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SILENCE IS THE LOUDEST SOUND

by

Emma B. Christian

A Thesis Submitted in Partial Fulfillment  
of the Requirements for a Degree with Honors  
(Animal and Veterinary Science)

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## **ABSTRACT**

Rhinoceros poaching is an act of killing a rhinoceros in order to take its horn, which is then used for human consumption or for cultural traditions. Both the Asian and the African rhinoceros are targets because of the demand from China, Vietnam, Yemen, and other countries around the world. Traditional Chinese Medicine practice is the main demand for rhinoceros horn and this demand in rhinoceros horn has caused an increase in the black market. Conservation of the rhinoceros is decreasing primarily because the price of rhinoceros horn is more than double the average household income in South Africa, thus making rhinoceros poaching very profitable. Although there is an international ban on rhinoceros horn, there is thought of legalizing the horn trade and then using the profits for conservation. There have been measures taken to deter illegal poaching including dehorning and poisoning of rhinoceros horn; however the cost to do so is not practical. The problem does not stop at poaching, but at regaining the population once poaching is under control. Understanding poaching on a global level and what is currently being done is the first step in educating the public and understanding the fate of the future generations of rhinoceros.

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## INTRODUCTION

Africa is known for safaris, animals, sounds of the plains, and third world poverty. The 'big five' are Africa's most recognized animals, which include: the lion, the African elephant, the Cape buffalo, the leopard and the rhinoceros. The 'big five' have been a part of Africa's history since before civilized man. Unfortunately, the demand for certain body parts of these animals has led to poaching and the endangerment of the animals, sometimes causing death to rangers who are trying to protect them. Recently, the demand overseas for the 'big five' has caused a huge increase in the illegal black market. The rhinoceros is the number one species being targeted in recent years solely due to the black market. Educating the public and understanding this market will lead to global awareness of the poaching crisis and hopefully will lead to finding a solution.

## OVERVIEW OF THE RHINOCEROS SPECIES

To understand the poaching crisis in Africa, it is important to understand what poaching is, what the black market demands, and which species of rhinoceros are affected. "Animals that are killed illegally are said to be 'poached'..." (Ellis, 2005, p.16). Poaching not only occurs in third world countries, but in the United States as well. Poaching occurs when any animal is killed illegally. There are a total of five species of rhinoceros found in Africa and Asia, these include: the White rhinoceros (*Ceratotherium simum*), the Black rhinoceros (*Diceros bicomis*), the Greater One-horned rhinoceros (*Rhinoceros unicornus*), the Sumatran rhinoceros (*Dicerorhinus sumatrensis*) and the Javan rhinoceros (*Rhinoceros sondaicus*). The two African species of rhinoceros are the White rhinoceros and the Black rhinoceros; the three Asian species are the Greater One-Horned, the Sumatran, and the Javan rhinoceros (Burgess, 2012). The Black rhinoceros

and the White rhinoceros have lost much of their roaming territory over central and southern Africa due to land loss, and their numbers are shrinking due to heavy poaching. The population of every species of rhinoceros is affected by the poaching crisis.

The five species of rhinoceros vary primarily due to the difference in their horns. The Greater One-horned and Javan rhinoceros have one horn where the Sumatran and both African species have two (Ellis, 2005, p.89). There are also 11 subspecies of rhinoceros, some of which include: the Vietnamese Javan rhinoceros, the Borneo rhinoceros and the Northern White rhinoceros. Of these species and subspecies, the Vietnamese Javan rhinoceros is extinct; the Borneo rhinoceros has approximately 30 left in the world, and the Northern White rhinoceros numbers 7. One of the most shocking statistics is that the Javan rhinoceros, which has a population of fewer than 50 individuals is “possibly the most critically endangered mammal on earth” (“Rhino Species”, 2007). There are no Javan rhinoceros in captivity, which makes their struggle for survival that much greater. “In October 2011 it was confirmed that the Javan rhino in Vietnam is extinct” (“WWF Canada”, 2012), so the only other populations that exist are in Thailand and Indochina. The last Javan rhinoceros in Vietnam was found with a bullet in its’ head and with its horn chopped off. The extinction in an area of this species is a direct result of poaching. The rhinoceros population in the last 40 years has declined 90% (Brightman, 2012), due to land loss but primarily as a result of poaching. In the last four years, the reported rhinoceros deaths in South Africa have increased 521.2% (Daffue, 2013). In South Africa in 2012, Petronel Nieuwoudt, owner of Care for Wild Rehabilitation in Nelspruit, received a phone call stating that the last Black rhinoceros

had been poached in Mozambique and she proceeded to explain that Mozambique has a very high population of poachers (personal communication, May 15, 2012).

