (WWF). Despite the impressive figures, Tanzania has been billed as one of the greatest sources of game trophy in the world (Kariuki, 2014). As an illustration, the number of elephants in Tanzania reduced from 109,000 in 2009 to 43,000 as of 2015 (Lowry, 2016).

Tanzania is relative to a majority of poaching hotspots in the continent. It has a relatively stable political environment and has been devoid of conflicts. Agriculture, natural resource extraction, and wildlife tourism are the greatest contributors to the country’s economy. However, with an estimated output per capita of $2,500, poverty is still a primary concern in the country (Trading Economics, 2017).
According to Born Free USA, Tanzania’s political elite are implicated in the industrial scale decimation of Tanzania’s wildlife population, especially the elephant and the rhino, for their tusks and horns respectively (Kariuki, 2014). Game trophy from Tanzania often finds its way out of the country onto the black markets of the Far East using Kenya and Uganda as transit points. Therefore, in essence, corruption and lack of political will in the country also play a role in encouraging the menace.

The history of poaching in Tanzania can be traced to the practice of offering hunting licenses for legal wildlife hunting in the 1960s and 1970s. However, corruption among government officials has created numerous flaws in the system of government issued hunting licenses and in the long run, it has permitted the infiltration of poachers (Leader-Williams, 1993).

Poverty has also been a major contributing factor to poaching in Tanzania. The lack of adequate employment opportunities pushes individuals, especially those in ruling communities, into poaching (Formo, 2010). These people are at the bottom of the poaching and trafficking chain.

**Kenya**

Kenya has the largest economy in the eastern Africa region. It has a per capita output of approximately $2, 900 (Trading Economics, 2017). However, the country still faces some challenges with regard to poverty levels and income inequality. The implication is that those within the cadres of the income ladder are pushed to vices such as poaching (Committee of Foreign Relations, 2014).

The difficulty in curbing poaching in Kenya is further attributed to corruption among concerned officials as well as political affiliations with the powerful individuals in government.
As an illustration, there have been allegations of the country’s first president Jomo Kenyatta being involved in the trade of ivory in the past (Parker, 1974). Kenya’s ports of entry and exit have also been used as conduits by other countries in the eastern Africa region (Vira, 2014).

**Sudan and Central African Republic (CAR)**

The poaching menace in Sudan and the Central African Republic is closely intertwined. This is a result of the two countries sharing a common border as well as being engulfed in conflicts. Conflict serves as a perfect backdrop for poachers to engage in their heinous acts.

According to a Born Free USA report, levels of poaching in Sudan have been on the rise due to conflicts and political, as well as military infiltration, into the lucrative business. Government allied militia in the Darfur region fund their activities by undertaking the poaching of elephants and other wild animals (Vira, 2014). Sudanese military and political elites are complacent to these events given that such militias are critical in ensuring their continued grip on power. To make the situation worse, Sudanese poachers cross the borders with impunity into the CAR, taking advantage of the conflict in the country (Kariuki, 2104).

Since 2013, the Central African Republic has been embroiled in a civil war pitting the nation’s Muslims (Seleka rebels) against the country’s Christians (anti-Seleka militias). The state of lawlessness in the country makes it possible for poachers to traverse the territory freely.

The trading of game trophies has spawned an entire underground economy in Sudan and the Central African Republic. Other than the Sudanese poachers and Darfur’s militias, the Lord Resistance Army (LRA), which has a presence in CAR, is also a major supplier of elephant ivory to Sudan. Once acquired, the ivory is smuggled across Sudan’s border with the help of corrupt border officials (Gettleman, 2012).
Once inside Sudan, the Ivory is transported across the expansive western desert in Darfur to the capital, where game trophy is sold with little consequence for the traders involved. In essence, there is no political will in the country to fight the menace since the trade ensures the status quo in Sudan’s power structure, maintaining the proceeds, which support the government friendly militia (Somerville, 2013).

**Gabon**

In the past, wildlife conservation had not been given priority by either the Gabonese government or its people. The cavalier attitude arose from the fact that hunting and consumption of bush meat had been viewed as a way of life for the people of Gabon. It is particularly true considering the nation’s extensive and unexploited equatorial forests. Furthermore, Gabon’s wildlife, especially gorillas and the forest elephant, were believed to be protected from the poaching menace by extensive and untapped forests whose accessibility was poor either from land or from the air. The cavalier attitude in dealing with poaching is illustrated by the fact that the country formed a wildlife protection agency only in 2012 (Fletcher, 2014).

However, in the recent past, the country has come to terms with the effects of poaching. Between 2004 and 2014, about 80% of its forest elephants were poached in the country’s vast Minkebe National Park (Morell, 2017). Gabon’s poaching menace is as much a political problem as it is an economic problem. According to Fletcher (2014), a huge number of the local population involved in the poaching are the Baka, formerly hunters. The Baka have suffered political marginalization from the government for a long time. The consequence is the Baka have been left poor, making them susceptible to the whims of poachers. The poachers prefer the Baka because of their knowledge and mastery over the terrain.
Secondly, Gabon has opened up its dense forests to logging and mining which has provided an avenue for foreigners, especially the Chinese, to infiltrate the forests with superior gear to conduct poaching (Fletcher, 2014). However, the criminal decimation of Gabon’s wildlife takes place in large part due to complacency from government officials who benefit directly from the illegal trade of game trophy.

**Zimbabwe**

Relative to many countries where poaching has been known to be a menace, Zimbabwe has in the past been able to manage its wildlife effectively. It was primarily as a result of its system of allowing licensed game hunting in exchange for a fee that was then channeled back into conservation. Wildlife tourism and overall travel are estimated to contribute about 10.4% of Zimbabwe’s GDP (Turner, 2015).

However, presently, Zimbabwe faces numerous challenges with regard to poaching. The high demand for illegal game trophy has driven the trade in illegal ivory and rhino horn underground, with the nation’s top political and security operatives being implicated in the trade. In 2016, a senior officer of the country’s Central Intelligence Organization (CIO) was arrested and charged with supplying guns and ammunitions to poachers (Rademeyer, 2016).

There are many reasons for the recent surge in poaching in Zimbabwe especially in rhino horn and elephant tusk poaching. The political instability and rampant corruption have provided the perfect backdrop for poaching in the country (Vira, 2014).

Moreover, the mismanagement of the economy has left many Zimbabweans poor and unemployed, amidst high prices for basic needs. As a result, many Zimbabweans are pushed into poaching which attracts substantive earnings due to the strong demand in the Far East (Vira, 2014).
**Zambia**

Zambia’s economy is heavily dependent on the natural resource extraction, especially copper. Zambia’s political landscape has been devoid of conflicts. However, high levels of income inequality and mismanagement of public resources have led to a spike in the poverty rate of the country.

Recently, things have changed. It is particularly true with regards to the banning of ivory trading. This has forced the trade underground. Economic challenges in the country have also served to encourage the poaching menace. The police and military officers in the county are poorly remunerated, and their salaries often arrive late. It forces them to be complacent in the trade by accepting bribes or lending out their weapons to poachers (Nkala, 2016).

**Angola**

Prior to the onset of its civil war in 1975, Angola had one of the largest herds of the savannah elephant, alongside other wildlife. However, the civil war that raged from 1975 to 2002 lead to the decimation of elephant and rhino populations in the country. Militias and rebels used the proceeds from the illegal trade to purchase arms and other war supplies (Vira, 2014).

Following the end of the civil war in 2002, a period of replenishment of elephant and rhinos began. However, there was not much political concern for wildlife at the time given that it was a widely accepted belief that Angola sparse populations of wildlife left (Hahn, 2013).

Currently, Angola is one of the largest producers of crude oil in Africa. Oil has led to its economy performing exemplarily well. Between 2000 and 2016, the average rate of economic growth in Angola had been 9.38% (Trading Economics, 2017). Millions of the country’s population has been lifted out of poverty in the process. Therefore, in Angola, the poaching menace has been primarily as a result of a weak regulatory and enforcement regime.
Mozambique

Mozambique has traditionally had a hands-off approach to wildlife conservation even after the end of its civil war. Possession of illegal game trophy is merely viewed as a misdemeanor (Save The Rhino, 2013). In essence, it suffers from weak laws and corruption (Vira, 2014).

