Nations such as South Africa, Bahrain, Pakistan, and Mozambique have no or weak regulations to address this wild-sourcing of birds for breeding facilities. This allows operations within nations such as South Africa to profit from the importation of wild-caught parrots from neighboring range states, ultimately acting as the main exporter of captive-bred African, with 40,000 African grey parrots exported annually. Steyn (2016) summarizes: “[Even] well-meaning pet owners may therefore inadvertently support the trade in wild-caught parrots by buying chicks bred from wild hens.”

This import-export wild parrot laundering system involves complex and often politically powerful networks of importers and exporter partners working in both range states and South Africa. As part of this system, partners work to establish a system to quarantine, select, and finalize import of these parrots with veterinarians that are contracted by importers to visit source countries. Those parrots that are not selected as breeders are given away, released, or frequently—disposed of. (Boyes, 2012)

During an interview conducted with this team of researchers, Mr. Mpho Tjiane, Deputy Director of the CITES Management Authorities of South Africa, stated that South Africa, being an importing country of *Psittacus erithacus*, is dependent on good harvesting methods by the exporting countries and recognized that the biggest challenges remain in range states and management of quotas by the exporting countries (M. Tjiane, personal communication, April 12, 2016).

The Source of the Demand. We can also analyze which nations drive the demand for wild parrots from range states. Frequently, in the interviews we conducted, ‘the Middle East’ was specified as the region where the demand for this species originates. To get a more clear sense of which specific nations reported importing *Psittacus erithacus*, we analyzed a seven-year period (2007-2014) of reporting of imports and exports of this species.

UNEP-WCMC (World Conservation Monitoring Centre), on behalf of the CITES Secretariat, developed and maintains the CITES Trade Database. This database includes 13 million records of wildlife trade and 34,000+ species taxa, as are listed in the CITES Appendices. One million trade records of CITES-listed wildlife are reported and entered into the database every year. These annual reports are the only existent means of monitoring whether nations that have agreed to the Convention are properly executing and aligning with CITES provisions. The submission of these annual reports are required by CITES Resolution Conf. 11.17 (Rev. CoP16). Parties are required to submit their reports to CITES by October 31 of the year after the year that the trade has occurred (UNEP-WCMC, 2013).

It should be noted that, “not all Parties submit their annual reports on time, some are incomplete, and some Parties do not submit any annual report for several years because of internal problems, such as civil war, lack of personnel or resources, etc. In special circumstances, a Party may request, and the Secretariat may grant, an
extension to the 31 October deadline. As a result of these reporting problems, the most recent year for which comprehensive trade statistics are available is normally two years before the current year.” Due to this, we chose to set the most recent year of analysis as 2014 (UNEP-WCMC, 2013).

From Figure 2, we can see a ranking of countries that are reported to have received exports of this species. All twenty reported nations were reported to have received over 3000 parrots, assuming that units reported were indeed as individuals, and not a larger unit of measure such as ‘crates’ or other such ambiguous descriptor. We can see that from the years 2007 to 2014 nations in the Middle East, (Oman, Bahrain, United Arab Emirates, Qatar, Jordan, Israel, Kuwait, Lebanon), nations from Asia (Pakistan, Malaysia, Taiwan, China, Singapore, Malaysia, Bangladesh, Japan), Eastern Europe (Serbia), Africa (South Africa, Libya, Mali) were the primary importers of parrots for commercial, breeding, and personal purposes. In many of the above cases of importation, South Africa acted as the exporting nation, even though it is not a range state for this parrot. This, again, reflects the ‘laundering’ of wild parrots by this country, where wild adults are captured in range states and imported into South Africa for the purpose of breeding ‘captive-bred’ chicks for re-export and commercial sale. As an

![Figure 2](image-url)  
*Figure 2.* This graph displays the top 20 nations that imported the African grey parrot from records in the CITES trade database on April 11, 2016 for the period 2007-2014. The graphed bars represent the number of reported incidents of exportation of this species by an exporting country to the listed importing country in the x-axis. The order is as follows: 1) OM; OMAN, 2) BH; BAHRAIN, 3) AE; UNITED ARAB EMIRATES, 4) QA; QATAR, 5) PK; PAKISTAN, 6) JO; JORDAN, 7) MY; MALAYSIA, 8) IL; ISRAEL, 9) KW; KUWAIT, 10) TW; TAIWAN, 11) ZA; SOUTH AFRICA, 12) HK; HONG KONG, 13) CN; CHINA, 14) LB; LEBANON, 15) SG; SINGAPORE, 16) BD; BANGLADESH, 17) LY; LIBYA, 18) RS; SERBIA, 19) ML; MALI, 20) JP; JAPAN. All 20 reported importing over 3000 ‘units’ of this parrot. It is unclear whether these numbers reflect permits, individuals, or other measure of this species. Discrepancies between Figure 2 and 3 exist, and are discussed below.
example of the frequently colossal size of these shipments, just in one annual report we were able to see from a 2014 trade database record, South Africa shipped 38,441 live African grey parrots, *Psittacus erithacus*, to Oman.

A recent publication quantified imports of this parrot by Singapore (Poole and Shepherd, 2016). In total, 41,347 individuals of this species were logged as imports into Singapore during 2005-2014. Fifty-one percent of these individuals were listed as captive-bred and 49% were declared as wild-caught parrots in the CITES trade-database, which represents almost 10% of the total exports for this species during this nine year period. Most of these parrots were imported from Congo, the Democratic Republic of the Congo, the Central African Republic, Guinea, Côte d’Ivoir, Cameroon, Liberia and South Africa. In this case, the Central African Republic was the primary exporter of “captive-bred” parrots (Poole and Shepard, 2016).
Figure 2 and 3 differ significantly in numbers of birds imported by country. These differences originate from the fact that the details of a particular transaction reported by both the exporter and importer frequently fail to show perfect correlation. This is often for one or more of the following reasons:

- The source of the items and purpose of the transaction are often reported differently, or not at all.
- Terms and units may also be reported differently for the same items in trade.
- One of the trading partners may not have submitted a report for the year in question, or may not be a CITES Party.
- Specimens may be exported at the end of one year but not received by the importer until the following year.
- Trade may be reported at species level by one country and at a higher taxonomic level by another” (UNEP-WCMC, 2013).

Value of the Trade. This species is trapped in remote forests and represent a value to trappers of $1-10 per parrot, held in quarantine facilities for weeks to months, and then exported internationally to Bahrain, South Africa, Sri Lanka, Singapore, Taiwan and Pakistan for placement in commercial breeding facilities or sold in the market (Boyes, 2012).

According to Cupezi, Ndoye, and Mpele (2006), in a commodity-chain analysis on the capture and trade of the African grey parrot from Lobeke National Park area in the East Province of Cameroon, just the export quota allocated to Cameroon at that time (12,000 parrots) was estimated to be worth 12 million USD in European markets. Seven links in the commodity-chain received variable amounts of that income, with “trappers, government and licensees [receiving] just 0.1-0.18%, 1.6% and 0.6-0.8% respectively," as compared to importers. This suggests that a “very small proportion of the money generated through the African grey parrot commodity chain stays in the source country. This has major policy implications to strengthen the sector in terms of distributional equity and sustainable resource use.” (Cupezi et al., 2006).

In a separate article, published in National Geographic, Boyes estimates that in South Africa alone (long known to be a prime “launderer” of wild-caught parrots for the international market), the value of the trade is estimated at 50 million USD. Profits from this trade are sometimes connected to unsustainable (or illegal) trade of other endangered, wild-caught
parrots such as Scarlet macaws and cockatoos (Boyes, 2011a).

In an article by Li and Jiang (2014), entitled “International Trade of CITES Listed Bird Species in China,” these researchers found that most of the parrot species that are imported into China are from Central and South Africa, South-East Asia, and South America. In China, the African grey parrot was found to be the most imported bird species, with 75% from South Africa. While these researchers stated that most African grey parrots imported into China from South Africa were captive-bred with a minority originating directly from the wild, it has been established that many of these captive-bred facilities fuel their fledgling crop with wild-caught parent birds (Li and Jang, 2014).

Middlemen importers, such as South Africa, rely on wild-caught individuals for breeding due to the long-term timeline and cost of raising captive-bred parrots. The wild population is “much cheaper than raising the parrots yourself for 10 years and much more productive than allowing the parents to raise the offspring themselves for up to 2 years. This is a clear case of exploitation for financial benefit... greed (Boyes, 2011a).”

Plight of the African Grey Parrot: 687 dead in one flight

On December 24th, 2010, 687 wild-sourced African grey parrots mysteriously died during an 1-hour flight to Durban from Joburg, South Africa. The parrots were found packed into fifteen crates in the cargo hold. The State Veterinarian reported that parrots’ lungs were collapsed and grey, with blood hemorrhaging from their eyes, and therefore concluded that the parrots had died of “carbon monoxide-poisoning”. However, the CEO of the airline declared that the air in the cargo hold was the same air that circulated in the passenger cabin, contradicting the veterinarian’s conclusion. According to experts, suffocation, extreme temperatures, and stress due to inhumane packing were the most likely cause of death. The mass death of these birds has led to accusations from wildlife experts of negligence by authorities to adequately address the trade’s negative impacts on this wild species, especially in the South African regulations regarding animal handling and transport practices (Boyes, 2011a).
African Grey Parrot and Its Relationship to CITES

African Grey Parrot CITES History. At the request of Switzerland and Liechtenstein, *Psittacus erithacus* with all Psittaciformes have been included in CITES Appendix II since 1981. *P. e. princeps* was included in CITES Appendix I in 1975 but due to lack of evidence that it is an actual subspecies it was then removed in 1994 (BirdLife International, 2016a). *Psittacus erithacus* has been subject of three major trade reviews by CITES since the 1980s (USFWS, 2015). The first review was completed prior to the creation of a formalized review process and concluded that trade in the species was a potential problem. The second review was conducted in 1992 and determined that the current data on the impact of the trade and the conservation status of the species were insufficient. Finally in January 2007, the Animals Committee of CITES has recommended up to a two-year ban on exports of African grey parrots *Psittacus erithacus* from Cote d’Ivoire, Liberia, Sierra Leone, Guinea, and in Cameroon. The Animals Committee also recommended that quotas should be decreased to 4,000 and 5,000 birds for Congo and the Democratic Republic of Congo respectively (Mcgowan, 2008).