### **WHITE RHINOCEROS**

The African White rhinoceros has two subspecies: the northern (*Ceratotherium simum cottoni*) and southern (*Ceratotherium simum simum*) and of the two sub species the northern is critically endangered (Ellis, 2005, p.99). I was fortunate to have traveled to South Africa in May of 2012 where I volunteered for Petronel Nieuwoudt at Care for Wild Rehabilitation for one month working with three rhinoceros that were orphaned. The rhinoceros that I witnessed in the wild during my time in South Africa were the southern White rhinoceros because they are more populous than the others. The White rhinoceros has the largest population of all the other rhinoceros populations combined with approximately 20,600 individuals (“Rhino Species”, 2007). The southern White rhinoceros that I worked with were orphaned due to their mothers having been poached for their horn. Wild game rangers found the orphaned babies next to their deceased mothers. The third rhinoceros was orphaned because an elephant had trampled her mother. Poaching is a threat not only for the adult rhinoceros but for their babies as well; future generations of rhinoceros are effected because of this poaching crisis. The young stay with their mothers for approximately three years, suckling for the first eighteen months while learning grazing behaviors for the rest of their time with their mothers (P. Nieuwoudt, personal communication, May 15, 2012). While I was caring for the young rhinoceros, it was evident that they remembered the traumatic death of their mothers. Anytime there was a gunshot, whether a tranquilizer or dart gun, they reacted negatively by whining. When darting an animal in the compound in order to move them into a

bigger enclosure or to release them into the wild, we had to make sure the baby rhinoceros were far from the darting otherwise it would cause them great emotional distress. It is traumatic for the orphans to be alone, because White rhinoceros “live together in small herds” (Wanner, 2013a).

Every species and subspecies of rhinoceros has very poor eyesight, which makes them a greater target for poachers especially at night (P. Nieuwoudt, personal communication, May 15, 2012). A full moon is when the rhinoceros is the most susceptible to falling prey to poachers. The reason being, the moon shines bright giving an advantage to poachers because they are able to see more of the brush; in addition the rhinoceros have such horrible eyesight that the full moon does not help them to navigate through the night (P. Nieuwoudt, personal communication, May 15, 2012). The full moon, better known as a poachers moon, is a time where “poachers are most likely coming to shoot our rhino and that the rhino are most vulnerable” (Wanner, 2013b). *Rhino Wars*, a television show airing on Animal Planet, has as its main goal helping the rangers combat the poachers at Kruger National Park in South Africa, while at the same time educating the public. In *Rhino Wars*, four Navy Seals from the United States aid in the protection of rhinoceros while attempting to teach the guards at Kruger National Park how to prevent poachers from entering the park and how to protect themselves as well as the rhinoceros. The Navy Seals do this because they know that each species of rhinoceros holds a role in Africa’s ecosystem that they inhabit, and are keystone animals along with the elephants. Without the existence of the elephants and rhinoceros, the ecosystem would crumble (Griffin, 2013).

## **RHINOCEROS HORN**

Rhinoceros horn is composed of a completely different structure than elephant tusks. An elephant tusk is an enlarged incisor tooth without the enamel, and is what we know as ivory. The horn, regardless of the species of rhinoceros is made up of fibrous keratin and just like our own hair and fingernails, once it is cut off or breaks off, the stump can continue to grow (P. Nieuwoudt, personal communication, May 15, 2012).

Keratin—the major protein components of hair, wool, nails, horn, hoofs, and the quills of feathers—in rhinoceros horn is chemically complex and contains large quantities of sulfur-containing amino acids, particularly cysteine, but also tyrosine, histidine, lysine, and arginine, and the salts calcium carbonate and calcium phosphate. Rhino horns are composed primarily of keratin, but so too are rhino nails. Three to a foot, for a grand total of twelve per rhino, the nails can also be shaved or powdered for pharmaceuticals. (Ellis, 2005, p.128-129)

Although rhinoceros horn can grow continuously, it only grows an average of about 6 cm a year regardless of which species of rhinoceros. The 6 cm growth per rhinoceros per year is not adequate to keep up with the poachers demand. The idea of a rhinoceros farm, raising rhinoceros for their horns has been suggested; similar to the farming of Moon bears for their gallbladder bile. However rhinoceros farming is not feasible because the supply cannot fill the demand due to the slow growth of the horn.