The consequence of this is that poaching has led to the creation of an underground economy in the country, since it acts as a transit hub for rhino horn and elephant tusk obtained from South Africa and Zimbabwe. The trade has seen the rise of criminal syndicates and enrichment of political elite. Poor pay for security officers has further entrenched the vice as they become complacent (Vira, 2014).

Botswana and Namibia

The two neighbors have historically had close ties with regard to wildlife conservation due to the sector’s enormous contribution to their economies (Turner, 2015). The two countries are also beneficiaries of massive precious minerals reserves that have enabled their closely intertwined economies to grow consistently. As a result, the level of poverty in these two countries is smaller relative to other nations affected by the poaching menace (Vira, 2014).

Secondly, there is political goodwill in both countries to fight poaching. Such efforts are largely successful due to the highly transparent nature of both nations’ political and economic undertakings (Vira, 2014).

India and Nepal

The economies of India and Nepal are closely intertwined with the former being one of the largest contributors to Nepal’s economy. Therefore, despite high poverty levels in the two countries relative to other developing nations of a similar size, the rate at which people are being
lifted out of poverty is high compared to other countries affected by poaching (Narayan, 2009; Pande, 2004). The result is that it creates less incentive for poaching combined with the success of the zero tolerance to poaching in both countries. There has also been political will in both countries to fight the menace especially the one-horned rhino that is domiciled in the area (Pulse, 2012).

**Vietnam**

Vietnam has become not only a major consumer of rhino horn and elephant tusks but also a major transit point (Milliken, 2012). Both raw and processed game trophies are sold onwards to China and Thailand. The growing consumption of the illegal trophies is a result of the growing disposable incomes of the people of Vietnam, especially in the middle-class category (Milliken, 2012). There is also no political will from the nation’s communist rulers to crackdown on the vice due to political patronage and corruption.

**Thailand**

As of 2013, the per capita output in Thailand was $5778 (Trading Economics, 2017). This sets Thailand as being a middle-income country. The growth is primarily attributed to its export-led economy and tourism. As a result, the disposable income of a majority of Thais has been on the rise. A factor that has led to Thailand is the one of the worlds largest market for illegal ivory (Stiles, 2009).

**Myanmar and Laos**

The two neighbors contain some of largest herds of Asian elephants and as a result, the poaching menace is rapidly growing. The increasing role of the two countries may be attributed to the growing pressure on their much bigger counterparts such as Vietnam and Thailand, to organize efforts against the processing and trade of illegal ivory and rhino horn (Ponnuddurai,
2012). Due to the illicit nature of the business, it’s hard to estimate the actual amount they bring into the economies of the two nations.

However, the levels of poverty in the two countries is relatively high, and authorities may be reluctant to crack down on the vice for fear of political backlash; it is particularly true considering that the industry employees a significant number of people (Ponnudhurai, 2012).

There is also minimal political will to fight the menace. A country such as Myanmar has been embroiled in its own domestic conflict with the military Junta that had previously been in power. This has created a nation more preoccupied with political survival rather than fighting illegal ivory and rhino horn trading (Ponnudhurai, 2012).

China

China is by far the largest market for ivory and rhino horn. The growth in demand for these substances has been driven by the growing affluence of Chinese citizens, especially in the middle-class category. China’s economy has grown at an average of 7% over the last two decades lifting millions out of poverty (Trading Economics, 2017). The growth is attributed to its manufacturing industry, leading to China being christened the factory of the world. The average annual salary in the private sector has grown to reach $4755 (Trading economies, 2017). It is this high spending power that is pushing China’s demand for ivory and rhino horn. China’s communist government has also been complacent in the illegal trade until recently. This complaisant attitude is a result of political patronage and corruption among officials.

Poachers & Traffickers

The individuals or groups that take part in the illegal wildlife trade, come from all walks of life. They range from the basic opportunistic hunter to the multinational wildlife trafficker that negotiates and bribes for illicit trading routes, depots and ports of entry that are the illegal
pipeline that is needed to support the black market. The best way to investigate this aspect is to divide them into six distinct groups. The groups consist of: 1.) Subsistence poachers, 2.) Market Poachers, 3.) Crime Syndicates, 4.) Wildlife traffickers, 5.) Rebels, Militias and Terrorist groups and 6.) Corrupt government officials or military (Duffy, 2010). They are written in order according to the danger they pose to the rangers, public and wildlife communities, one being the least and six being the most dangerous. When applicable, real world examples of the groups will be given to illustrate severity and tangible evidence of the dangers they pose.

**Subsistence poachers**

The individuals that take part in the level of subsistence poaching are the least dangerous of all the groups. Subsistence poachers are the people that make up the rural communities that are far detached from the urban areas, which live off the natural resources in the local environment. The term “bushmeat” is often used to describe the meat that is obtained from local wildlife, a main source of protein in many rural communities diets. This form of subsistence living has been used for thousands of years by humans and has only recently become a problem with the other more nefarious groups exacerbation of wildlife resources in the wild (Duffy, 2010). These low level poachers normally target smaller animals, but have been known to take down elephants, rhinoceros gorillas and other large wildlife as well. They also have substance-hunting rights in the majority of countries, however they are often caught on private and protected lands illegally hunting. Similarly, they have been reported to take down bigger game more often because of the scarcity of local small game. This scarcity is caused by commercial hunters and other criminal groups that sell small game in the bushmeat market or as food to sustain themselves while poaching larger protected wildlife. The subsistence poacher is often the local communal victim of wildlife enforcement and more often, lethal force. They are the ones
that are caught in the grey zone or crossfire in the war to protect the biodiversity of the world. The majority of them have grown up with a respectful coexistence with wildlife and only using what they need and often leaving the tusks of elephants and rhino horns because they have no use for them (Duffy, 2010). However, you will always have those who take advantage of a monetary payday and step up to the next level of market poacher.

**Commercial poachers**

The Commercial poachers are the ground level group in the illegal wildlife market chain that first pose direct danger to rangers and wildlife populations. These individuals are commercial hunters that kill wildlife for the sole purpose of financial gain. They use animals to sell in the bushmeat markets or other parts of the animals for the ornamental use to tourists in local markets (Banks, 2006). They have also been known to capture live animals to sell to the illegal pet trade for animal collectors and zoos. Market poachers often deploy harmful traps and snares made from cheap and available resources. They normally deploy a number of cheap metal snares that inhumanly catch wildlife, but have a high success rate. The traps also have the effect of catching unintended wildlife and severely harming the animal. Similarly, traps are often forgotten or discarded when poachers decided to end the hunt (Greenwood, 2015). This leads to animals getting caught later on and dying a slow painful death. With nobody to retrieve the animal, it decays and if near a water source can contaminate it for locals and wildlife. The career poachers disturb local wildlife populations by over hunting, only to hurt local communities and businesses. They take away the small game for the subsistence communities causing them to have a lack of local small game which leads them to hunt illegally on protected land and hunt bigger game because of the over hunting of small game for bushmeat market (van Vliet, 2012). The local market for ecotourism business is hurt because the dwindling populations of wildlife
and shrinking habitat cause a drop in tourism (Duffy, 2010; Barnett, 1998). The commercial poachers are normally a minimal to moderate in lethal danger to rangers and law enforcement. However, they have slowly become the majority of the first level of individuals involved with criminal wildlife syndicates that have a criminal hierarchy that increased the number of lethal occurrences between wildlife law enforcement and poachers.

**Crime syndicates**

The criminal syndicates are nothing new to human history with examples of prohibition and illegal drugs, but what is new, is the employment of this organizational criminal hierarchy when approaching the illicit wildlife trade market. Criminal syndicates are the group that has dramatically increased the level of danger to wildlife and wildlife enforcement (Rademeyer, 2012). It can possibly be the reason for the global social acceptance for a more militarized tactical approach when protecting and conserving wildlife. What is important to note about the criminal syndicates is that it transcends & encompasses all the groups presented in this section of poachers and traffickers. Meaning, any of the groups can fulfill a niche within the criminal syndicate and more than one group is often presented within a criminal syndicate. To understand this better, it is easiest to break the criminal syndicate organization down into levels, best visually done in the documentary “The Poachers Pipeline” produced by Al Jazeera’s Investigative Unit. It is explained in five levels. The levels are as followed: 1.) Poachers, 2.) Gang masters, 3.) Dealers, 4.) Importers, and 5.) Consumer. This was a great delineation in the hierarchies of a criminal syndicate for poaching, only the first two level need further expansion in this section due to the fact that levels three and four can be subsumed in the following group of Wildlife traffickers and level five of consumer needs.
The level one poachers make up the largest, most diverse and expendable level within the criminal syndicates. They can be subsistence or commercial poachers, low-level gang members, military, militia or rebels. The subsistence and commercial poachers are the groups that are often victims of shoot-to-kill policies that cause the moral outrage and often the biggest pushback against the use of military tactics when conserving and protecting biological diversity (Duffy, 2015). The low level gang members, military, militia and rebels are the other side of this level that create the most direct lethal effect to wildlife enforcement and local communities. They are often financed, experienced and trained. With access to helicopters, high capacity ammunition and other advanced military technologies, this level could be considered the most basic level of divide in the use of military tactics in the conservation of biological diversity (Rademeyer, 2012). These low level members or foot soldiers controlled and instructed by the gang masters.