The United States considered proposing the transfer of the African grey parrot from Appendix II to Appendix I at CoP13 held in Bangkok in 2004, but eventually did not submit a proposal due to a lack of support when it consulted range countries (USFWS, 2006). The U.S. established the Wild Bird Conservation Act (WBCA) in 1992 to protect exotic bird populations subject to international trade. Prior to the WBCA, which prohibits imports of most wild-caught CITES-listed bird species, the U.S. was a major importer of *Psittacus erithacus* (USFWS, 2015). Through the recommendation of the Wildlife Conservation Society, the United States considers once more proposing to transfer the African grey parrot from Appendix II to Appendix I at CoP17. However, the U.S. remains undecided about such a proposal due to the lack of information from range countries regarding local and regional population abundance and trends (USFWS, 2015).

Given that this species is experiencing “a marked decline in the population size in the wild, which has been observed as ongoing” and “a marked decline in the population size in the wild, which has been inferred or projected on the basis of a level or pattern of exploitation”, Gabon will likely propose the transfer from Appendix II to Appendix I of *Psittacus erithacus* at CoP17 of CITES in Johannesburg, South Africa from September 24 - October 5, 2016. This is in accordance with Resolution Conf. 9.24 (Rev. CoP16), Annex 1: Paragraph C) i) and Paragraph C) ii).
**History of Range State Export Quotas and Recognized Violations**


*Cameroon.* The CITES Secretariat decided to suspend Cameroon’s imports in 1993 (CITES Notification No. 775) after this range state failed to provide information on the scientific basis of Cameroon’s export quota of *P. erithacus*. The ban was lifted in 1994 after Cameroon established an annual export quota of 12,000 (CITES Notification 794). Due to quota violations, the CITES Secretariat recommended that the Parties reject permits from Cameroon in 1996, and the CITES Standing Committee recommended that Parties not accept any imports of the species from Cameroon in 1997. In 1998 this ban was lifted (CITES Notification No. 1998/05). In 1998 and 1999, export quota exceeded again by a total of 3,765 specimens but the quota of 12,000 specimens remained unchanged (CITES, 2001). In 2007, Cameroon was again suspended from exporting parrots until 2012 when the Standing Committee approved annual export of 3,000 African grey parrots from Cameroon (World Parrot Trust, 2012).

*Côte d’Ivoire.* Due to lack of data on wild populations the CITES Secretariat recommended in 1993 that Parties not accept trade in *Psittacus erithacus* from Côte d’Ivoire (CITES Notification No. 746).

*Democratic Republic of the Congo (DRC).* From 1994 to 1998, DRC was allowed to export annually 10,000 specimens but export quota exceeded by a total of 11,969 specimens of *P. erithacus*. In 2001, the CITES Secretariat provided evidence of large-scale abuse of export permits issued in the DRC (CITES Notification No. 2001/002; SSN 2001). In 2007, the CITES Secretariat decided to decrease the export quota to 5,000 birds for the
Democratic Republic of Congo respectively (Mcgowan, 2008). During the years 2008-2010 exports quotas of *Psittacus erithacus* were exceeded by more than 50%, and in 2009 the quota was exceeded by more than 100% (Boyes, 2012). The CITES Standing Committee recommended to suspend trade in *P. erithacus* from DRC on March 16th, 2016, until the country provides more data on population status, and develops and implements a National Management Plan for the African grey parrot (CITES, 2016).

**Gabon.** From 1994 to 1998, Gabon exported a total of 114 specimens of *Psittacus erithacus* and was then authorized to export 500 specimens in 1999 and 2000, and 200 specimens in 2001 (CITES, 2001).

**Ghana.** Ghana has not authorized exports of *Psittacus erithacus* since 1992 (CITES, 2001).

**Guinea.** A survey conducted in 1991 provided an estimate of 5,000 to 10,000 *Psittacus erithacus* in Guinea (CITES Notification No. 797). In 1994, Guinea was allowed an annual export quota of 450 specimens but exceeded its quota in 1994, 1996, 1997, 1998 and 1999 by a total of 1,109 specimens (CITES, 2001).

**Liberia.** For the years 1999 to 2000, the CITES Secretariat allowed Liberia to export 2500 specimens of *Psittacus erithacus* and in 2001 it authorized an export quota of 3000 specimens (CITES, 2001).

**Republic of Congo.** From 1994 to 1999, a total of 4,494 specimens of *Psittacus erithacus* were exported from the Republic of Congo (CITES, 2001).

**Sierra Leone.** The CITES Secretariat did not permit exports from Sierra Leone until 1998. Thereafter, 1,000 specimens were allowed to be exported annually. This quota was exceeded by 1,100 specimens in 1998 (CITES, 2001).

**Togo.** No viable population of Psittacus erithacus was reported in Togo (CITES, 2001).

**CITES Response to Range State Violations**

To respond to Range State Violations, CITES Committees usually recommend bans on exports of the species. In 2007, the CITES Animals Committee recommended to suspend the trade, for up to two years, in *Psittacus erithacus* in Cote d’Ivoire, Liberia, Sierra Leone, Guinea, and Cameroon (Mcgowan, 2008). More recently, on March 16th, 2016, the CITES Standing Committee recommended to suspend trade in African grey parrots from DRC, until it develops a field survey to establish the population status, and develops and implements a National Management Plan for the species (CITES, 2016).
Recommendations for Policy & Conservation Best Practices

Local and Regional Level

Educational Outreach. Local and regional conservation organizations should be encouraged to develop local and regional educational outreach programs regarding this and other species that are currently being overexploited by the wildlife trade. This outreach program would have multiple goals including the following:

Conservation advocates, organizations, and experts must coordinate regionally to establish cooperation, communication, and common goals for conservation education in local communities regarding this species. A model that addresses local and regional cooperation for conservation education for a parrot species in Argentina that faced significant pressure from the pet trade was developed and described by Fernández-Juricic (2000). Herein, he states that “conservation education efforts based solely on one approach, though useful in certain circumstances, may lack the capacity to cope with conservation problems that span multiple spatial and temporal scales (Fernández-Juricic, 2000).” Without regional coordination, local initiatives that protect and endangered animal species in one area may not protect that species in another nearby area of its habitat.

This outreach must be inclusive and involve multiple levels of stakeholders, as diverse perspectives and needs of local communities in a regional framework will not be homogenous. If stakeholders are contacted and consulted at all levels, the program is more likely to succeed. As Fernández-Juricic (2000) states, “bringing local and regional educational perspectives together could enhance the success of conservation programs, particularly those with important social roots. When a careful coordination of efforts is established among public agencies, NGOs, educational centers, and the media, the scope of educational undertakings could be enlarged so as to involve more sectors of society. Because local people lack political clout, taking the problem to the regional level could help gain public support to influence political power [...]. Regional public involvement may foster cooperation with locals to exchange information, technologies, and human resources, thereby reducing the time necessary to achieve general consensus toward specific conservation problems.”

INTERLINKED TRADE OF WILD-CAUGHT PARROTS

South Africa constitutes a hub for the international trade in wildlife, including wild-caught parrots. Profits of the trade in wild-caught African grey parrots in South Africa are often re-invested into the trade of other endangered, wild-caught parrots such as cockatoos through New Zealand and Scarlet macaws through the Philippines (Boyes, 2011a).
Integrating sustainable development into the goals of this conservation program is likely intrinsic to its success. An important aspect of this outreach would be the development of materials that seek to inform local citizens, who live near forests where parrots are known to exist, of the cultural and ecological importance of this species and its habitat, and the economic benefits of their protection. Fernández-Juricic (2000) describes an existent conservation program that sought to protect a locally endangered parrot, the blue-fronted Amazon. Herein he states that this program ‘prepares local and indigenous people to seek agreements that combine exploitation with sustainable development. Such regional conservation programs may ameliorate local understanding of people’s roles in their environment and inspire new social scenarios for the discussion of conservation and management issues.” This and other models could be analyzed for potential application in a conservation education program that addresses the African grey parrot.

Conservation Policy and Strategies. It is essential that conservation organizations initiate collaboration with local leaders to encourage local and regional statutes or rules that both act to protect the parrot and its habitat from unsustainable use.

We also recommend the development of ecotourism programs or initiatives that provide economic benefits for communities in local proximity to parrot habitats. Parrots can be used as flagship species for the protection of vital ecosystems and also provide wide potential for the development of environmental education campaigns and ecotourism programs (Snyder et al., 2000). Nathaniel Annorbah also emphasizes that local and regional communities have lost economic opportunity by focusing on trapping these birds for exports versus the ‘huge ecotourism potential’ that these parrot flocks posses (N. Annorbah, personal communication, April 7, 2016).

Enforcement and Detection. Build capacity and coalitions locally to protect this species in populated areas near parrot habitats and reporting mechanisms to local authorities of illicit trade or harvest. Conservation stakeholders should work to report (to CITES or national authorities) the corruption and criminal influence on important governmental figures (responsible for protecting or ensuring regulated use of forests or parrots) in local and regional scales.