## **TRADITIONAL CHINESE MEDICINE**

Collecting symbols from animals or using animal parts for personal use dates back to times BC. Rhinoceros horn has in fact been used for over 2000 years as an Asian ingredient in Traditional Chinese Medicine (Still, 2003, p.119). From the time of the Roman Empire to present day, elephant ivory is classified as a status of wealth, whether lining boats, carved into chopsticks, or fashions into piano keys. Until the 1970s, rhinoceros horn, more specifically Black rhinoceros horn was used for making drinking

cups, swords, or knife handles; however after the 1970s there was the real increase in demand for Traditional Chinese Medicine (Ellis, 2005, p.94). Currently, Asian countries, as well as North Yemen, hold the largest demand for rhinoceros horn leading to a black market demand on rhinoceros horn. Rhinoceros horn is used in Traditional Chinese Medicine as a cancer treatment and is also used for recreation. According to Brightman (2012), “In Vietnam, rhino horn is a recreational (party) drug and used by affluent people as a detoxifying beverage and body-rejuvenating tonic”. Rhinoceros horn and other body parts such as penises, feet, and ears, are used in traditional Eastern medicine and are used as aphrodisiacs.

## **HISTORY OF RHINOCEROS HORN AND TRADITIONAL CHINESE MEDICINE**

The main decline in the rhinoceros population in the 1970s was due to a tradition practiced by Yemeni males. In a coming of age custom, Yemeni men are given knife handles made from rhinoceros horn. This tradition greatly added to the decline in the rhinoceros population by 85% in 17 years (Stills, 2003, p. 119). In China, rhinoceros horn is used in Traditional Chinese Medicine to treat fever, pain, rheumatism, convulsions and other disorders (Brightman, 2012). Traditional Chinese Medicine dates back to 1,100 BC. In *Materia Medica*, a book of Chinese medicine, it prescribes Indian elephant for many of its main medicinal purposes. The medical myths began when people believed that a unicorn horn could detect poison or cure ailments (Ellis, 2005, p.15). The only other animal that has a horn growing in a similar place as a unicorn that is on land is the rhinoceros. Traditional Chinese Medicine is based on ‘tradition rooted’ experience, and it is such a large practice that it is actually “recognized in Asia as a

legitimate field of medicine, with its own parallel training and certification” (Sas-Rolfes, 2012, p.5). Traditional Chinese Medicine is also spreading into the Western Civilization with practices such as acupuncture.

## **HEALTH RISKS**

There are two different sects within the Traditional Chinese Medicine; one sect believes in using only plant herbal medicine, the other believes in using both plant and animal products. One avid rhino horn user in Vietnam uses rhino horn as a ‘hangover cure’. “Every time [he] drank alcohol, [he’d] go home and grind the horn and drink it, an hour later, [he’d] throw up and feel sober again” (Langfitt, 2013). The demand for this powder is so great, that some illegal traders are attempting to pass on buffalo horn or industrial plastic as rhino horn (Langfitt, 2013). In the entire Traditional Chinese Medicine, it is estimated that 13% of all the medicines and practices used are derived from animal products. These animal parts have not been scientifically analyzed to see if there are any health risks associated with using them (Still, 2003, p.118). Not only are the horns being used as a cure for cancer, but rhinoceros penis is also being used in Traditional Chinese Medicine as a treatment for impotence (Ellis, 2005, p.114). There is no scientific justification in any of the Traditional Chinese Medicine books that have been examined; to not know what you are smoking, ingesting, or applying to your body is a serious health risk. What is potentially more serious is that the animal products used in Traditional Chinese Medicine are also being recorded, published, and taught overseas for medical practitioners learning the art of Traditional Chinese Medicine. None of these published texts have any documented scientific studies or proof written of the health effects on humans (Still, 2003, p.119). A study at the Chinese University in Hong Kong

demonstrated that the rhinoceros horn lowered fever in rats; however “further studies are needed to determine the effects of the different horns on humans” (Costa-neto, 2005, p.38). The lack of testing on humans is a concern because of zoonotic diseases.