The gang masters are the individuals that organize and finance the kills. They can take on many forms, from individuals that organize kills in the wild to rebel/terrorist commanders and even government officials. Only in the past couple years have a few countries cracked down on this next level of poachers in the criminal syndicates (Rademeyer, 2012). The majority of countries that have utilized a more militarized tactic and information sharing in conjunction with resources provided by the International Policing Organization when dealing with poaching have reported a capture or kill of these higher-level individuals involved in poaching criminal syndicates (INTERPOL, 2013). This cooperation has led to some of the biggest arrests and dismantling of wildlife trafficking criminal syndicates. In operation Infra Terra, led to the arrest of Ben Simaski and associates, originally from Botswana but tracked down in Zambia in possession of twelve cut pieces of Elephant tusk (INTERPOL, 2014). Another criminal apprehended in operation Infra Terra was Nepal’s top wildlife criminal, Rajkumar Praja, who
was suspected of killing nineteen rhinos in Chitwan National park and later caught by the Royal Malaysian police in possession of a fraudulent passport (INTERPOL, 2015). Operation Infra Terra along with numerous other successful operations with the cooperation of countries and INTERPOL throughout Africa, India and Asia have lead to the capture of some of the worlds most wanted wildlife criminals. Yet they all pale in comparison to the epitome of a Gang master within a criminal syndicate, “Shetani” of Tanzania.

The focal point criminal of the Netflix documentary “The Ivory Game”, forty-five year old Boniface Matthew Mariango a.k.a. “Shetani”, the Swahili word for “Devil”, is credited with involvement in poaching thousands of elephants within countries of Tanzania as well Kenya, Zambia, and Mozambique (Elephant Action League, 2015). He was tracked and arrested by the National and Transnational Serious Crimes Investigation Unit (NTSCIU) Task Force, all captured in conjunction with an undercover documentary film crew. He was recently sentenced to twelve years in prison, one of the first success stories of the new task force (BBC, 2017).

**Wildlife traffickers**

Wildlife traffickers are the individuals that create the lanes of illicit trade of poached wildlife raw material or goods from one country to another. They normally work in the shadows of the wildlife trade world and are most often the hardest to catch. They are known to have involvement with crossover crimes, meaning they will not only be relegated to trafficking wildlife goods but also guns, ammunition and even humans. The individuals that make up this illegal wildlife trade market have created a 20 billion dollar international market (Nellemann, 2014). These individuals organized a vast array of corrupt individuals by not only by bringing together crime syndicates but provide the market to militia groups, rebels, terrorist groups and corrupt officials. Playing the middle man that interconnect the low level poacher providing for
family or the murderous group looking to financial support its cause to the foreign wholesaler and consumer. The prime example of a wildlife trafficker is “The Ivory Queen”, who was the go between of “Shetani” foreign wholesalers (Elephant Action League, 2015).

In 2015, a Chinese a sixty-year-old businesswomen named Yang Feng Lan was arrested in Tanzania for allegedly smuggling at least over 700 elephant tusks from East Africa to China via here international connection. This amount of trafficking gave her the name “The Ivory Queen”. Her and other Chinese national associates were arrested in Tanzania by NTSCIU and face a maximum of thirty years behind bars in jail (Elephant Action League, 2015). This was the first major blow to this criminal wildlife trafficking syndicated that eventually caught up with her number one poacher “Shetani” approximately a year later.

Rebels, Militias and Terrorist groups

This group of rebels, militias and terrorist groups are the most direct lethal danger to those on the frontlines of conservation and the anti-poaching movement. On the most basic level, all of the groups involved here use the poaching and wildlife trade as a source of funding their ideological and political agenda. Yet, a lot of the claims of certain groups like al- Shabaab, al-Qaeda and Boko Haram involvement have yet to be substantiated. However, one study states that if they are involved, it is more on the trafficking side than the direct poaching of animals. However, a few groups such as Lord’s Resistance Army (LRA) and Janjaweed have been documented with direct involvement in poaching elephants and illicit wildlife black market as a source of financing their causes (Carlson, 2015).

Janjaweed

The Janjaweed have been on the international radar since the 1980’s. It is a militia that operates out of western Sudan and eastern Chad. An international law official claims thousand of
elephant deaths in Central Africa came at the hands of the Janjaweed. Recently, they have been absorbed as a counter insurgency force of the Sudanese government. In 2007, the U.S. government stated Janjaweed killed an estimated 200,000-400,000 individuals in Darfur, declaring it genocide (Trahan). Ugandan soldiers reported getting into a lethal conflict with a Janjaweed ivory caravan of 400-armed men in 2010, where ten Ugandan soldiers lost their lives (Gettleman, 2012). As recent as January 2012, hundreds of Janjaweed men were suspected of slaughtering 300 elephants in Bouba Ndjada National Park, Cameroon (Saah, 2012).

Lord’s Resistance Army (LRA)

The Lord’s Resistance Army or the LRA is a violent movement that began in Uganda in the late 1980’s. This group, led by the notorious Joseph Kony, is known for murder, mutilation, rape and abduction of local communities. The majority of the abductions are children but has been known to take adults too. Similarly, it has been estimated that they have abducted 70,000 children since 1987, using them for soldiers, porters and sex slaves. Since being pushed out of Uganda, they made use of lose boarders and weak governments to find safe haven to rebuild. In 2005 they shifted operations to Garamba National park moving through CAR, South Sudan, DRC and Sudan to evade capture while continuing to commit human rights crimes. In recent years, reports of LRA soldier killing park rangers have increased, while defectors of the LRA have claimed that Kony is funding his operations by poaching elephants (Anderson, 2014). In a recent documentary called “Warlords of Ivory”, investigator journalist who implants a fake elephant tusk with a GPS tracker, which the investigator gets the tusk into the LRA trade route through an informant (Heminway, 2015). While, the tusk is tracking the route, he interviews defectors that give testimony to the involvement in the ivory trade as a means to support LRA agenda. The tusk takes a physically taxing route through dense jungle where it eventually ends in
the Sudan territory of Darfur (Heminway, 2015). This coincides with recent reports in 2013 from a Darfuri rebel group stating that the LRA and Kony’s current safe haven in Darfur has been given cover by the Sudanese government (Ronan, 2013).

**Corrupt government officials or military**

The corrupt government officials and military are deemed the most dangerous of all the groups because they operate in a realm of autonomy and immunity. There are two distinct types of corrupt governmental officials, they can be foreign or domestic officials (Rademeyer, 2012). The foreign government officials use diplomatic immunity to elude any prosecution of poaching or trafficking crime. The domestic official and military take advantage by operating from within the government entrusted to uphold wildlife policies in place (Nellemann, 2013). The government officials may look the other way during transport, lobby for lower penalties for poachers, or take part of a criminal syndicate and/or use military sources to directly poach protected animals. Organized crime thrives where there is corruption. This can be identified as the root cause in the proliferation in all the other groups of poachers previously mentioned which have dramatically increased lethal conflicts between poachers and wildlife rangers.