National Level

Educational Outreach. Stakeholders involved in the protection of this species, including range state governments, could develop national media outreach such as public broadcast announcements and advertising campaigns that highlight the negative impacts of the trade in wild species and the positive impacts of national wildlife conservation (such as national heritage, economic and ecological benefits, and aesthetic beauty).

Conservation organizations should develop demand-reduction campaigns in nations that are known importers of this species. As Fernández-Juricic (2000)
states, “many endangered species are imported illegally to international markets. To what degree is the general public in these international centers aware of the status of wild species and the consequences of acquiring and holding captive individuals? A recent preliminary survey in Madrid (an important European center for trade in tropical bird species) revealed that nearly 45% of people did not know that many exotic bird species sold in pet stores are threatened or endangered (Fernandez Juricic et al., in press). Once informed, almost 87% would prefer to stop buying these species. Interestingly, most of the people (84%) noted that information available through TV, radio, and newspapers was very scarce.”

Conservation Policy and Strategies. Conservation organizations should look to work with and in nations where pet-trade demand exists, to introduce and establish national legislation similar to the United States’ Wild Bird Conservation Act. According to the U.S. Fish and Wildlife Service, “Designed to ensure international trade does not harm exotic bird species and to encourage wild bird conservation programs in range states, the WBCA prohibits the import of most exotic birds. Although most parrot species were already listed under the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES), CITES protections weren’t enough to address insatiable demand from consumers in the United States. The high volume of exports from range states, while legal, wasn’t sustainable. Under the WBCA, we must authorize imports of live exotic birds such as parrots, and we grant an import permit only for several purposes: scientific research, zoological breeding or display, or for individuals traveling with personal pets. The WBCA reduced the unsustainable trade of parrots into the United States from a flood to a trickle (Parker, 2015).”

Conservation advocates and international governing bodies can work with, and provide resources for, range states to develop or enhance national statutes or rules that act to protect this parrot and its habitat from unsustainable use.

Similarly, these stakeholders can encourage and assist with the development of management plans and programs that establish a plan for the protection of forest ecosystems and affected species, including the African grey parrot, that are under threat of overexploitation.

Protect areas where parrots flock in large numbers. In Research and conservation of the larger parrots of Africa and Madagascar: a review of knowledge gaps and opportunities, Martin et al. recommend to “Identify, monitor and protect vulnerable capture sites utilized by large numbers of P. erithacus, including communal roosts, ‘salt mud' clearings and drinking sites”, and also to study habitats requirements and life-history parameters.

Invest in and Expand Resources and Communication Platform for Experts in the Field. Further scientific research is needed in range states to inform conservation action as follows:
1. An estimation of population sizes and structure

2. Further monitoring to decipher population trends in areas with baseline data, and

3. Much needed studies on reproductive ecology (N. Annorbah, personal communication, April 7, 2016; Annorbah et al., 2016).

This is supported by Snyder et al., in the IUCN Parrot Status Survey and Conservation Action Plan, a general recommendation for parrot species conservation included “an urgent need to obtain reliable information on causes of endangerment for many species that have not yet been carefully studied. Effective conservation strategies should be solidly based on reliable science […]”. In confronting the pressures facing Africa’s parrots, the major constraint is one of lack of knowledge […]. The establishment of an informal network of people concerned for the future of parrots in the wild would be helpful (2000).”

In Snyder et al. (2000), a project proposal by Mike Perrin and Philip McGowan discussed the proposed development of a network of science professionals to work towards developing a centralized information system that would fill some knowledge gaps regarding African parrots. According to Rowan Martin, this initial proposal did not succeed, though Mike Perrin, Steve Boyes, and himself coordinated a 2010 the International Ornithologist’s Union Working Group on Psittaciformes.

As described by Rowan Martin, “Mike [Perrin], myself and Steve Boyes were the initial coordinators and one of the initiatives we undertook was to identify knowledge gaps through consultation with researchers, NGOs and others. This group functions as a network of science and conservation professionals with the aim of facilitating collaboration and coordination between individuals/orgs. The Africa region is now coordinated by myself, Nat [Nathaniel] Annorbah, and Craig Symes (R. Martin, personal communication, April 11, 2016).”

We recommend that this working group be enhanced, via increased NGO and scientific community interest and investment, in its capacity to develop research initiatives that are communicated to CITES, range states, and NGOs. Species-specific websites for parrots in Africa or other such platform to communicate this working group, updated in real time, would be especially valuable.

We recommend that establishing or enhancing range state collections of baseline data be an immediate focus of any future efforts by range state governments and researchers to address a decades-long gap in accurate population information. A result of the working group (from the prior paragraph) was a review paper on the status to parrots in Africa and Madagascar, published a decade after the Snyder et al. Parrot Action Plan. According to authors of “Research and conservation of the larger parrots of Africa and Madagascar,” baseline information is, as of yet, still inconsistent between, and within, range states. “While advances have been made
Multiple Color Morphs’ of the African Grey Parrot

African grey parrots have become one of the most demanded species for the pet trade around the world. Recently, artificial selection efforts have led to multiple ‘color morphs’ of this species. In particular, a dominantly-red phenotypes of the African grey parrot, bred in South Africa, are valued at between $150,000-$200,000 per parrot (Boyes, 2011a).

“Red” African grey parrot.

Photo by David Dennison, Avizandum

Aspects of ecology and behavior and there remains a need for studies determining the current status of populations and the factors limiting distributions and abundance” (Martin et al., 2014b). As part of the above efforts, it is imperative that range states, conservation organizations, ornithological professionals, and international scientific authorities collaborate to share the updated information and metrics for population estimation of this species.

If international trade does continue (in a scenario where the current proposal for the movement of this species from App. II to I is rejected during COP17) range states could investigate the viability and implementation of captive breeding facilities that would relieve pressures on wild-caught birds. With this being said, these researchers emphasize our agreement with Snyder et al. (2000), that “the overriding goal of parrot conservation should be the maintenance of viable wild populations of all species within their native ranges and natural ecosystems. Captive populations are not an end-point of conservation efforts.”

Enforcement and Detection. Address falsification of permits in range states that have a past history of reported incidents, such as the DRC and Cameroon range state governments, with assistance and encouragement from the CITES, should address corruption and criminal influence on important governmental figures that are involved in the issuance of permits and other national-scale efforts to regulate the trade of this species.

Within range states, governments and scientific authorities need develop consistent, secure, and continuous record keeping for estimation of parrots that are traded domestically, internationally, legally, and illegally. Range states should coordinate with one another so that these reporting methods and products are similarly structured and accessible. One area of particular opportunity is
the reporting of parrot mortality in the supply chain. Parrots that died in capture and transport, killed for bushmeat, never exported, or smuggled between nation borders are not accounted for in CITES records. “According to research conducted in the Americas, up to 50% of the actual off-take from the wild (e.g. nest poaching, snaring in nets or loops, bird glue, etc.) is not represented in international trade numbers (Boyes, 2011b).”

International Level

Educational Outreach. CITES leaders, such as the Secretariat, should coordinate effective opportunities for educational outreach to relevant national leaders regarding concerning the issues and conservation status of this species.

Conservation organizations and UN bodies, staffed efforts or organizations such as CITES, CBD, SDG biodiversity-related objectives, UNDP, and UNEP should wield international influence and use international platforms to conduct broad educational outreach regarding the plight of this species. UN World Wildlife Day is one such event that can highlight the plight of the African grey parrot.

Conservation Policy and Strategies. CITES must enforce that range states, with declining populations of this species, develop or improve management plans. The DRC, for example, is a large-scale exporter, but has no management plan in place and exerts little control over the fluid movement of these animals--by traffickers--through their borders. As stated in Strengthening Capacity for Monitoring and Regulation of International Trade of African Grey Parrot, a report prepared by BirdLife Africa Partnership Secretariat, “At present capture and trade in AGP appears to be almost entirely uncontrolled in DRC. There is a nearly total disjuncture between the capture and transport of AGP at the local and provincial level and the national CITES authority (CITES, 2013).” Positive progress was made by CITES to address this issues via the CITES Standing Committee recommendation to suspend trade in African grey parrots until it develops a field survey to establish the population status, and develops and implements a National Management Plan for the species (CITES, 2016).

An international effort by conservation organizations, targeting pet owners and businesses, to raise funds and awareness for conservation of this species is suggested in Snyder et al. (2000): “There is an urgent need to change the attitudes of two special interest groups. Firstly, the many millions of owners that keep parrots as pet or companion animals, or for breeding for the pet trade, should be urged to accept more responsibility for the survival of parrots in the wild ... The second category pertains to the many businesses that are unquestionably built upon the “parrot phenomenon”: the tens of millions of parrots being kept in captivity. These companies that trade parrots, their food, cages and other goods, should be encouraged to donate a proportion of their global annual income to parrot conservation.”

International support, investment,
technical expertise, and education should be given to small-scale regional forest protection coalitions and projects. These researchers suggest that international governing bodies, organizations, or funds from. For example: CITES, CBD, UNREDD, UNEP, UNDP, FAO, or NGOs should work to encourage local development of regional forest coalitions that promote ownership, stewardship, rehabilitation, and protection of forest ecosystems where these parrots live.