Zoonotic diseases are diseases that are transmitted from animals to people or from people to animals. When I was in Africa I had to not only get a rabies vaccination but had to follow a protocol where I was unable to work with the rhinoceros, the hoof stock, and the lions in the same day because of the risk of spreading diseases among the different species. Animals can pass diseases to humans and avoiding animal based Traditional Chinese Medicine can drastically decrease the spread of zoonotic diseases. The ingestion of animal based Traditional Chinese Medicine is not regulated by health boards. At the Safari Park in Great Britain, a study done used monkeys with infectious diseases. These monkeys had been discovered to be carrying herpes B virus, which did not affect the monkeys. This zoonotic virus, in humans, has a high mortality rate. “Certain researchers seriously consider the hypothesis that the worldwide epidemic of the HIV virus might have been initiated by transmission of a virus from monkeys several decades earlier (Still, 2003, p.120). Zoonotic diseases are very dangerous and can be spread if not regulated. Organs, tissues, bones, and bile can be dangerous if handled improperly because of transmission of Salmonella infection, rabies, and tuberculosis (Still, 2003, p.120). Salmonella infection spreading between species of lions and rhinoceros is a main cause for concern.

In his 1966 book *S. O. S. Rhino*, C. A. S. Guggisberg blamed the decline in rhino numbers not on its stupidity, but on ours: ‘In the case of the rhino the illogicality and stupidity of mankind has resulted in a situation in which the world is in danger of losing the improbable but altogether fascinating rhinoceros forever’. (Ellis, 2005, p.93)

Due to the practice of Traditional Chinese Medicine, there are some species that are more threatened than others, however no species of rhinoceros is safe. The Asian rhinoceros is the species most targeted because it is native to the continent where there is the greatest demand. The species that is most threatened from poaching due to the Asian culture's demand is the Sumatran rhinoceros. Not only are poachers killing them for their horn, but also the Chinese timber companies are destroying their habitat (Ellis, 2005, p.108). The animals are not the only target and the only casualty when it comes to the poaching crisis.

The poaching crisis is not just a war between man and animal, but is now a war between park rangers and the poachers. The poachers will do whatever it takes to get a horn, including killing park rangers and guards on watch. Park rangers patrolling National Parks are being caught in the crossfire while they are checking the land for traps and illegal activity. In the last 15 years alone, "about 1000 rangers [...] have been killed while policing commercial poaching, illegal logging and militia activities in protected areas such as national parks" (Wright & Porteous, 2011). The number of fatalities is increasing with the increase in demand for the rhinoceros horn. Poachers are becoming ruthless; in fact a poacher poached a rhinoceros in one of the gated compounds associated with the program where I volunteered in South Africa. If there had been a volunteer checking on the rhinoceros at the time, the volunteer could have been killed along with the rhinoceros.

### **BLACK MARKET**

A black market is defined as the illegal business of buying or selling goods or currency in violation of restrictions such as price controls or rationing ("The Free

Dictionary”, n.d.). In order for there to be a market of any kind, there needs to be a supply and a demand.

### **ECONOMICS OF THE BLACK MARKET**

In the rhinoceros horn black market, there needs to be a supply of horns, a demand from the clients, poachers, smugglers, and illegal traders. “Its horns are collected by African poachers and sold to dealers to be converted to traditional medicines in Asia” (Ellis, 2005, p.95). What really drives the black market; however, is greed. There are two aspects of the black market: the “market size (as measured by total market value) and persistence of demand in the face of rising prices (as measured by so-called price elasticity)” (Sas-Rolfes, 2012, p.6). Where there is money and profit, the humane treatment of animals is almost non-existent. Sas-Rolfes (2012) states, “poachers are motivated by the prospect of profit” (p.4). This illegal black market trade is typically a short-term profit, a short-term satisfaction that can result in extinction. People often wonder ‘don’t the poachers realize if they keep poaching the rhinoceros there will be no more rhinoceros left for their profits in the future?’ This is true however; the black market trade fulfills an instant gratification.