**Cost of being a Park Ranger**

In the last decade, over a thousand park rangers have been killed in the line of duty, the majority of them killed at the hands of commercial poachers. The global conservation effort now has an additional worry along with the preservation of wildlife and forest areas. The safety and security of park rangers is the new concern. Parks across Asia and Africa are destroyed out of survival, greed and illegal activities. Park rangers are on the front line and face the ire of heavily armed poachers, smugglers, and illegal loggers. Park rangers frequently face the threat of life and battle the dangers of death on each day. Park rangers are the guardians of the natural resources
and wildlife of our planet and the threats to their lives is unnerving and requires higher measures from the respective governments of those countries. For the organizations that are working on animal and wildlife conservation, their actions must start with preserving the lives of the humans, i.e. the park rangers, who put their life on the line in protecting the wild reserves. In the last two years, the murder of Rangers has reached 200, while in Africa alone, 27 Rangers died in the line of duty in the past year, and poachers executed 80% of the killings. The data collected is based on the reports submitted. It is assumed that the actual worldwide deaths of rangers related to poaching could be 2 to 3 times higher. The most affected areas are those that are rich in rosewood, sandalwood, elephants, and rhinos such as India, Kenya, and Congo. The president of the International Ranger Federation (IRF) while acknowledging the threats of wildlife crimes has also raised the concern for the safety of park rangers (Global Conservation, 2017).

**Park Ranger Life Threats and Murder Rates in Africa and Asia**

In the years of 2015, 60% of Rangers killed by poachers and militia were from Asia. The majority of these rangers were from India, Thailand, Democratic Republic of Congo (DRC) and Kenya. Sean Willmore, the president of the IRF worldwide, stated that two rangers are killed every week, which according to him is a conservative number, noting that the actual figure could be more (Neme, 2014). Figure (8) depicts the ranger deaths as captured by IRF from by the method of self-reporting in the period of 2009-2016 with the highest reported number in Asia. The second highest number is found in Africa.
In the years of 2015-2016, more than 14 rangers have been killed in the Congo’s Garamba National Park during anti-poaching missions. Garamba is a UNESCO heritage site, and the poachers are believed to come from South Sudan and Uganda. The situation at Gabon has been equally as dangerous, and the wildlife crimes increased to such levels that the president of Gabon shared the plight of rangers at the hands of poachers (Armed Poachers Killing Rangers Who Defend Elephants In Congo Park, 2016). In 2008, 12 wildlife rangers were gunned down in the Virunga National Park. The ordeals and risks faced by wildlife rangers in this region of the Congo are equivalent to combat soldiers as the rangers routinely face death, and torture from poachers. Since 2004, more than 150 rangers have been killed in Virunga alone. Kenya has been confronted with a similar battle with poachers. The Kenyan government officials and influential politicians have been accused of collaborating with the poachers. Kenya has seen a noticeable jump in the number of killings of park rangers in recent years (Neme, 2014). The IRF mentions three deaths of rangers in Kenya caused by poaching incidents in the period of 2015-2016. In the
year of 2014, there were ten reported ranger killings in Kenya (Gemawat, 2014). In the period of 2002-2012, there have been roughly 25 deaths of park rangers in Uganda that are attributed to poachers. In the past decade, Uganda has lost rangers due to shots by poachers and encroachers, and falling in poacher traps, apart from accidental and natural causes (Our Wild Life Heroes, 2013).

**Ranger murders in South Africa**

Poaching has resulted in converting ecological rarities like Kruger National Park in South Africa into a virtual war zone. The Rhinos and Elephants in South Africa have been resource of accelerated poaching and wildlife crimes. The park rangers have been trained in military tactics and combat. In 2016, there had been three reported deaths of rangers in South Africa during a shootout with poachers. South African conservation groups frequently train their Rangers in armed combats and military tactics (Funk, 2016).

**Central African Republic, Tanzania, Mozambique, Sudan and South Sudan**

The situation in the Central African Republic (CAR), Tanzania, Sudan, and South Sudan regions has been the same; wars are raging in these areas. The rangers killed in these regions face war-like and war-crime situations. The battle in the CAR region has slowly exploded as armed militia have taken to poaching and engage park rangers in armed combat, seriously injuring several rangers that lead to deaths. In Tanzania, poachers killed a British pilot. Five rangers were shot dead in Garamba who were working for the South African based Non-profit group. These rangers were giving military and armed combat training to other Rangers in CAR, Sudan, Kenya, Uganda, Chad, Somalia, and Tanzania. Sudan and South Sudan regions are said to be the starting points of serious poaching, where militant groups started funding their organizations through wildlife killings. The risk of park rangers has increased as the black market for ivory and Rhino
has grown with the cost of both of these items going above that of gold and platinum. It has been observed that the regions of DRC, CAR, Sudan, Mozambique, and Tanzania have weak governments, which lack support for rangers. This contributes to increasing poaching activities and aggravates the threat to wildlife ranger’s lives. Rangers are killed in these areas on a regular basis. Even Mozambique poachers have now ventured into organized crime that can be characterized as consolidated and militarized efforts (Vidal, 2016).

![2015-2016 Park Rangers Murders by Country](chart.png)

Figure 9: 2015-2016 Ranger Roll of Honor (IRF - World Ranger Day, 2016)

Figure (9), depicts the number of ranger deaths due to poaching incidents in the period of 2015-2016, as visible, the highest number of murders have been in the regions of DRC and India, following by Uganda, Gabon, and Kenya. The data has been extracted from the Roll of Honor documents published by IRF for worldwide park ranger deaths and classifying each death as an accident, natural or homicide. All the death numbers represented here are homicides, as classified by IRF based on reported data.
Ranger murders in India and Nepal

Forest rangers in India have the highest mortality rates in Asia, far greater than Africa sometimes. The period of 2011-2014 saw 72 deaths of park rangers by poachers. IRF report puts the Ranger killings highest in India, which accounts for 60% of global ranger murders by poachers. In 2013, the ranger deaths in India were 14, which was a large number as compared to even some of the most troubled areas of Chad, and Congo where the ranger deaths were less than 10. In the year of 2014, the ranger killings in India were 24, which was much high as compared to that of Kenya (Gemawat, 2014). Nepal had growing Rhino population and had been struggling with the poaching menace for an extended period. However, through the support of the local community and park rangers, the country has been able to save its Rhino population with one reported ranger murder in the past two years (Ortolani, 2016). As depicted in Figure (9), India had the largest number of deaths in past two years at 17, while Nepal had the lowest at 1.

Ranger murders in Zambia

In the most recent events of the killings of park rangers, the latest news came to light in Zambia, where poachers gunned down a park ranger. The incident has left the ranger community in shock as the toll of slain park rangers has been mounting and illegal wildlife trade continues. The events have led some parks to initiate controversial policies such as the, “shoot at sight policy” found in the Kaziranga Park in India (Hance, 2017).

Ranger Murders in Angola, Botswana, Namibia, and Zimbabwe

Poaching activities are common in the region of Angola. This has led to significant threats and challenges for the park rangers. The number of reported deaths of rangers related to poaching in these areas has been very low, as compared to other regions. Botswana, Namibia, and Zimbabwe have the most vulnerable areas for wildlife, as it is also those areas where trophy
hunting is legalized. The rangers here have salaries as low as $125 per month, for which they put their lives on the line. The worldwide average murder rate of Rangers, including all the areas of Asia and Africa, has been estimated to be 1 KIA (killed-in-action) for every four days (Why We Serve, 2015).

Thereby, it is revealed through various reports and studies that the rate of park ranger’s murder is that every fourth day one ranger is murdered across all the parks and natural reserves due to poaching, wild crimes or other related activities. Some studies keep the figure at two murders per week, although both estimates are conservative. Based on reported data, the actual numbers could be much higher.

**Law & Enforcement**

A majority of the countries around the world are members of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITIES), a treaty which states that members “are obligated to monitor the global wildlife trade and wildlife products and take action on behalf of species that may be heading for trouble” (Hemley, 1994). CITES is funded by the member countries, those who are not as economically wealthy provide as little as 300 USD and those who are the wealthiest are expected to provide 1 million USD. The United States is the primary contributor, giving 25 percent of the annual funding to CITES (Hemley, 1994). CITIES provides a global intelligence apparatus on wildlife trade, however it lacks the ability to enforce and penalize wildlife criminals. By CITIES own admission, “success depends on the national and political will of each party…and must establish fines and other penalties as appropriate” (Hemley, 1994). This alone is the biggest criticism for CITIES utility but it is an invaluable tool of intelligence for wildlife conservation.
Ivory Ban

From 1979 to 1989 the number of African elephants plummeted from approximately 1.2 to about 600,00 causing the members of CITES to enact the Ivory ban. This effectively banned the international commercial trade of African elephant ivory by placing the species on Appendix I, which is the reserved for the most protected and critically endangered of extinction (Hemley, 1994). The ivory ban commenced with Kenya burning its ivory stockpile as a symbolic sign of new era of protection on the African elephant population. The ban initially worked, poaching slowed down dramatically in the following decade. Two of the world’s biggest consumers of elephant ivory at that time were China and the United States. Demand within the United States dropped to a historic low, while ivory carving factories and shops closed down in China. Both seen the ivory markets within each country all but disappear (Humane Society International, 2016). The banned seemed to be a success and the elephant population began to rebound but the victory was short lived.