Enforcement and Detection. CITES must address the reports of corruption and criminal influence on important governmental figures within CITES offices in range states. According to Boyes (2011a), “the wild-caught bird trade and avicultural industry was so established in South Africa that grey parrot importers, traders and breeders already had established connections with CITES South Africa, the State Attorney’s Office, Department of Environmental Affairs, and State Veterinarian’s office.” Range states with management plans must be required to provide robust examples of successful surveying and execution of BMPs. Cameroon is a prime example of a range state with a management plan that has reported to be improperly or insufficiently implemented. Survey methods for population estimation, as part of obligations set forth by CITES, were specifically critiqued by Martin et al. (2014a) in the article Grey parrot Psittacus harvesting for conservation must have a robust scientific basis: A response to Tamungang et al. (2013), these conservation practitioners and parrot experts state that “several aspects of the methods used likely led to systematic biases in the population estimate and non-validated level of precision. Furthermore, several aspects of the methods were not described and sources of key data were unreferenced. As a result, it is not possible to know the degree of confidence that can be placed in these estimates nor would it be possible to independently repeat the study.”
Recommendations for Potential CoP 17 Proposal

After an extensive period of research and interviews with relevant experts and stakeholders, we believe that the WCS and CITES members should support the transfer of this species, *Psittacus erithacus*, from Appendix II to Appendix I at CoP17 of CITES.

This species is in decline in most parts of its range, with few range states properly managing its removal from the wild, or the destruction of its habitat. The current trade situation and forest conversion/destruction is over consumptive. The pet trade, in particular, is resulting in this species decline.

Three nations were discussed by experts in interviews as being particularly involved in this unsustainable trade. 1) South Africa, who acts as an importer of wild parrots and exporter of captive-bred parrots. This country is known for laundering wild-caught parrots to produce parrot juveniles cheaply, that are then exported to other countries, mainly in the Middle East and Asia. 2) DRC, a range state of this parrot, who was recently remanded by CITES for its problematic handling and verification of export quotas and nonexistent conservation management plan. 3) Cameroon, a range state, that has submitted a management plan to CITES, but seems to have problematic follow-through in surveying, reporting, and other actionable management of this species. This situation, along with concerns for corrupt government officials that allow permit falsification and duplication, leads us to the conclusion that international trade of this species will surely continue to be over-consumptive, if this parrot remains on Appendix II. The placement of this species on Appendix I of CITES is a first step towards addressing this overexploitation, and will hopefully lead to positive changes in the supply-side of this problematic trade.

We would like to stress that demand-side efforts are also very important to the preservation of this species in the long-term. Nations such as the U.S. and the E.U., have already banned the
import of wild-caught birds. It is time that members of CITES agree to do the same, on an international scale, for this particular species. If nations in the Middle East (United Arab Emirates, Kuwait, Saudi Arabia, Bahrain, Israel) and Asia (China--Hong Kong and Taiwan, Singapore) continue demanding and purchasing parrots without assurance of captive-bred sourcing, the supply chain will undoubtedly continue. Demand-reduction, in the case of the African grey parrot, is the responsibility of these nations.

We believe that wild-caught parrots are not a sustainable or viable long-term economic strategy for any range state, nor a sustainable good for purchase in nations that are demanding these birds for pets. As stated in the IUCN report on Parrots Status Survey and Conservation Action Plan 2000–2004, to date no evident successful harvesting projects with free-flying parrots have been developed (Snyder et al., 2000).

To best address this, as outlined in detail above, we agree with *Strengthening Capacity for Monitoring and Regulation of International Trade of African Grey Parrot* that “Regulation of the trade will be best supported from the bottom up CITES (2013).” This means that protecting this species from exploitation must begin with the local level. Those authorities who have jurisdiction over natural habitats where this bird is found, and legal authorities who can enforce or develop mandates and regulations, must be engaged in efforts to conserve local wildlife, including the African grey. We also feel that local and international NGOs have an opportunity to effectively assist in both the control and monitoring of the wildlife trade-- which also holds true for this parrot species. Finally, we find that the establishment of quotas is not effective if not enforced. Range states must demonstrate effective monitoring, trade measure compliance, and management of this IUCN-listed vulnerable species.


African Rhinoceros

Photo by Franco Pecchio
BACKGROUND ON SPECIES

The analysis in this section is motivated by an ongoing speculation that South Africa may propose a reopening of international commercial trade of rhinoceros (or “rhino” as it is often referred hereafter) horn. The context here is that this change to trade restrictions will enable the country to sell stockpiled horn and develop a ‘sustainable’ rhino horn trade. South Africa may have since made the decision to propose the legalization of commercial, international trade in rhino horn at the 17th Conference of Parties (COP17) of the CITES, if information reflected in its National Treasury’s Estimates of National Expenditure for Environmental Affairs 2016, released in February 2016, is anything to go by. The report states that “South Africa will submit its rhino horn trade proposal at CITES COP17, to reduce rhino poaching through promoting the legal sales of rhino horn to generate significant revenue to supplement conservation funding (National Treasury, 2016) (Watson, 2016).

Biological Description and Population Estimates. The International Union for Conservation of Nature and Natural Resources’ (IUCN) Red List classifies African black Rhinoceros, \((\text{Diceros bicornis})\) as ‘Critically Endangered’, while the white rhinoceros \((\text{Ceratotherium simum})\) is classified as ‘Near Threatened’ (IUCN 2015; WWF 2016). The global rhino population has fallen from an estimated 75,000 in the early 1970s to less than 30,000 today (Wild Aid/ African Wildlife Foundation, n.d.). Within the 20th century, population of the formerly numerous black rhino, plummeted from an estimated 100,000 individuals in 1960 to 4,880 by 2010, largely due to overhunting by European settlers, poaching and trafficking (IUCN, 2015) (U.S. Fish and Wildlife Service, 2014). The black rhino has three subspecies: \(\text{D. b. bicornis, D. b. michaeli, D. b. minor}\). The South African black rhino population stood at 1,915 in 2010, compared to that of the white rhino at 18,796, with their total representing 82% of the total population of the two species in the African continent (See Table 1) (IUCN, 2010). Four countries; Kenya, Namibia, South Africa, and Zimbabwe are home to most of the continent’s remaining rhinos, hosting 96% of the continent’s population, with very few found outside protected areas and sanctuaries (IUCN, 2015).
Geographical Distribution. As previously stated, Africa is home to the white rhino (*Ceratotherium simum*) and black rhino (*Diceros bicornis*), but the black rhino has become locally extinct over large areas of Africa (World Wildlife Fund, 2016) (Leader-Williams, 2016). The black rhino is regionally extinct in Cameroon, Chad, and Rwanda (IUCN, 2015). Their populations are abundant in grasslands, savannas and shrublands, deserts and xeric shrublands across Sub-Saharan Africa (see Figure 1).

Main Threats. At the 15th Conference of the Parties meeting of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), member states noted that rhino numbers were increasing—for example, the Southern white rhino subspecies population has recovered from less than 100 individuals in the early 20th century to around 20,400 individuals today (see figure 2) (IUCN, 2010). The World Wildlife Fund (WWF) attributes the recovery and increasing populations of the African rhino to vigorous conservation and anti-poaching efforts aided by an international ban on the trade in rhino horn.

However, the Parties at the 15th conference also recognized that poaching escalated significantly in some countries, and that the pressure on rhino populations was on the rise (IUCN, 2010). The CoP identified poaching, illegal trade and law enforcement as the key issues that were in greatest need of address. Swaziland expressed concern that rhino poaching had become highly sophisticated as it was undertaken by organized international syndicates, using techniques that made it difficult for CITES and national wildlife authorities to tackle (IUCN, 2010; WWF, 2016). Leakey (personal communication, February 26, 2016) also adds that rhino horn is highly valuable and easy to
smuggle across borders as it can be cut and crushed into powder and smuggled in small quantities. Representatives from Kenya and South Africa echoed this view, with the latter noting a dramatic increase in poaching since 2008, despite recording an increase in population (IUCN 2010; WWF 2016). The number of rhinos poached in South Africa has increased by 90 times, from 13 poached in 2007 to a record 1,215 in 2014, hence becoming an issue of great concern (IUCN 2015; WWF 2016). The number of rhinos killed by poachers also increased in neighboring Namibia and Zimbabwe (Wild Aid & African Wildlife Foundation, n.d.).

Furthermore, in 2015 poachers killed more rhinos than any other annual period since the poaching crisis began nearly a decade ago; demand from Vietnam and China fueled this event (many people in these countries believe that rhino horn will cure anything from hangovers to cancer) (The Economist, 2016). However, despite these issues, there are some efforts in Kenya and Tanzania that aim to protect the species with adoption of high-tech techniques, such as drone surveillance and spy cameras, which can locate and track suspected poachers.

Figure 1. Map showing geographical range of the three subspecies of the African black rhino ("IUCN Red List maps", 2016)
**History of Ecological, Political and Economic Issues**

All rhino species are critically endangered, except the Southern white rhino subspecies, which showed recovery of its populations as discussed in the previous section. (TRAFFIC, 2016). Endangered species face a myriad of challenges, from habitat degradation and fragmentation due to encroaching human development, disease, climate change and others, but the greatest single threat faced by the African rhinos is poaching specifically for their horns. Various scientific literature has compared the rhino horn to compressed hair, since it is primarily composed of keratin, the same material as human fingernails (Leakey, personal communication, February 26, 2016; Sheldrick, personal communication, February 23, 2016; Beech, 2011). Additionally, tests have shown that Rhino horn contains toxins (Sheldrick, personal communication, February 23, 2016). People that consume products derived from rhino horn believe it can relieve fever, act as an aphrodisiac to improve sexual competency, and can ‘detoxify’ the body.

In recent years, in Vietnam, vendors have marketed rhino horn as a magical cure for cancer and hangovers. None of these claims have any associated medical scientific evidence to substantiate them (TRAFFIC, 2012). Rhino horn is also used to demonstrate affluence and social status and can act as a “party drug” and a gift to important political officials (Wild Aid & African Wildlife Foundation, n.d.). While the CITES ban on trade prohibited international trade in theory, domestic sales in Asia continued, with major consumers in the 1980s including China, Taiwan and South Korea, for its use in medicine, and the Middle East, particularly Yemen, for the production of dagger handles (Gwin, 2012).