In the case of the illegal rhino horn market, when retail prices are rising we can typically expect poaching activity to increase if the expected costs of poaching remain unchanged. Similarly, falling retail prices should result in reduced poaching activity, due to the trickle-down effect of potentially lower short-term rewards. (Sas-Rolfes, 2012, p.4)

For any animal that is considered endangered, it is illegal to have anything from that animal in your possession. This is because by having something in your possession it could be traded and turned into a black market. When I was in Africa, one of the White lions had lost its claw in the fence. I picked up the claw and was told that I was unable to

keep it due to the black market potential that could result from it. It could result in a high demand but a small supply because “it is illegal to trade in these animals and their products in all member countries” (Still, 2003, p.119). It is difficult to know how much demand the black market holds when the demand for the products holds such high value, and when the supply is so small. In Vietnam, the World Wildlife Fund (2012) studied the demand for rhinoceros horn; it was found that the demand was much larger than anyone could imagine, the reason being intended buyers. Intended buyers are consumers that would like to buy rhinoceros horn; however they do not have the money to do so. Just as people in our society save up money for a designer item, these people are intending to buy the designer ‘drug’ once they save up the money. The study also proves that horn is not only purchased for medicinal purposes but as a status symbol. The demand will increase the more the status, wealth and living standards increase, and it is a never-ending battle. In 1993 the People’s Republic of China banned the use of rhinoceros and tiger products in Traditional Chinese Medicine. In 2007 there was talk of lifting the ban and this led to the idea of the intended buyer. In the survey of people suffering from ailments in China, it was concluded that the “ban is likely to stimulate a degree of speculative stockpiling” (Sas-Rolfes, 2012, p.5). Stockpiling refers to horns that are bought and kept until the market price and demand rises again, the goal being to drive up the profit of these horns. Stockpile buyers purchase the horns at a low price in the market when horns have flooded the market. They then wait to sell the horns until the supply of horns has decreased, thus selling them at an inflated price.

## **HOW MUCH IT IS WORTH**

According to multiple sources including John Roach (2013), the value of rhino horn is about \$65,000 per kilogram, which calculates to \$29,545 per pound. A rhino horn depending on the species can range from 1 to 3 kg depending on the species, which means it can weight up to 6.6 pounds. At the cost per pound the rhinoceros horn can be valued up to \$194,997 (Guilford, 2013). In contrast the average South African household income in 2011 was \$9,208 (Masiteng & Shabalala, 2012); consequently a rhinoceros horn, although the poachers themselves will not see all of the profit, can financially support a poacher. There is inadequate punishment for poaching so there is no deterrent for poachers. “Measure to physically protect live rhinos act as a far better deterrent than after-the-fact law enforcement measures such as pursuing poachers, smugglers and illegal traders” (Sas-Rolfes, 2012, p.3).

## **LOCAL INVOLVEMENT**

The problem of poaching seems foreign to the people of the United States but poaching is taking place within our borders. There has been proof that people in the United States are profiting from rhinoceros horn trade just like the poachers in South Africa. The United States Department of Justice charged a man on November 7, 2013 with the sale of Black rhinoceros horn that sold for \$35,000. All species of rhinoceros are conserved and protected under the international law. A man was charged with illegally selling a Black rhinoceros head mount in New Hampshire (“United States Department of Justice”, 2013). Poaching and animal trade is a worldwide problem; the financial benefits of rhinoceros poaching are influencing individuals to get involved in the illegal poaching trade even in first world countries.

## INTERNATIONAL INVOLVEMENT

There has been an attempt to stop poaching on an international level. The Convention on International Trade in Endangerment (CITES), created in 1963, is a voluntary agreement between governments to help put an end to international trade that threatens the survival of any species (Milliken, Emslie, & Talukdar, 2009). In 1977, CITES banned rhinoceros trade but it did not help curb the decline of the rhinoceros population. Most countries that consume rhinoceros horn did not and do not abide by the CITES ban. There is no way that CITES can monitor the trade of horn, except for transportation over state lines (Sas- Rolfes, 2012, p.8). CITES works by asking countries to join voluntarily but once they join they must sign a contract, known as the Convention. The Convention classifies different species according to how endangered they are. Within the Convention, there are appendices with lists of animals and what is legal and illegal to trade; in Appendix 1 are those animals threatened with extinction and the trade is essentially prohibited (Tobin, 2012, p.10). Those that are threatened are placed in Appendix II where there is very limited trade allowed and lastly in Appendix III the trade is regulated (“Convention on International Trade”, n.d.).