In 1997 CITES allowed what they called a “one off sale” of 40 tons of ivory from Botswana, Namibia and Zimbabwe to Japan. In 1999 the sale took place and poaching began to soar again. Again in 2002 CITES allowed another “one off sale” of 60 tons of ivory from Botswana, Namibia, Zimbabwe and South Africa. Increased to 102 tons when the final sale to Japan and China took place in 2008 (Humane Society International, 2016). These “one off sales” were allowed by CITES under the condition funds must be “used exclusively for elephant conservation and community conservation and development programs within or adjacent to the elephant range” (Cruise, 2016). These “one of sale” recreated the ivory market in the Asian market but the legal ivory available was far from being able to satisfy the demand. At every CITES meeting, southern African nations lobby to sell Ivory. In 2008 the southern African
nations managed to convinced International Union for Conservation of Nature (IUCN) to
downgrade the official status of elephants from Appendix I (endangered) to Appendix II
(vulnerable) (Cruise, 2016). The IUCN contributes to CITES by using data analyses to submit
proposals in order to amend CITES Appendices (IUCN, 2017). In 2016 Kenya and Southern
African Development Community (SADC) agreed to hold talks to find a common position on the
Ivory trade (Cruise, 2016). The SADC consist of member countries such as Angola, Botswana,
DRC, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe
(SADC, 2017). The majority of SADC favors ivory trade, most vocally lead by South Africa and
Zimbabwe who want trade without CITES restrictions. While Kenya apposed all ivory trade and
would prefer a total ban on it, shown once again by its symbolic burning of confiscated ivory
stockpile of 105 tons in 2016 (Cruise, 2016).

Rhino Horn Ban

In 1977, CITES ban the international trade of rhino horn because of the concern over the
extinction of the species around the world (Hemley, 1994). Like with the ivory ban in 1989, the
rhino horn ban of 1977 seen success over the next two decades. In 1994, CITES downgraded
white rhino from South Africa from Appendix I to Appendix II, allowing export trophy horn
taken in legal non-commercial hunts. Yet, this could be due to the success seen in population
growth or the fact that South African lobbyist within CITES persuaded the council to downgrade
them, much like they did with the ivory ban in 2008. Nevertheless the downgrade created a legal
loophole that began to be used right away by criminals but was not realized until 2003 when
Asian nationals began obtaining licenses to export trophy horn and selling them on the black
market (Bale, 2015). This loophole quickly proliferated and reenergized the dwindling market
much like the “one off sales” did for the ivory ban. In 2009, South Africa made the decision to
ban the domestic trade of rhinoceros horn. In 2012 a game farmer named John Kruger sued the government of South Africa to lift its ban on the domestic trade of rhino horn, later joined by another farmer John Hume in 2015, creating a class action suit against the South African government (Christy, 2015). In 2017, the South African highest court rejected the government’s bid to keep a ban on the domestic trade of rhino horn (Bale, 2017). Leading many to believe that this will intensify the poaching crisis once again.

**Present Day**

Wildlife law for poaching and trafficking across Africa, Asia and other places around the world vary greatly with regards to penalties. The majority of the countries plagued by poaching and trafficking have laws and penalties in place but garner a lot of criticism from wildlife advocate groups, rooted in the fact that penalties are non-existent or lightly punished. This has caused the proliferation of wildlife crimes in certain areas more than others. Certain countries are havens for individuals that would cross the borders and invade the national sovereignty of a neighboring county to poach animals, only to escape safely back across the border (Obank, 2015). One example would be poachers from Mozambique crossing into South Africa and killing rhinos in Kruger or LRA poachers in central Africa taking advantage of the nearby borders and the lack of trans border security, allowing them to evade authorizes while pillaging elephant populations (Carlson, 2015). Gabon’s penalties are considered minimal in sentencing a maximum of three to six months’ imprisonment (Fletcher, 2014). Penalties like this have minimal effect on dissuading poachers from the incentive posed by the payday of poaching. Similarly, in the past, South African that has some of the strictest penalties had judges and prosecutions that would tend to give the minimum penalty to those convicted of poaching wildlife (Obank, 2015). In last four years, the countries of Botswana, Kenya, Mozambique,
Zambia and South Africa have implemented new or amended old laws in order to strengthen penalties. The absence of penalties in countries affected by wildlife poaching has been the major factor in the increased numbers of animal and ranger deaths across Africa and Asia. In the appendix of this paper, you will find three tables detailing the penalties of Southern and Eastern Africa (appendix 1), Central Africa (appendix 2) and Asia (appendix 3).

U.S. & China

In 2015, the United States and China came to agreement to ban the trade and sale of ivory within each countries respective borders. This was a monumental announcement because of China being the world’s largest consumer of ivory. In 2016, an executive order by President Obama, the United States fulfilled its end of the agreement by adopting a near-total ivory ban. This order restricts ivory sale and export across state lines. The only way to trade ivory within the United States now is to prove that it is considered an “ivory relic”, meaning that it is over one hundred years old or a small part of a manufactured item (i.e. ivory handle gun). This also limits ivory imports to two per hunter per year, this was previously unlimited (Actman, 2016).

As recent as 2007 China has insisted that ivory carving is an “intangible cultural heritage” to the country (Mathiesen, 2017). This all changed with the bipartisan agreement with the United States in 2015. By March of 2017 China had closed half of all licensed carvers and retailers with the commitment to close the remaining by the end of the year. This is a major step, considering 90% of all ivory sold in China is illegal (Mathiesen, 2017). Yet, they also leave the “ivory relic” loophole like the United States. These loopholes will need time to see if they create a gray area for illicit trade and criminals to lander black market ivory through. However, early reports state that the price of ivory has dropped 50% across Asia since the announcement of the ban in 2015 (Larsson, 2017).
Enforcement

With the evolving and increasing threat to wildlife, the type of enforcement surrounding the protection of wildlife has also evolved. A vast amount of contention has been created between activists, researchers and the global community as a whole. One major issue involves identifying the appropriate amount of enforcement need, keeping in mind, with the goal to protect and preserve wildlife, while respecting the human rights in the surrounding areas. In the recent years, wildlife rangers and enforcement officials have undergone a militarization of conservation (Lunstrum, 2014). This has caused much anxiety and fear in the environmental community because of the use of the word “militarization”. Though, some have gravitated to using the word “securitization” instead of “militarization” (Barnett, 1998). This is not unwarranted, especially considering the some of the countries histories with war and other social injustices.

The use of militarization has been implemented on all levels of enforcement in antipoaching efforts. Military grade equipment pertains to technologies that contain (1) better parts to withstand environmental conditions, (2) maintain higher vibrations or accelerations, (3) greater ranges, air time or battery life, (4) hardened defenses (EMP, Nuclear or Projectile), (5) harder to decrypt or hack (Cress, 2014). Both militarization and military grade equipment are at the forefront of discussions as solutions to end the illegal poaching of animals. The reason why this distinction is made is due to the fact that most conservationists don’t have the problem with adopting military technologies when it comes to drones and radio collars as a tool for research. However, when it comes to tactics and the deployment of forces to enforce wildlife policy and conservation, there is considerable pushback that will be addressed later.

The idea of militarized conservation efforts has become an integral part of the defenses in
many areas of the world. Most, if not all, preserves of protected lands employ ex-law enforcement or those with military backgrounds to protect and uphold the policies of the government or landowner (Lunstrum, 2014). One specific example of this is SAN Parks of South Africa. There, they have hired a retired Army Major, who held a security and anti-poaching campaign that immediately increased surveillance. They implemented the use of drones, via partnerships with military firms (Lunstrum, 2014). Another example is the hiring of ex Special Forces members to train rangers in Virunga National Park (Neme, 2014; Marijnen, 2016). In hiring military educated minds and consulting with those involved with conservation efforts, more sophisticated military technologies are being introduced in the field.