In modern day, the IUCN, Traffic, and Asian Rhino Specialist Groups have identified Vietnam as “the principal end-use market” for rhino horn (Rademeyer 2013). Experts attribute the rise in poaching to improved trade links, increased affluence in Asian countries, ‘consumer nations’ growing presence in Africa, involvement of organized crime,
and the emergence of Vietnam as a new major importer (WildAid & AWF n.d.; Okita-Ouma, personal communication, March 31, 2016). There is a huge Chinese presence in African countries, and thus it is easy for middle men engaged in rhino horn trade to link with their counterparts in Asia (Sheldrick, personal communication, February 23, 2016).

**Ecological Issues: Focusing Conservation Efforts**

*Habitat and Ecological Role.* The rhinoceros play an important role in shaping their ecosystem’s functioning and structure. As “megaherbivores”, they help maintain the African savannah landscapes through grazing that also benefits other species. The black rhinos are generally solitary and territorial animals, marking their territories using urine or dung. Through evolution, rhino have used their horn for protection, and hence spend adequate time working with the horn. They have the ability to knock off the horn, regrow it and shape it up as preferred (Sheldrick, personal communication, February 23, 2016). A study in Kruger National Park in South Africa concluded that the structure and composition of the grasslands were negatively affected by decreases in the number of rhinos in the park (Cromsigt & te Beest, 2014), thus supporting their essential role in their ecosystem, and the species that depend on them for survival. The study by Cromsigt and Beest (2014), found that habitats where fewer rhinos lived had 60% to 80% less short grass cover than places where rhinos frequented. ‘Short grass’ is often used as an ecological indicator to approximate plant diversity in grassy areas in Africa. Rhinos were found to create grazing patches where specific grass species grow, that are palatable by rhinos and other grazing animals such as zebra, gazelle and antelope.

*Opinions Regarding Conservation Efforts.* In rhino conservation, some theoreticians suggest that conserving large populations and maximizing protection of the living rhino is the best way to ensure the rhino’s survival for the next generations (Leakey, personal communication, February 26, 2016; Leader-Williams 1991). This is
because for a species that is threatened by extinction, smaller populations will require a shorter time before extinction, as compared to larger populations. African nations have instituted various measures to preserve the rhino, such as through sanctuaries, protected parks and wildlife reserves. Even where such protection measures exist, rhinos continue to be poached in increasing numbers—this leads to questions, on whether such protective measures are viable or adequate in successful protection of the species. Despite the challenges of rhino conservation, Leader-Williams (1991) argues that the pragmatic option to achieve success still appears to hinge on building up small populations in situ and maintaining them in their natural habitat with minimum interference.

A different school of thought has proposed for further research to explore whether rhinos can be reproduced in greater numbers in captivity, such as in zoos. Research has shown that reproduction rates of rhinos in captivity, such as in zoos, are far lower than what biologists have recorded in well-protected populations in the wild; this is attributed to their very complex diets and probably very complex husbandry requirements (Prins & Okita-Ouma, 2013) (Leader-Williams 1991). Rhinos experience challenges in captivity with relation to food and behavior, whereas their effective reproduction largely depends on physical environmental conditions such as privacy (Okita-Ouma, personal communication, March 31, 2016). Okita-Ouma also points out that in the wild, some parts of the habitats are like a rhino maternity where they prefer to give birth, which may not occur randomly in other places. Therefore, if the intention is to bring endangered populations of black rhinos out of their current endangered state quickly, then all evidence to date indicates that this can be achieved more effectively by giving them adequate protection in situ (Frankel and Soule 1980; Leader-Williams 1991). There may be a possibility that the abundance of accumulated horn stockpiles and high numbers of the white rhino may be able to sustain markets, at least in the short-term, but with escalating poaching and increasing demand, the tipping point may be reached sooner.
Political Issues: Pressure from Private Breeders

Brief History of South Africa’s Position on Trade of Rhino Horn. In recent years, there has been increased pressure within South Africa to lift the ban on trade of rhino horn, to allow for its trade within the country. Two of South Africa’s largest private game breeders, John Hume and Johan Kruger, are believed to be behind the push to lift the moratorium that banned domestic trade in rhino horn (MacDonald, 2016). The economic argument for opening up a legal trade, is to generate revenues for conservation of the species, and motivated by the recovery of white rhino populations in the country. South Africa implemented the domestic moratorium because a previous window that provided for trade on the horn between South African breeders and Vietnam had been abused, where illegal horn was sold with CITES permits under the guise of trophy hunting within the larger Asian black market. Rhino poaching in South Africa had increased unprecedentedly, necessitating the moratorium.

The breeders filed a lawsuit to force the South African government to lift the domestic trade ban, as a gateway to persuading the 182-party CITES to reopen international trade at its 17th Conference of the Parties (CoP17) (Cruise, 2015). The Government, through its Department of Environmental Affairs (DEA) commissioned a feasibility study to inform on the viability of legalizing trade in rhino horn in South Africa. The main conclusion of the study was that “South Africa should not lift the national moratorium at the present time”.

Despite the recommendation of the feasibility study, in late 2015, a South African court lifted the ban on domestic rhino horn trade, bringing joy to the breeders but infuriating conservationists (Watson, 2016) (BBC News, 2015). The court ruling received backlash from various experts across the globe, with many arguing that it undermines international and regional efforts to protect the rhino through eliminating poaching and reducing demand. An appeal by the Department of Environmental Affairs in South Africa was expected to momentarily delay implementation of the court ruling, but recent news indicates that the appeal was also overruled.
Economic Issues: Market Pressures on Rhino Horn

Value of Rhino Horn and Consumer Willingness to Pay. Experts estimate that the potential market value for the minimum amount of sustainably harvested rhino horn is between 2,339 and 3,606 kg, based on carcass recovery rates and expressed willingness of private rhino owners to dehorn. This translates to a price of about US $2,311/kg (but likely higher in the black market), which translates to about US $5,528,793 per year, based on the lower weight estimate and 2008 prices before the moratorium. The horn prices have since changed significantly, and experts estimate that the current price in the black market is around US $65,000 per kilo (2.2 pounds). There has been no comprehensive research on the price elasticity of rhino horn, mainly due to the illegal nature of its trade, which limits our informed understanding. Some studies though, such as Taylor and others (2014) state that rhino horn is price inelastic because certain consumers are willing to pay increasingly high prices to obtain it (Department of Environmental Affairs: Republic of South Africa, 2014). Pre-moratorium, it is estimated that only 100 kg of rhino horn were traded legally within South Africa (Department of Environmental Affairs: Republic of South Africa, 2014).

Impact of Tourism on Rhino Horn Demand. According to the African Rhino Project, the economic importance of rhinos to South Africa’s tourist industry has been enhanced as threatened species like the rhinos have become a big tourist attraction in Kruger National Park (Project: African Rhino, 2014). A study by the North-West University in the country showed that more tourists desire to see rhinos as compared to other animals over the past three years. In the year 2011, researchers observed that 26.6% of visitors to Kruger National Park were willing to pay to see the rhino, a figure that increased to 36.9% in 2013 (North-West University, 2015). In the study, the viewing value of Kruger’s rhinos now constitutes about US $9.21 million per year, while the Big Five (lion, elephant, leopard, rhinoceros, buffalo) in total were worth around US $41 million, out of Kruger’s US $164 million tourism revenue. It is worth noting that the rhino is the only species that was observed to exhibit an increase in popularity.

Impact of Tourism on Breeders. The above statistics, pointing to low local demand and high prices, may be a good indicator of the difficulties that breeders will experience in trying to trade their rhino horns in the local market, following a lifting of the domestic moratorium. The price per kilo is too high, that the likelihood of finding a purchaser may be low. This has therefore set the stage for the breeders to potentially push the South African government to propose for a further lifting of the international ban on trade. While 60% of South Africa’s rhino experts did not agree with the idea of lifting the national moratorium in the absence of a legalized international trade, an equal number agreed with the idea of legalizing international trade (Whittington, 2013). The economic arguments cited for opening up trade...
include a drop in global horn prices and hence reduced incentive to poach, and increased potential to generate funds to pay for anti-poaching efforts, amongst others. Some experts have argued that opening the legal trade in South Africa could potentially create more jobs and generate more income that can be put back into better technology and protection for the rhino, while boosting the local economy and getting the people involved and invested, making it a sustainable program (Whittington, 2013). It was not easy to establish a precise market size as the majority of the trade is illegal, though the literature herein may point to a larger market than current stocks can sustain.

Workforce Factors that Contribute to Decrease in Rhino Populations. The loss of rhinos and of other large populations in Africa has been due in part to shortage of resources in national conservation authorities, with a direct relationship observed between the levels of effort expended by law enforcement patrols upon different areas, and the rates of decline of rhinos in those areas. Low spending countries with large populations of rhinos experienced high losses, but countries spending over a threshold of $230 per square hectare in 1980 are more successful at conserving their rhinos (Leader-Williams & Albon 1988). Some observers have advanced comments that successful in situ conservation is very expensive to achieve, though it is worth putting the amount of money spent on conservation in Africa in context (Leader-Williams 1991).