CITES specifically has a resolution for rhinoceroses, directing certain measures be enforced for certain parties involved in the act of trading; Vietnam, Mozambique, and South Africa are all involved. All parties should “immediately bring every seizure of illegal rhinoceros specimens made within their territories to the attention of authorities in countries origin” (“Convention on International Trade”, n.d.). In fact, on January 2013, Vietnams Prime Minister issued the “Prohibition of the export, import, selling and buying of specimens of some wild animals listed in the CITES Appendices” Milliken et al.

(2009). Vietnam fully cooperated with the Convention until 2003, when they discovered a loophole, which the Vietnamese started to abuse. Vietnamese Nationals would trophy hunt the White rhinoceros, which was allowed because it is the only way to export the horn legally and commercially under CITES. This was after South Africa requested to move White rhinoceros from Appendix I, which is a ban on trade, to Appendix II, which has limited trade. The number of poachers increased, 'trophy hunting' the White rhinoceros. However it became apparent to the government of South Africa that the rhinoceros were being poached for their horn and not trophy hunted so they put stricter laws in place.

The black market continues to thrive even with CITES in place. According to a report by Milliken et al. (2009), there were approximately 20 rhinoceros horns seized by law enforcement in South Africa in 2010, however with the rate of dead carcasses found in Africa, it is estimated that about 320 horns evaded law enforcement and have entered into the black market. What can CITES do differently to encourage countries to abide by these laws? "[...] there needs to be a central fund that CITES can use in order to reward states for positive behaviour as well as assisting developing states with funds they would have lost out on as income from trade" (Tobin, 2012, p.11). Where can this money come from? The main problem that comes with CITES is that even though there is a complete ban for the trade of rhinoceros horn, there are still consumers that want it. If the high-income consumers want a product and it is illegal, there is a black market that will be formed.

## LEGALIZING TRADE CONTROVERSY

South Africa proposed to legalize the trade of rhinoceros products including rhinoceros horns to CITES, but it has been turned down.

The South African George Hughes stated, ‘The reasons behind the proposal were simple—after 15 years of total CITES protection the world status of rhino populations, with the exception of the southern race of the white rhinoceros had steadily worsened. The CITES ban (and within the country bans on trade) had apparently merely exacerbated a deteriorating situation with no indication of any change in trend’. (Tobin, 2012, p.13)

There will be another attempt to adapt this proposal at the 2016 Convention of Trade in Endangered Species of Wild Fauna and Flora (Krenski, 2013). Why would South Africa want the horn trade to be legalized? “The data suggests that banning of legal, open trade in rhino horn has not resulted in reduced demand for the horn, and has not helped save the rhino from imminent extinction” (Sapa, 2013). So what is the answer if banning it through CITES is not helping the survival of rhinoceros. Legalizing rhinoceros horn could be the answer. Petronel Nieuwoudt is a strong believer in legalizing the rhinoceros horn because she feels that with more money coming in for conservation we could help fund the young and orphaned rhinoceros and educate the local community (personal communication, May 15, 2012). “A legal trade in rhino horn would provide substantial funding for private and state conservation in South Africa” (Child, 2012, p.1). What does it mean to legalize rhinoceros horn trade? It means that the trade would be regulated, and rhinoceros would be dehorned humanely and no death of an animal would occur. The main point of the proposal for legalizing rhinoceros horn, is that the money made from the sale will be used in conservation efforts. The private rhinoceros owners have in fact, stockpiled rhinoceros horn from their animals from humane dehorning techniques. Petronel Nieuwoudt has in her possession rhinoceros horn from dehorning DiDi, one of

the orphaned rhinoceros in her care, and when her two other White rhinoceros, Lunar and Storm, grow their horn long enough she will have their horn removed. For the private owners the money earned by legally selling their horn will allow them to provide better protection and housing for their rhinoceros. With the legalization on a larger scale, the conservation efforts will increase because of the increase in funding and it will result in the teaching of conservation in local communities. “If the communities become involved in conservation projects and learn that a live rhino is, over the long-term, more valuable than a poached rhino because of the possibilities for ecotourism there may be hope to prevent poaching from the local communities (Tobin, 2012, p.16). For there to be a successful legal market, there does need to be trustworthy regulation. The hope is that CITES will legalize and regulate the rhinoceros horn in a legal market.