The use of such militarized tactics and enforcement has lead to more lethal interactions with poachers, where both the rangers and poachers have died. It has also created an increase in military technology by employing helicopters, advanced weaponry, drones, night vision and other technology to gain an advantage over the opposing side. This more militarized approach has seen some success in deterring and stopping wildlife crimes (Nuwer, 2017). In Tanzania, the anti-poaching task force is credited with capturing two of the most notorious criminals, “Shetani” and “the Ivory Queen” (Elephant Action League, 2015). Zakoumu National Park in Chad has seen recent success since training and implementing a more militarized approach for the conservation and protection its’ elephants in the park (Nuwer, 2017). Despite recent successes, you still have those who condemn the militarization of conservation, marginalizing its advantages and often conflating the militarization with “shoot to kill” policies (STK) employed by some countries.

**Shoot to Kill Policy**

The shoot to kill policy is the most controversial policy that has ever been implemented
in the name of conservation. The STK policy that gives Rangers and security forces the right to shoot suspected poachers on sight (Duffy, 2010). A variety of interrelated factors have led to the creation of the shoot to kill policy. The first issue involves a weak judicial system, which has been plagued by corruption, low conviction rates, and inadequate evidence. The transnational and reoccurring offenses of individuals have cause countries to implement shoot to kill policies. Second, the increased lethal interaction between rangers and poachers has resulted in the loss of rangers’ lives, normally leaving behind wife and children. Thirdly, it provides immunity for rangers to act without fear of legal repercussion (Duffy, 2010). Finally, the use of shoot to kill has seen some positive results in respects to protecting threatened wildlife (Messer, 2010; Chenteni, 2014; Carlson, 2015; Mogomotsi, 2017). However, it has been linked in some cases of corruption and human rights violations (Duffy, 2010).

A number have countries have such as Tanzania, Botswana, Zimbabwe, India Kenya and Swaziland had or have implemented shoot to kill policies. When Zimbabwe first introduced the shoot to kill policy it had an immediate effect, but quickly gained criticism. This criticism spilled over to the WWF that donated a helicopter that was used in a shoot to kill operation, causing WWF to pull funding in fuel for helicopter (Duffy, 2010). Yet, in the short time of its implementation, Zimbabwe elephant population increased from 52,000 to 72,000 (Mogomotsi, 2017). In Tanzania, the STK policy was very effective, however it was short lived, due to links in arbitrary murder, rape and the torture of innocent people. After the policy was dropped, elephant poaches increased again (Smith, 2013). Kenya recently implemented a shoot to kill policy and it has seen a drop in the number of elephants poached but some people blamed the shoot to kill for accelerating the poacher’s tactics, evasiveness and willingness to use lethal force (Carlson, 2015). Botswana has carried out the STK policy for some time, as the government of
Botswana considers the act of poaching an act of war and “as such targeted killings or ‘shoot-to-kill’ policies are legal” under international humanitarian law (Mogomotsi, 2017) In the last two decades, they have killed 30 Namibians and 22 Zimbabweans. Most of these occurred on the border and were claimed to be fishermen, not poachers. Botswana has no wildlife population numbers to compare its success of the STK policy (Konopo, 2016). However, South Africa and Botswana have recently agreed to transfer 500 rhino from South Africa to a non-STK country such as Botswana (Stoddard, 2014; Howard, 2015). In Kaziranga National Park in India, 50 poachers have been killed from 2014 to 2017. There has been a “zero tolerance” policy in Kaziranga where officials are ordered to kill poachers or anyone in the park at night. This is an important distinction because the majority of poachers killed since 2014 have been at night (Kashyap, 2017). This has led groups to criticize the WWF for funding and supplying anti-poaching efforts with technologies like night vision goggles. Kaziranga rangers receive cash bonuses for killing poachers, which is very troubling. Defended by M.K. Yadava, the park director, who stated, “heavily armed poaching gangs regularly engage guards” (Rowlatt, 2017).

Swaziland, the landlocked monarchy within South Africa, has one of the most successful conservation and anti-poaching campaigns. Its rhino protection is unmatched by any other country according to International Union for Conservation of Nature. Led by Ted Reilly, the head of Big Game Parks says, “Our anti-poaching legislation in Swaziland is preventative legislation – not remedial legislation. We prefer not to put people in jail and we want to keep our rhinos alive. People say our law is draconian, but it’s worked” (Ramsey, 2014). Showing that they know it is harsh and excessive, however it has provided the desired results without burdening the economy by filling jail cells. The STK policy has severe human rights violations
issues and in some cases, despite this, it is hard to dismiss the reports of the effectiveness anti-poaching efforts.

**Militarization Conservation Critics**

Community-Based Natural Resource Management (CBNRM) is in direct opposition to the practice of militarization of protecting and conserving the biological diversity of an environment. (Duffy, 2010) CBNRM places a large emphasis on educating and informing the local community on the benefits associated with protecting and saving the local wildlife. To those who advocate for the practice of CBNRM, the greatest indicator of environmental destruction is the presence of local and global military groups (Khagram, 2006). One of the biggest purveyors of this ideal is Elizabeth Lunstrum, who actually coined the phrase of “Green Militarization” (2014). She stated that militarization of a conservation effort actually only succeeds in the dehumanization of the rhino poacher and alienating the community. Lunstrum noted that this prevailed when fortress conservation overtook community conservation in the 1900s (2014). Arguing that militarization of conservation as a racial war of injustice saying “to protect areas as space of belonging for whites only” and “these calls are indeed radicalized even if signs of racism have been erased and regardless of intent”, trying to create the image of the poacher as a victim by calling them the “poor foot soldiers of opportunistic criminal syndicates” (Lunstrum, 2015). Esther Marijnen further exacerbated the sentiment of white privilege by depicting those protecting wildlife as “heroic (white) military trainers and park guards as martyrs” (Marijnen, 2016). Dr. Marijnen explains that the need to protect wildlife explanations often have “Neomalthusian or Neobarbarian undertones, thereby accomplishing the criminalization and othering of rebels and poachers” (2016). Thus creating a growing convergence of biodiversity conservation and capitalism by allowing the securitization and
following racially motivated economic injustice that had been prevalent in the area. (Marijen 2016)

The obvious shortfalls to Marijnen’s militarized conservation efforts include the underlying socialistic and communistic agenda as well as discounting the ideal of national sovereignty. She considers the securitization and boundary drawing as a type of radicalized colonial trope, ultimately dismissing the thought of national sovereignty.

A more moderate opponent of militarized conservation is Rosaleen Duffy, who refuted the use of strong and forceful approaches to conservation for the lack of evidence that they can work, believing the ranger/poacher conflict only added to alienating the local communities (Duffy, 2015). Thinking it will required a commitment over decades from all stakeholders with community outreach solutions and not just greater enforcement in wildlife rich countries (Duffy, 2010). Yet, she neglects the fact that estimates of elephants and rhinoceroses do not have decades for community outreach programs to sink in before the species go extinct if current poaching numbers persist. According to Dr. Dame Daphne Sheldrick, an elephant is killed every 15 minutes in Africa and could be extinct in as little as 12 years time (2015). Although, Rosaleen Duffy does concede that there is no one size fits all strategy and points out that “clearly different trades might require very different policy responses according to species, place of origin, trade, transit route and profile demand” (2015). Yet, perhaps all of the critics of militarization of conservation concerns were best summed up by Jennifer Bond when she said “the term “wildlife security” betrays the underlying perception that wildlife is the referent object to be secured, not the human, and that force is a legitimate method for preserving this security” (2017).

**Discussion**

The populations of elephants, rhinoceros and many other animals not discussed in this paper are being decimated across the world by human interaction. The African elephant
population has decreased by 91.7 %, from a plentiful population numbered in the millions in the early 20th century, to a mere few hundred thousand present day (Allen, 2014). Asian elephants have likewise had a dramatic decrease in population by 50% since early 1900’s, with only 30,000 of the remaining 50,000 living in the wild. The world’s rhinoceros population is in a much dire situation, with the five remaining sub species only totaling an estimated population number of 29,201. In addition, two of those subspecies have a population number of 100 or less (Emslie, 2012; Acharya, 2012; van Strien, 2008). If current trends continue for the elephants and rhinoceros populations, both will be extinct in the matter of decades. Areas that need more research to combat this are population carrying capacities, which included minimal population size with recognizing the importance of genetic diversity and social structure. These studies will help to prevent and avoid genetic bottlenecking, that was discovered in one such study conducted in Cat Tien National Park in Vietnam (Vidya, 2007). Genetic bottlenecking can be very detrimental to wildlife populations, it is when there is a lack in genetic diversity within a population (Venturas, 2013). This lack of genetic diversity can have negative consequences due to inbreeding:

“Inbreeding may lead to the buildup of deleterious recessive genes, termed inbreeding depression, that may cause decreased fecundity, increased mortality, slowed growth, developmental defects, increased susceptibility to disease, decreased ability to withstand stress, and decreased ability to compete” (Larson, 2012).