Arguments in Favor of Meeting the Demand for Rhino Horn. The economic dimension seems to be attracting a strong focus, and therefore warrants a serious discussion within South Africa. Biggs and others (2013) make the argument that South Africa could meet the demand for rhino horn in Asia through the harvesting process, with the idea that this would create a safe poaching free environment for the rhino (Biggs, Courchamp, Martin, & Possingham, 2013). They explain that the dehorning procedure is simple, where rhinos are sedated and the horn shaved off, costing around $20 per animal. Other scientists, such as Ayling (2013), Collins and others (2013), and Milliken & Shaw (2012) have disputed this argument. They contend that opening up the legal trade has major challenges—for example, poachers still hunt dehorned rhino because their stump still has great value attached to it (Lindsey & Taylor 2011). Secondly they argue that increased farming of the rhino may lead to taking them out of the wild and out of their natural habitats (and thus they would be extinct from the wild in the long-run) (Whittington, 2013). This defeats the purpose of legal instruments such as CITES which aim to protect the integrity of the species in the wild, allowing it to thrive and perform its ecological and ecosystem functions sustainably.

Cost of Conserving Rhinos. Conservation costs for rhinos in the wild have been cited as another reason for the need to shift or enhance controlled breeding. A study by Taylor and others (2014), shows that the costs associated with protecting
rhinos in the wild, range from about US $400/ha/year for small areas less than 100 ha, to less than US $7/ha/year for areas above 10,000 ha. Such figures lead some to argue the high costs of in situ conservation, however, the costs are higher as the protected area gets smaller. A different way to analyze the costs is to look at the cost of conserving one animal. Researchers found that, at their usual densities of 0.4 rhinos per sq km, the costs of maintaining a black rhino in the wild is around three times less than in captivity (Leader-Williams, 2016). According to Leader-Williams (2016) this estimate is very conservative as on the wild side, the sums spent per square kilometer look after much more biodiversity than simply rhinos. It is therefore much more cost-effective to undertake in situ conservation if funded to adequate levels. The costs incurred by zoos for capture and relocation of animals is also high, where they spend up to $2.5 million to catch rhinos. Losses of rhinos during capture and post-capture are also high, and substantially detrimental to at least some populations (Rabinowitz 1995 cited in Regan et al. 2005).

Considering the estimated conservation cost range discussed above, computed against Kruger National Park’s total area of 1.9 million ha, the conservation costs of conserving rhinos and other biodiversity per ha per year translates to about US $13,457,836. The annual conservation cost could even be lower than that as the lower estimate considered of US $7/ha/year is associated with areas slightly above 10,000 hectares.

Recently, South Africa’s highest court ruled that President Jacob Zuma violated the constitution by using government money to renovate and upgrade his private home. The anti-corruption body determined that Zuma had spent $23 million on his rural home in Nkandla in South Africa’s KwaZulu-Natal province (BBC News, 2016). We highlight this amount to demonstrate the ease with which South Africa can use state funds to meet its conservation obligations. In a continent where wildlife conservation is underfunded and yet corruption is rife in government and other sectors, based on our estimates above, such a modest amount (as determined by the anti-corruption body) could fund conservation efforts for Kruger National Park for a period of one year 8 months comfortably. The media has widely highlighted South Africa’s corruption problem—it is estimated that the country has lost up to US $51 billion since the country became a democracy in 1994 (Mannak, 2015) (Jazeera, 2015). If a small proportion of that astronomical amount could be diverted towards conservation, it would go a long way towards conservation, anti-poaching and reduction or elimination of illegal wildlife trafficking.
The African Rhino and Its Relationship to CITES

Rhino CITES History. In 1975, in response to increased rhino poaching in past decades, CITES member states enacted the first international ban on the commercial trade in rhino products, although some countries were allowed to trade live rhinos and engage in trophy hunts. All remaining rhino species (black and white) were placed in Appendix I of CITES listings by 1977, which prohibited international trade for commercial purposes. Rhino populations in South Africa recovered as a result of its concerted conservation efforts, earning it a reputation as a world leader in rhino conservation. In recognition of successes achieved by South Africa and the potential contribution of a sustainable use approach to rhino conservation, the Conference of Parties to CITES approved the down-listing of the South African white rhino to Appendix II in 1994. This allowed limited live export of animals to appropriate and acceptable destinations, as well as the continued export of hunting trophies. International commercial trade in rhino horn remained banned. Okita-Ouma (Personal Communication, March 31, 2016) observed that following the international bans on trade in rhino horn, poaching went down significantly across Africa. Okita-Ouma highlights that the weakness is that there is an international ban on the trade in wildlife, yet trophy hunting is allowed. This presents challenges to the effectiveness of the ban if not well policed.
There is speculation that at the 17th meeting of the Conference of the Parties to CITES (CoP17), the host country, South Africa, may proceed to propose the lifting of the international ban on trade on the rhino horn, or even a delisting of the black rhino from Appendix I of the convention to Appendix II. This is in order to open up a legal trade in its horn, all in an attempt to raise funds to curb the escalating poaching. Okita-Ouma (personal communication, March 31, 2016) expounds that trade philosophy is one practice in which countries believe has potential to generate revenues for conservation, but whether it could work or not is not well established. He further elaborates that he is not aware of any proposal by South Africa for delisting the black rhino from Appendix I to II. By delisting the rhino from Appendix I to Appendix II in the CITES, the proponents of the change predict a legal horn trade will result in reduced illegal poaching and trade, an incentive for increased farm production to meet Asian market demand, and increased conservation income. However, allowing international trade puts the rhinos at risk of being eliminated from the wild (this was a lesson learned from the lifting of the ban on elephant ivory or abused permits for rhino horn trade) therefore defeating the purpose of protecting the critically endangered species (Okita-Ouma, personal communication, March 31, 2016). The opponents of the change see challenges in implementing the legal trade, as there are no answers as to what happens to the well-established illegal global criminal syndicates, the mechanisms that will be used for regulation and enforcement of the international legal trade, and potential risks posed to all rhino species worldwide.

Range States Export Quotas. One positive from the restrictions imposed by CITES was the requirement by South Africa to record, in the CITES trade database, all exports of rhinoceros materials (Taylor et al., 2014). Such reporting mechanisms, though ideal, may not be fully adequate, as most trade remains illegal. For example, an analysis of the CITES Trade Database shows that between the years 2010 and 2015, South Africa reported an export of 207 white rhino horns to Vietnam and 12 to China (CITES, 2016). In 2013, South Africa also reported exporting two Javan rhino horns to China, despite its range being in Southeast Asia, India and China. Of the combined total, there are only four horns traded between the countries, despite an escalation in poaching of rhinos (thousands during this period). This may imply that the greater proportion of rhinos killed get their way to the markets through illegal means via the black market. Such are the challenges of any reporting mechanism that is developed to track trade on a highly precious item. Even with a monitoring system in place, laundering and smuggling would negatively impact South Africa’s reputation in terms of compliance with CITES requirements, and might result in some Parties requesting an up listing of white rhino back to Appendix I (Taylor et al., 2014).

CITES Punishments for Rhino Violations. CITES, in its 16th meeting of the Conference of the Parties to CITES (CoP16), made decisions that could be strategic in rhino conservation in range states such as South Africa. The decisions include promoting the urgency for consumer countries to report seizures of illegal rhinoceros specimens to countries of
origin, transit and destination, and to bring it to the attention of the Secretariat. This is to include specimens whose origins cannot be determined to enable follow-up investigations. CoP16 also urged for enactment of legislation or use of existing legislation to intensify the use of specialized investigation techniques, enforcement actions, and prosecution members of organized crime groups implicated in rhinoceros related crimes. For example, one decision urges all parties to introduce stricter domestic measures to regulate the re-export of rhinoceros horn products from any source. All Parties implicated in the illegal trade of rhinoceros horn as range or consumer States were directed to: (1) develop and implement long-term demand reduction strategies (2) enhance community awareness with regard to the economic, social and environmental impacts of illicit trafficking in wildlife crime, (3) to encourage the general public to report illegal activities, and lastly to provide information on the effectiveness of the strategies to the Working Group on Rhinoceroses. At CoP15, parties echoed these demand-side efforts, where they urged consumer states to make efforts to ensure that trade and consumption in their countries is reduced (Okita-Ouma, personal communication, March 31, 2016). Reporting helps the Working Group in identifying best practices and challenges experienced, with the aim of developing ideas to further enhance the effectiveness of demand-reduction strategies. Majority of the countries adopted the CoP15 decision on reporting and are complying on the same (Okita-Ouma, personal communication, March 31, 2016).
Recommendations for Policy & Conservation Best Practices

Local Level

**Educational Outreach.** Education can play an important role in reducing poaching and hence associated illegal trade on the rhino horn. Despite this importance, experts have observed that many communities residing around wildlife conservation areas have limited access to educational resources (SADC Regional Programme for Rhino Conservation, 2006). This therefore minimizes opportunities for the communities to educate and familiarize themselves with wildlife conservation issues. Even where such resources exist, many wildlife conservation areas in Africa are located in remote and rural country sides, where illiteracy levels tend to be high. It is therefore imperative that conservation agencies develop appropriate materials, in the local languages, that are then conveyed to the communities through a variety of media and approaches. The community education and awareness raising programs need to be complemented by similar efforts in schools and other institutions to mobilize countrywide awareness.

**Conservation Policy and Strategies.** As highlighted above, affording effective protection of small populations of rhino in situ remains the most ideal method of achieving success in rhino conservation. Biologists employed this approach for the East African subspecies of black rhino in Kenya, for the desert subspecies of black rhino in Namibia, and for the Central African subspecies of black rhino in South Africa. In these countries, success resulted from increased protection of small

![Figure 2](image.png)

**Figure 2.** The concurrent population growth rates of white rhinos on private land and white rhinos on all land (State and private) in South Africa between 1960 and 2011 (Department of Environmental Affairs: Republic of South Africa, 2014).
numbers, which was later translocated to unoccupied habitats in areas of former natural range once their populations had built up.