#### **ARGUMENTS AGAINST LEGALIZING THE TRADE**

Many do not agree with the legalization of the rhinoceros horn trade. If it is legalized, some believe that this will lead to rhinoceros farms; there are already farms that exist for Moon bears. The rhinoceros will be raised strictly for their horn and it will be harvested for the purpose of trade. “The fear is that, through farming, rhinos will become another commonplace commodity and will lose their uniqueness and reputation as one of the great animals of the wild” (Tobin, 2012, p.15). This is exactly what conservationists do not want, because they want to protect the ‘big five’ and allow for them to be unique and exist in their natural habitat. If rhinoceros are farmed and become a common commodity, it will drive down the local ecotourism. Chris Galliers who is the Manager of Wildlife and Environment Society of South Africa (WESSA) Rhino Conservation states that the illegal traders “may shift market preference as we have seen

with other wildlife products. For example, they market the fact that wild rhino horns have great medicinal properties and therefore more value than farmed ones” (Krenski, 2013). This would mean that there would be a legal market and an illegal market, which would increase rhinoceros poaching and ultimately be an end of the species. An example of this complex market trade exists in the sale of ivory. “Illegal ivory is now cheaper than legal ivory, which has led to the greatest surge in poaching...” (Brightman, 2012). In regards to elephant poaching, it is stated that in the months before a CITES meeting there is an increase in the number of poached elephants. This is due to the discussion of legalizing the sale of ivory trade in the CITES meetings because poachers benefit more from illegal trade where the prices are higher than when sold legally. It is expected that that the same would happen to the African rhinoceros before a CITES meeting discussing horn legality (Roach, 2013). The greatest demand would be for the illegally poached rhinoceros horn and not the legal humanely harvested horn. We do not know the full context of the black market; thus we cannot know how legalizing trade would affect the demand. The spokesperson of the David Shepherd Wildlife Foundation discussed legalizing rhinoceros trade and stated, “Once rhino horn is legally available, demand will soar, as it has with ivory... It’s not a case of people switching from illegal to legal ivory. They’re now buying both” (Tobin, 2012, p.20). However, if the rhinoceros population continues to decline at the rate it is now, the rhinoceros population will be extinct by the year 2033 (Krenski, 2013). The debate is ongoing, whether or not to try something different by legalizing rhinoceros horn trade, which may kill off a species, or change nothing, which will prolong the inevitable extinction. As Sas-Rolfes (1997) states, “trade

bans do create a measure of control over commodity trade: they place it in the hands of organized crime” (p.28).

### **ALTERING THE HORN**

The government and private owners of compounds, such as the camp where I volunteered, dehorn the rhinoceros humanely, leaving no reason for poachers to poach the animals. The rhinoceros is put under anesthetic and the horn is cut off leaving the base of the horn. The rhinoceros does not feel any pain, unless the base of the horn is removed, because the horn is connected to a bone on the rhinoceros head (Keremitsis, n.d.). One of the rhinoceros I worked with in South Africa named Didi, had her horn humanely removed to prevent any temptation for poachers. For private owners who rehabilitate animals, or who have refugees for orphaned victims, this is a good way to deter poachers; however for the rhinoceros in the wild it is costly and nearly impossible. In Kruger National Park there are an estimated 10,000 rhinoceros. It would be virtually impossible to tranquilize them, and dehorn them. This procedure would have to be repeated every two years, because the horn grows one inch in two years (Eustace, 2012, p.2). This system for the wild rhinoceros is “not practical, desirable, or affordable” (Eustace, 2012, p.7). The problem with dehorning some rhinoceros and not others in the wild is because of the natural defenses the horn provides.