This coincides with the fact that the loss of any biological diversity is a loss in an important part of the “genetic library available for scientific research, which in turn precludes potential discoveries of life-saving drugs, new agricultural crops, and antidotes for human-
induced ecological changes” (Dabelko, 1997). Moreover, the loss of any one species threatens the survival of the remaining flora and fauna in any ecosystem (Bragdon, 1992).

The loss of any biological diversity will gradually erode the natural capital base of any economy (Barnett, 1998). The vast majority of countries of Africa and Asia affected by the shrinking populations of elephants and rhinoceros have a significant portion of their economies dependent on ecotourism from international visitors. Tourist visit in order to see wild animals that can only be seen within these countries, while they are there, they sleep in the hotels, eat at the restaurants, buy souvenirs from local vendors and donate to conservation efforts. If they go extinct, a significant portion of these countries economies will disappear with them. This would be devastating to a number of these countries that are either enveloped by poverty or teetering on the brink of it.

The local governments and politicians of these affected areas have struggled to deal with the threat of loss in biological diversity, especially when it comes to poaching of elephants, rhinoceros, and other wildlife within their countries borders. Almost all lack the financial ability, resources and strategy to combat the poaching epidemic that is widespread across Africa and Asia. Furthermore, there are corrupt government officials and military that fund or support illegal poaching, creating an ongoing political conflict behind the veil of governmental immunity (Cardamone, T, 2012). That allows poachers to operate within certain countries with autonomy or act like a haven for particular poachers or syndicates after they illegally killed wildlife in neighboring nations.

As previously discussed poachers and traffickers come from all walks of life and vastly different degrees of sophistication and funding. One fact remains that they all get involved with the poaching of elephant ivory and rhino horn because of the lucrative monetary gains they can
achieve from participating in this illegal practice combined with the economic situations present in many African and Asian regions affected by poaching. Giving credence to Upton Sinclair’s adage that “it is difficult to get a man to understand something when his salary depends upon him not understanding it” (Waldau, 2011).

Capturing poachers has shown to be not enough to solve recurring poaching issues in critical areas because of the weak implementation of laws and disparity in sentencing in different regions. In South Africa, almost 700 suspected rhino poachers and traffickers were arrested in 2016, but not all of the guilty were sentenced to prison. Laws that exist in many countries concerning wildlife crimes are not the same. Many countries do not punish criminals with long years of imprisonment for wildlife crimes (Cardamone, 2012).

Depending on the situation, the length of prison sentences differs. In other scenarios where the illegal hunter is captured before attacking a rhino or an elephant, the charges given by prosecutors are most likely for less serious crimes, such as illegal possession of firearms and trespassing with weapons. It will require evidence, such as a dead rhino or elephant at the scene for poachers caught in the act to be sentenced appropriately. In other words, wildlife still needs to shed blood to be favored by law (WWF, 2014). There are strict laws imposed against these perpetrators, in particular, but even if the evidence is strong, poachers are still acquitted after trial or granted bail and abscond. Furthermore, penalties for rhino and elephant poaching in some regions, such as Kenya, include fines that do not compensate the cost of damage done to nature’s biodiversity. Thus, there is major frustration in making these wildlife offenders pay for their crimes (WWF, 2014). It is safe to say that the implementation of the law and the traditional measures to eradicate poaching are unfortunately not working, considering the dwindling population of rhinos and elephants, as well as big cats in critical areas. Even the Ivory Ban and
the Rhino Horn Ban, which are the classic laws that are meant to protect these giants, are not respected by poachers. In addition to particular governments lobbying for one off sales every chance they get. In other words, they no longer work efficiently and sustainably because those poachers who get away with fines, bailed out, or have been acquitted wrongly tend to go back to the national parks and kill more animals because basically, this is the only way they know how they can make a lot of money (WWF, 2014).

The low-level subsistence poachers and commercial poachers who have a minimal threat to Park Rangers that could be dealt with in a less forceful manner but you also have the criminal syndicates, militant and terrorist groups that pose a deadly threat to Park Rangers and law enforcement. These terrorist groups and militants that poach ivory and rhino horns to fund their organization, such as the Lord’s Resistance Army and Janjaweed (under the leadership of Al Shabaab and Darfur) are two of the most infamous militant groups in Africa. They have been documented being involved in the black market trade of wildlife resources for financial gain. They use their profits from illegal trades to buy their weapons. These arms are also used to advance their political or ideological beliefs and in addition to killing park rangers who lack the advanced weapons and skills to fight back. The militias are armed with "automatic weapons, GPS systems and the best transport” since they are well funded by their illegal business (WWF, 2014). As stated earlier in this paper, over 200 rangers have been killed in the last two years by poachers (IRF). This vast degree in the difference in poachers provides a challenging task for law enforcement to distinguish ‘which is which’ when you’re out in the bush, Rangers never know if the individuals they are dealing with are ready to use deadly force.

This threat has forced the hand of many countries to adopt a more militarized approach to conservation. Not only to stop increased poaching numbers of the past several years but to
protect the Rangers by supplying them with the training and equipment necessary to effectively combat the new breed of lethal poacher. Though this new strategy of militarized conservation employed by countries lacked the adequate trainers and finances for proper equipment to combat the funding the poachers, syndicates, terrorists and militants receive. Western nations and charitable organizations have made efforts to donate resources to aid African nations who need help to combat poaching. The U.S. and other western European countries have given military trainers and equipment. Organizations like WWF has donated a helicopter and night vision capabilities (Duffy, 2010) Though this has been met with much criticism by some who feel it is new form of western imperialism and a return to a colonial type of control of these poaching plagued nations (Marijnen, 2016). Causing the world of the west to step back some of the desperately needed resources to those countries fighting this wildlife war.

To, combat this lack of resources some countries need to use an iron fist, to eliminate personal and political interests and protect wildlife before it is too late. Countries such as Botswana now consider poaching and act of war (Mogomotsi, 2017). Enacting a shoot to kill policy that had been adopted in the past by some countries with great success. Such as in Zimbabwe in the late 80’s that saw poaching drop dramatically and elephant population grow from 52,000 to 72,000 (Mogomotsi, 2017). Although the shoot to kill policy became very controversial, strongly condemned by human rights activists and conservative organizations, it proved to be effective even in such a short span of time. The STK policy saw 53% drop in elephant poaching and 10.3% drop in rhino poaching. When the policy was lifted due to protests, the number of wildlife deaths by poaching rose back to an alarming scale (WWF, 2014). This only means that the bad guys are back in business.
It is entirely understood why the shoot to kill policy was strongly opposed, because of the ethical issues. Although those that oppose both the militarization of conservation and shoot to kill policies have no viable answer to stop this new breed of poachers. They point to community-based natural resource management and legislative solutions. Community-based natural resource management has been pushed out to the local communities for more than 50 years to no avail. Even the legislative avenue has proven to fail with either weak penalties or unwillingness to enforce the laws by government officials. The threatened wildlife such as elephants and rhinoceroses do not have the population numbers or luxury to wait for a strategy of strategic patience to take hold. To adapt quote from the former A.G. of Massachusetts Scott Harchbarger once said about campaign financing to militarized conservation and shoot to kill policies, “this is not the utopian comprehensive solution to poaching and conservation, but this is a tourniquet proven to stop the bleeding.”

This is not meant to say that militarization of conservation is the entire solution to ending the poaching and trafficking of wildlife around the world but a vital part of the solution. The community-based natural resource management is also an important component of the solution. There is no one size fits all strategy, “clearly different trades might require different policy responses according to species, place of origin, trade transit routes and profile of demand” (Duffy, 2015). For that reason it is imperative for advocates of both strategies must stop talking past one another and start working with one another for a holistic, innovative and integrative solution to combined two different public priories of military defense and sustainable development (Barnett, 1998).