Local conservation is behind the survival of the northern white rhino species which is on the brink of extinction. This species was once abundant in northern-central Africa, but experts believed that it has since gone extinct (Milliken, Emslie, & Talukdar, 2009). There are currently only three remaining species of the northern white rhino, as a fourth one died at the San Diego Zoo in November 2015 due to health complications. The remaining population on the planet live in Ol Pejeta Conservancy in Kenya, where they are under heavy 24-hour armed security (Ol Pajeta Conservancy, 2016), a management strategy that comes at a high cost, that is difficult to sustain for many of Africa’s struggling conservation agencies (Sheldrick, personal communication, February 23, 2016). The Northern white rhino species is a perfect example of the need to conserve any remaining rhino populations in the wild, within their range, and in large numbers. Pushing a species till there are only a few left dangerously pushes the remaining populations closer to extinction, especially when they cannot sustain viable populations. For example, several attempts to have the surviving male and two females at Ol Pejeta to reproduce have been unsuccessful, but this may be related to their advanced age. The current populations of African rhinos should not follow the same dangerous route.

The story of the southern white rhino is different, in contrast to the northern white rhino. By the mid 20th century, this species was at the brink of extinction, but its populations have recovered significantly, such that it is now the most abundant rhino species globally, with South Africa hosting the bulk of its population as indicated earlier (see figure 2). Since the 1960s, conservationists worked tirelessly hard to conserve the remaining southern white rhino populations in their last known location, KwaZulu-Natal, from where they have been reintroduced to other parks and protected areas across the country. The country employed intensive conservation measures to result in the current high population growth rates, recorded as one of the most successful conservation efforts in the world for large mammals (Department of Environmental Affairs: Republic of South Africa, 2014).

Enforcement and Detection. Locally, conservation agencies have employed a variety of measures to protect the African rhinos. According to Save the Rhino International, officials have considered some of the following options to protect rhinos at various levels: the use of synthetic rhino horn, legalizing the horn trade, dehorning, horn poisoning, shoot to kill poachers, tackling the demand side, addressing the links to terrorism, the Vietnam market question, sustainable utilization, the use of drones, dyeing the horn, and the transportation industry and the illegal wildlife trade. This list is not exhaustive but is comprehensive enough to allow for an exploration of some of the methods used in different African
countries to conserve the rhino. Advanced techniques that involve predictive and DNA analysis, hidden cameras, GPS tracking devices and apps have also been developed (Save the Rhino, 2016).

Drones are becoming popular across Africa, with mixed successes in different areas. Equipped drones, cost anywhere between $50,000 to $250,000 (Save the Rhino, 2016), apiece, hence it would be extremely expensive for many agencies to acquire enough of them to adequately cover a large area such as the 1.9 million ha, Kruger National Park, South Africa. Unlike military drones, conservation drones are smaller, have shorter flight times and range. Low-tech solutions include using tracker dogs working alongside their human handlers to hunt down poachers, where they have been responsible for more than 70% of arrests of suspected poachers in the Kruger National Park (The Economist, 2016). Other organizations such as WildAid think differently, emphasizing that saving rhinos comes down to persistence and hardworkbywardens, where technologies being applied may be distractions or will likely make the problem worse.

National Level

Educational Outreach. The Southern African Development Community (SADC), in collaboration with IUCN, WWF, and others has developed “Guidelines for implementing SADC rhino conservation strategies” (SADC Regional Programme for Rhino Conservation, 2006). The guidelines highlight the importance of public awareness and the role of education in meeting desired conservation objectives. The guidelines state that rhino conservation needs to go beyond environmental and ethical considerations, since public perceptions strongly influence choices on their actions as regards the species. This emphasizes the need for strategies to not only highlight the important role of rhino conservation to people’s lives, but also to persuade and influence community attitudes towards them, in order to result in some level of behavioral and attitude change. South Africa is therefore well placed to utilize the leverage provided by the regional guidelines, using its economic and political muscle in the region to spearhead national educational programs that can be emulated by neighboring countries.

Conservation Policy and Strategies. South Africa has recently lifted the moratorium that prohibited trade in rhino horn in the domestic market, which experts argue has no major consequence on trade as “the country is considered a new market with nonexistent demand, where many actors are middle men for Asian markets” (Sheldrick, personal communication, February 23, 2016). Any trade of rhino horn outside the South African market
remains illegal. The complexity presented by lifting the domestic moratorium with no ready market is behind the prevailing push to open up the species for international trade through CITES. Given the special interests of private breeders, it would be worth investigating and understanding how opening up international trade will manifest in terms of economic benefit to South Africans beyond just the breeders. Other challenges of trade involve answering the following questions: Will South Africa propose a one-off sale or a sustainable supply business? What proportion of revenues from private sales will contribute to community and conservation efforts? Will the prices be stable? How much tax will be charged with fluctuating prices? These questions remain unanswered, though the issue of price volatility motivates and catalyzes the trading partners in the status quo context.

As for the policies and legislation protecting the rhino in South Africa, comprehensive details have been elaborated in various policy and legislative frameworks by the South African Government, highlighted below. For the protection and conservation of its biodiversity and wildlife, South Africa has taken several actions, such as establishing appropriate legislation and regulations. The country has the following legislation: Biodiversity Act of 2004, List of Protected Species of 2007, Endangered Species Regulations of 2007, and South Africa Protected Areas Act of 2004 (not discussed here). The Biodiversity Act, 2004 ("Republic of South Africa: National Environmental Management Biodiversity Act, 2004", 2004) contains provisions that give effect to the country's obligations under international agreements such as CITES, regulating international trade in specimens of endangered species, and for the protection of species that are threatened or in need of protection to ensure their survival in the wild. It also includes provisions for protection of endangered ecosystems.

In its List of Protected Species of 2007 (which contained critically endangered, endangered, vulnerable and protected species), the black rhino is classified as 'Endangered Species,' while the white rhino is classified as a 'Protected Species'. The distinction of the country-level classification from the IUCN Red List classification is important, because the black rhino is classified as 'Critically Endangered'. The implication of this stark contrast is that, the black rhino in South Africa is not seen as facing extremely high risk of extinction in the wild in the immediate future. The Endangered Species Regulations, 2007, stipulates the regulations for the permit system as set out in the Biodiversity Act, 2004, insofar as that system applies to restricted activities involving specimens of listed threatened or protected species. For the white and black rhinos, the regulations define the nature of prohibited activities relating to them, including hunting, captive breeding, sale, supply and export.

It should be noted that the prohibited activities do not extend to rhino species bred or kept in captivity. The regulations though have a role in controlling the registration of captive breeding
operations, commercial exhibition facilities, game farms, nurseries, scientific institutions, sanctuaries, rehabilitation facilities and wildlife traders. South Africa has an obligation under CITES to adopt stricter domestic measures regarding the conditions for trade, taking, possession and transport of specimens of species of the rhino.

There is need for South Africa to revisit the incentives that lead people to undertake any form of illegal activities in relation to wildlife. In the case of rhino, they are poached because their horn has a high economic value in the black markets. In order to decrease the incentive to poach a rhino, various parameters must be altered, such as increasing the opportunity cost of crime through improved wages and overall social welfare elsewhere, increase the probability or severity of punishment, and decrease the actual profit from the crime (Leader-Williams 1991).

**Enforcement and Detection.** South Africa, through its Department of Environmental Affairs (DEA), implemented a study in 2014 (Taylor et al., 2014), that investigated the viability of legalizing trade in rhino horn in South Africa, that also sought to inform improvements in law enforcement and rhino protection in order to stop poaching activities (Department of Environmental Affairs: Republic of South Africa, 2014). The study provides a good overview of some of the national challenges and issues that may be considered in the context of lifting the ban on international trade in rhino horn. The study clearly
highlights South Africa’s shortcomings in capacities, tactics and law enforcement to regulate national trade. It further highlights weaknesses in anti-poaching efforts aimed at catching, prosecuting and deterring poachers, compounded with insufficient government resources to pay for enough anti-poaching rangers and law-enforcement officials to protect rhinos.

Learning from past experiences, opening a legal trade of a species in one country may pose threats to different species of the same animal in the surrounding countries where the species exists (this is what occurred when the trade of elephant ivory became legal) (Leakey, personal communication, February 26, 2016; Sheldrick, personal communication, February 23, 2016). The detrimental effects of the window allowed for sale of elephant ivory stockpiles has remained a major bottleneck to elephant conservation to date across Africa. This was opened up to three countries in Sub-Saharan Africa, including Botswana, Namibia and Zimbabwe, and the end result was a rise in illegal poaching of elephants elsewhere, where the tusks were then transferred through porous borders into the three countries in order to be shipped out “legally” (Bagla, 1997). Sheldrick saw this as a major weakness of CITES regulation, where it demonstrated shortcomings in judgment (personal communication, February 23, 2016). Okita-Ouma (personal communication, March 31, 2016) wonders how international trade could be controlled to avoid unintended effects on wild populations -- is there an easy way to differentiate between a legal and illegal horn? This loophole presents an avenue for criminals to supply legal markets using illegal horns.