Dehorning has been discussed as a measure to prevent poaching since the 1950s, [but] until now it has been discarded in most areas of Africa for several reasons. First, the cost of dehorning several thousand rhinos over tens of thousands of square kilometers would be extremely expensive. Second, the two African species, the black and the white rhino, use their horn in sparring and to defend calves against predators such as lions and spotted hyenas. Hence, hornless rhinos may be unable to maintain their social status or to rear their calves successfully. As important, most black rhinos live in thick bush, and poacher sighting only a part silhouette could shoot before finding out his quarry is hornless. (Ellis, 2005, p. 134)

Dehorning a rhinoceros is like declawing a lion and putting it back in the wild expecting it to fend for itself. Rhinoceros females mainly use their horns for mating behaviors and the males use them in serious territory fighting or fighting for mates (Leuthold, 1977, p.127). Dehorning wild rhinoceros is taking away a defense mechanism and overall affecting their ability to live a normal life; it is nearly physically and financially impossible to do so. For the rhinoceros in captivity, such as Didi, it is a great solution because she will no longer be a target and does not need her horn with the other rhinoceros in the compound because they have also been dehorned.

Some private owners, who believe that dehorning is inhumane because part of a rhinoceros that is needed in its daily life is removed, poison the rhinoceros horn. Poisoning the horn, or 'horn infusion', is becoming a popular practice by private owners. The poison does not harm the rhinoceros, but will instead harm the humans that might ingest it. The poison is not intended to be deadly to humans, but is extremely toxic causing symptoms such as nerve disorders, vomiting, and diarrhea (Carnie, 2013). The toxins that are placed in the horn do not seep from the horn into the blood stream of the rhinoceros. Although it is not published what the toxins are, it is hoped that they will deter the users. "Warning international crime syndicates and those using rhino-based traditional health remedies that the horns could be deadly" (Carnie, 2013). It is hoped that if enough poisoned horn is sold and ingested by users, it will deter those users and ultimately save rhinoceros in the future. Some private owners have resorted to hiring 24-hour surveillance for their rhinoceros. Although this is a logical solution to hire 24-hour security guards to protect rhinoceros, it is not possible for wild rhinoceros and often not affordable for private rhinoceros owners.

## REPLENISHING THE POPULATION

Rhinoceros farming and overall captive breeding is an option that many economists and conservationists are contemplating as a solution for the supply of rhinoceros horn. The problem with attempting to replenish a diminishing population is that the length of the rhinoceros gestation is quite long, about 450 days varying slightly between the five species. Once the rhinoceros gives birth the calf stays with its mother a minimum of eighteen months to suckle. This means that the birth cycle is approximately three years per rhinoceros, a very slow rate for repopulating (P. Nieuwoudt, personal communication, May 15, 2012). Using captive breeding to obtain rhinoceros horn, elephant ivory, or Moon bear bile is one way to harvest sought after animal parts in a regulated and humane manner. The question is whether or not it is a feasible solution to fill the demand. Can substitutes for rhinoceros horn be found? Many are asking this very question and economists believe that a substitute can be a solution if one is found but as of today there is no close substitute. “Then in the extreme case all profits from wildlife harvesting could be eliminated by flooding the market with substitute products to such an extent that the price of [the] wild product falls below harvest cost” (Damania & Bulte, 2009, p.470). There is no other animal that has horn of the consistency, or which carries the historical and medicinal lore, of the rhinoceros horn.

It is important to understand the rhinoceros poaching crisis in its entirety. Traditional Chinese Medicine has been using animal products for hundreds of years to cure ailments, declare status of wealth, or as is the case in the Yemeni culture, to declare manhood. The horn of rhinoceros has not been scientifically proven to have any positive physical health effects on human beings and has not been scientifically tested for diseases

that can be passed on and cause detrimental harm to individuals. With the black market demand growing exponentially in China, Vietnam, Yemen, and other countries around the world, the price of rhinoceros horn and the profits made from its sale, has made conservation efforts almost impossible. Even on an international level, the CITES ban has not stopped the illegal poaching but will lifting the ban and making trade legal help in conservation efforts? With animal populations dwindling, can the world afford to test the legality of harvesting rhinoceros horn or should it keep the laws the same and work strictly on the prevention of poaching? Educating the public on the effects of poaching including the supply and demand, and the laws behind it, is critical in saving this species. The first step is to educate the world and to reduce the demand on the black market for these horns. The second step is to grow the population of rhinoceros, a lengthy process due to the long length of gestation and suckling time for the calves. How long will it take before this species is gone, until Africa is home to the 'big four' and not the 'big five'? Will their loudest cry for help be when there are not rhinoceros left, when there is utter silence?

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