New research needs to be done that combines both aspects like Nikkita Guvant Patel recent paper that identified the key countries that would fragment the illegal trade network.
through law enforcement and the countries nodes for optimal information dissemination (2015). Showing that by focusing on the top six countries of each, would likely decrease illegal wildlife trade network up to 90% and allow wild populations to recover. Another recent innovative solution proposed is by Pembient, a biotech firm based in San Francisco. They offer the solution of 3D printing synthetic rhino horn that is the same genetic fingerprint as the real horn at a fraction of the price. They would then flood the illegal black market with the synthetic and undistinguishable horn from the real thing. In turn driving down the price and crash the market for rhino horn. Make economically unreasonable and not worth the risk for poaching the real thing (Unnikrishnan, 2015). However, critics such as International Rhino Foundation’s executive director Susie Ellis believe this would create the sense that the consumption of rhino horn is acceptable and be counterproductive to informational dissemination campaigns in Asia (Unnikrishnan, 2015). Despite criticism, this illustrates new fresh ideas outside a militarized or community-based solution might be viable options to aid in the effort.

More importantly, the two factions need to come to an understanding of the ideas of national sovereignty and the philosophical idea of extensionism. The concept of national sovereignty is the cornerstone of international law and wildlife threats are seldom confined to the territory of one state and often transcend national borders (Gardner, 2011). One state may not dictate to another how to regulate its activities, but the “loss of worlds’ genetic resource exemplifies an environmental problem without boundaries- a problem that requires a global solution, but that directly affects national plans and priorities” (Bragdon, 1992). The challenge for the world is to rethink how to approach extinction of wildlife within the confines of a system that rest upon national sovereignty (Gardner, 2011). Conditional assistance has been proven to be successful in other areas such as pollution and could be adapted to wildlife conservation. A
United Nations adoption of the Pittman-Robertson Act of 1937 in the United States could become a foundation for it which provides financial assistance to states for “the selection, restoration, rehabilitation and improvement” of wildlife habitat (Freyfogle, 2009). These provided resources and support should not be condemned by those who espouse solely for community outreach as a form of the western world trying to reassert its power over developing countries, as a hope to return to a post colonial control over the minorities. Those who do, fail to realize what the real minority in the situation is and fails to understand the philosophical belief of extensionism.

The theory of extensionism is the extension of the philosophical concepts and beliefs historically reserved for men and more recently humans (Hadley, 2016). As an example, history has shown the possibility how the social construct of rights has been extended to those of different, race, sex and disability (Schaffner, 2011). It is only the next logical step to extend those rights to species outside of our own. Creating a global belief in “biocentrism” that gives all living things intrinsic value by simply being alive (Hadley, 2016). If this view is adopted by all, it will realign the thoughts of what the actual minority in the situation is, making the threaten wildlife the referent and not the socially constructed races of those illegally killing them.

**Conclusion**

As expressed throughout this paper, the world is facing biological diversity extinction threat. If the acceptance of new working strategies are not implemented, a vast amount of the world's wildlife will disappear. Two of the direst cases the world faces are that of the elephant and rhinoceros population. Those who have advocated for community-based natural resource management have condemned the use of militarized conservation, yet they have had been unable to stop the acceleration of the two species from disappearing throughout Africa and Asia. By
condemning the use of militarized conservation to combat poachers, criminal syndicates, militias and terrorist groups, they are “vindicating the rights of brutes”. Proponents of militarization of conservation have shown proven result, especially when shoot to kill policies have been implemented. Though they risk alienating the local communities if such heavy-handed strategies such as shoot to kill policies are applied over long periods of time. There needs to be a collective solution implementing the use of militarized conservation with its technologies, resources, and training for rangers protecting against those are willing to ignore the laws and beliefs of the global community, accompanied by the community-based natural resource management strategies to gain support from local community leaders and populations. New research needs to be done on ways to find a middle ground or adequate way of combining the two divergent philosophies to conservation. With individuals on both side working together to find collective solutions because if protection wildlife “from human beings is the main game, then the better approach is the one that is more likely to deliver the goods and the other is “ nonsense upon stilts” (Hadley, 2016).
## Appendix

<table>
<thead>
<tr>
<th>Country</th>
<th>CITIES Member</th>
<th>Southern &amp; West Africa</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Offense &amp; Penalties</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poaching</td>
</tr>
<tr>
<td>Angola</td>
<td>2013</td>
<td>Penalties of killing an Elephant AOA333,450 (US $3747)</td>
</tr>
<tr>
<td>Botswana</td>
<td>1978</td>
<td>Fines of P50,000 (about US $6,375) in fines &amp; a 10 year prison term Rhino: Fine up to P100,000 and Prison for 15 years</td>
</tr>
<tr>
<td>Kenya</td>
<td>1979</td>
<td>Fine of up to 40,000 KES (about US$464) and/or up to 10 years in prison</td>
</tr>
<tr>
<td>Mozambique</td>
<td>1981</td>
<td>Fines range from 2 (US$69.45) to 100 million MT (US$3,472.27) Fines 10 times</td>
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<tr>
<td>Country</td>
<td>Year</td>
<td>Penalty Details</td>
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</tr>
<tr>
<td>Namibia</td>
<td>1991</td>
<td>Fine not exceeding R200,000 ($15,272)</td>
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<tr>
<td>South Africa</td>
<td>1975</td>
<td>Fine from 5 (US $387,717.650) to 10 million R (US $775435.30)</td>
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<tr>
<td>Tanzania</td>
<td>1980</td>
<td>Fines from 500,000 TZS (about US$315) to 2 million TZS (about US$1260) and/or a</td>
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<tr>
<td>Zambia</td>
<td>1981</td>
<td>First offence, Prison of not less than 5 but not exceeding 20 years,</td>
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<td></td>
<td></td>
<td>Second or subsequent offence, Prison of not less than 10 but not exceeding 25</td>
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<td>Country</td>
<td>CITIES Member</td>
<td>Offense &amp; Penalties</td>
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<td></td>
<td></td>
<td>Poaching</td>
</tr>
<tr>
<td>Nepal</td>
<td>1975</td>
<td>In nation parks or Reserves, Fines up to 1,000,000 NPR (US $1232.43) and/or Prison 5-15 years</td>
</tr>
<tr>
<td>India</td>
<td>1976</td>
<td>Prison up to 3 years and/or Fine up to 25,000 for animals on Scheduled 1 or Part 2 of schedule 2 (if on NP, demands 3 yrs. &amp; up to 7. Fine</td>
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<tr>
<td>Country</td>
<td>CITIES Member</td>
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<tr>
<td></td>
<td></td>
<td>Poaching</td>
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<tr>
<td>Cameroon</td>
<td></td>
<td>Fines from 3 to 10 million CFA and/or Prison from 1 to 3 years. Fines double if previous offense or sworn official in wildlife or police officer</td>
</tr>
<tr>
<td>Chad</td>
<td></td>
<td>Inside reserve Prison 1-5 years and /or Fine 200,000 to 1 million Francs (US 200-400) No permit – Prison 1 to 6 months and /or Fine 100 to 300 Francs Ivory – Prison 2 to 5 years and/or 1 to 5 million francs (US 2,000 – 10,000)</td>
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<tr>
<td>C.A.R.</td>
<td></td>
<td>Prison from 2 to 5 years or 10,000 to 10 million francs Penalties double if on restricted hunting areas or</td>
</tr>
<tr>
<td>D.R.C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table entries are in descending order of severity, with the highest fines and/or imprisonment listed first.
<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Fine/min</th>
<th>Sentence/min</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabon</td>
<td>1989</td>
<td>Fine up to 10 million FCFA and/or Prison from 3 to 6 months</td>
<td>Fine up to 10 million FCFA and/or Prison from 3 to 6 months</td>
<td>N/A</td>
</tr>
<tr>
<td>Republic of Congo</td>
<td>1983</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sudan</td>
<td>1982</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>South Sudan</td>
<td></td>
<td>Fine not exceeding $500 USD or prison no more than a year for persons without citizenship Fine Ls 100 or no more than 6 months</td>
<td>Fine not exceeding $500 USD or prison no more than a year for persons without citizenship Fine Ls 100 or no more than 6 months</td>
<td>N/A</td>
</tr>
<tr>
<td>Uganda</td>
<td>1983</td>
<td>No less than 1 million shillings and/or Prison no more than 5 years/ Fine shall not be less than specimens</td>
<td>No less than 0 million shillings or Prison no less than 7 years/ Fine should not be less than specimen involved</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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