In order for such a program to work for the rhino in South Africa and overcome the barriers presented by the elephant ivory trade, there would have to be an elaborate system that tracks the origins of the rhino horn to ensure that it is only sourced from South Africa, accompanied by stricter border control measures with neighboring states. As previously discussed, with the ability to track horns, Biggs and others (2013) contend that opening the legal trade of rhino horn with the technology to track from source to ultimate consumer will decrease money laundering, reduce poaching pressure and slow demand from escalating to dangerous levels (Biggs, Courchamp, Martin, & Possingham, 2013). Several experts have disputed the argument that current international ban on trade promotes illegal poaching and markets—furthermore, many experts counter that all indicators point to a rising demand for the rhino horn (Collins, Fraser, & Snowball, 2013). These latter arguments are supported by the prevailing phenomenally high price for the horn in the major consumer markets, rising real income and population growth, affordable DNA profiling which has led to reduction of fake ivory buys, and an even higher risk of reawakening old markets such as Taiwan, Japan, Singapore, and Yemen. They also point to the low reproductive rates of the rhino that would sustain regular horn harvesting for the markets

Di Minin and others (2014) found that to maintain the rhino population above its current size, there is need for increased anti-poaching effort and the monetary fine on conviction. They project that without legalizing international trade, implementing such a scenario cost approximately $147 million/year, while a legal trade would provide profits of up to $717 million/year, enough to fund the anti-poaching effort. They believe that the 35-year-old ban on rhino horn products should not be lifted unless the money generated from trade is reinvested in improved protection of the rhinoceros population. There are opposing views on the issue of funding conservation through this approach between conservationists and economists. Conservationists on one end of the spectrum argue that it has not been demonstrated to work successfully elsewhere, and therefore will be very difficult for member states to come to an agreement on the issue (Okita-Ouma, personal communication, March 31, 2016). For successful trade, there has to be trading partners internationally, so the seller cannot achieve anything on their own.

Like many countries, South Africa faces challenges with curbing rhino and wildlife poaching in general, where low-level poachers are caught and prosecuted, while funders and organizers of the complex high-level criminal syndicates remain at large. The lifting of the national moratorium therefore presents challenges for the country, not only in regulating the domestic trade, but also in ensuring adequate compliance and enforcement. For example, the report notes that traders who had accumulated the horns before South Africa signed the convention, might have likely sold off the horns illegally to foreign markets. Enforcement actions within South Africa will not be adequate by themselves, in a country plagued by corruption at various levels. Before these challenges are addressed, there will be loopholes in policing and regulating the rhino horn trade system within the country. It is therefore imperative that before the country strongly pursues any domestic or proposes the lifting of the international ban on trade in rhino horn, it should be compelled to establish and demonstrate sufficient regulatory, permitting, monitoring, enforcement and reporting frameworks to enhance legality and transparency in trade. To start with, South Africa needs to strengthen regulation of internal trade through instituting national measures, as appropriate, in support of CITES implementation (CITES, 2013). The only CoP16 decision directed at South Africa, jointly with Mozambique, was that they should enhance bilateral cooperation with each other and with their neighboring States, to enhance current efforts to combat illegal killing of rhinoceroses and illegal trade in rhinoceros horn.
International Level

Educational Outreach. Historically, Japan used to be the largest rhino horn consumer in the Asian market ("Thorny issues", 2016). Japan deployed demand reduction strategies to educate its medical sector and consumers on the need to divert from using rhino horns and instead pursue alternatives. There was success in the case of Japan, and today, the country is not a known market for rhino horn. Inadvertently, decreased consumption in Japan diverted the trade to South Korea, where doctors and pharmacists were involved in production of medicine, but in this case more locally near consumer bases. Both countries have ratified the CITES convention and have since ceased to be known consumer markets for the rhino horn. For education programs to succeed, it is therefore important that such programs are extended to neighboring potential consumer states and not only focused on a known market. [But] [h]ow do you change the mindset of two billion Chinese? This is the question posed by Sheldrick (personal communication, February 23, 2016). It should be taken into account that international criminal syndicates involved in the black markets continuously devise ways to circumvent countries that introduce tougher measures by using neighboring countries.

According to Prins and Okita-Ouma, there is need for increased education, awareness, and diplomacy to reduce horn demands, especially in China and Vietnam, the two countries that continue to destabilize rhino conservation globally (Prins & Okita-Ouma, 2013). Formal learning and knowledge dissemination systems always integrate education, complemented with field and practical sessions to ensure a more concrete understanding. Public awareness systems could be strengthened by enabling individuals to access live animals in the consumer states, for a solid appreciation and acknowledgement of the species. This could especially impact the attitudes of young children on rhinos and their conservation challenges, and lead them to treasure the rhino as they do, with for example the panda in China. A combination of educational programs within South Africa and other source countries needs to be combined with education in consumer market states to achieve some level of positive impact in reducing poaching and trade. Education though, needs to be complemented by international pressure and viable legislative and enforcement frameworks.

Conservation Policy and Strategies. As is currently developed, Leader-Williams argues that the theory of conservation biology has played little part in the practical conservation of rhinos, and that instead the theories of economics probably better explain successes and failures in rhino conservation. He nonetheless agrees that all successes in rhino conservation to date have arisen from protecting small populations in situ. He foresees a cost effective role for zoos in rhino conservation, such as through provision of funding for practical field research and in public education. Innovative approaches need to be developed to mobilize and divert some
Figure 3. This graph displays the top 10 nations that imported the Black Rhinoceros from records in the CITES trade database for the period 2007-2014. The graphed bars represent the number of reported incidents of exportation of this species by an exporting country to the listed importing country in the x-axis. The order is as follows: 1) ZA; SOUTH AFRICA, 2) CA; CANADA, 3) GB; UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND 4) DE; GERMANY, 5) NZ; NEW ZEALAND, 6) NA; NAMIBIA, 7) US; UNITED STATES OF AMERICA, 8) HK; HONG KONG, 9) CH; SWITZERLAND, 10) MX; MEXICO.

of the revenues generated by zoos to the in situ conservation of rhinos and their associated ecosystems and biodiversity.

In the DEA study mentioned above, Taylor and others (2014) highlight that international groups opposed to sustainable use would challenge any relaxation of restrictions on international trade, if proposed by South Africa at CoP17. Since some of these groups wield significant power in the international media and also carry influence at CITES, by further highlighting South Africa’s recent deteriorating record they could threaten to undermine any attempts to bring about change and may also threaten other aspects of the wildlife economy (e.g. the tourism industry). In terms of utilization of wildlife, South Africa undertakes both passive and active utilization of the rhino. These two forms of utilization are exemplified through the diversified stream of revenues, such as from tourism and trophy hunting respectively. Countries like Kenya on the other hand only undertake passive utilization of wildlife, thereby earning revenues only through tourism revenues (Okita-Ouma, personal communication, March 31, 2016).

A number of organizations play an important role in supporting rhino conservation efforts in Africa and have a great deal of influence in the South Africa wildlife sector. They include, the
Zoological Society of London, Save the Rhino International, US Fish and Wildlife, International Rhino Foundation-UK, IUCN, WWF-Africa Rhino Programme and countries such as the United States and United Kingdom, to name a few (Okita-Ouma, personal communication, March 31, 2016; Leakey, personal communication, February 26, 2016; Sheldrick, personal communication, February 23, 2016). These organizations continue to support conservation of the rhino species in Africa and Asia. The African Elephant Coalition has been fairly consistent in their positions on elephants, and if such a group opposes the South African proposal, it is unlikely to pass.

**Enforcement and Detection.** The 16th meeting of the Conference of the Parties to CITES (CoP16) made significant decisions with regards to range and consumer states. In this section, we discuss those with directives issued to Vietnam (consumer state). This is not to imply that Vietnam is the only consumer market. Some experts have pointed out that Vietnam could just be a conduit for the rhino horn to the real markets, such as China (Okita-Ouma, personal communication, March 31, 2016). In addition, actions undertaken by different states around the globe have contributed to the conservation of the rhino, where many countries have introduced legislation that bans trade in rhino horn in their respective countries.

---

**Figure 4.** This graph displays the top 10 nations that imported the Black Rhinoceros from records in the CITES trade database for the period 2007-2014. The graphed bars represent the number of reported incidents of importation of this species by the importing country itself. The order is as follows: 1) CH; SWITZERLAND, 2) ZA; SOUTH AFRICA, 3) GB; UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND, 4) US; UNITED STATES, 5) NZ; NEW ZEALAND, 6) ES; SPAIN, 7) AU; AUSTRALIA, 8) NO; NORWAY, 9) CN; CHINA, 10) AT; AUSTRIA
Past CITES CoPs play an important role in rhino conservation, through its decisions to various bodies, such as to parties, the Secretariat, Working Group on Rhinoceroses, and to the Standing Committee. For example, at CoP16, the major decision issued to Vietnam was that it makes progress with the development and implementation of the ‘South Africa–Vietnam 2012-to-2017 Joint Action Plan’, including strengthening management of imported rhino horn trophies, and to improve investigations and prosecutions of Vietnamese nationals suspected of illegally possessing or trading in rhino horn. Specifically, CITES directed Vietnam to develop legislation on the domestic management of imported rhino horn trophies addressing the issue of alteration and transfer of rhino horn trophies pursuant to the national laws and CITES Resolutions, and to establish a secure registration database to track legal rhino horn trophies.

The country is also required to conduct consumer behavior research to develop and implement demand reduction strategies or programs aimed at reducing the consumption of rhino horn products and to provide a comprehensive report on progress made to the Secretariat by 31 January 2014. Sheldrick (personal communication, February 23, 2016) emphasizes on the need to invest in funding research that will persuade the consumer markets to reduce and eliminate their demand. Such research could provide some useful answers on what motivates consumers to buy rhino horn and the price dynamics involved. Demand reduction campaign programs can have significant impact in changing attitudes and behaviors toward rhinos and the rhino horn trade through improving the overall knowledge and recognition of the severity of the poaching crisis (WildAid/AWF n.d.) A 2012 survey undertaken by the African Wildlife Foundation and Horizonkey Research Consultancy Group in three Chinese cities, Beijing, Shanghai, and Guangzhou showed 23% reduction in 2014 on the belief that rhino horn has a medicinal effect. 90% of residents in the three cities said they would not buy rhino horn after watching WildAid’s rhino public service announcements that featured Ambassadors Yao Ming and Jackie Chan. Up to 95% of the non-consumers, and 87% of consumers call for tougher Chinese government regulation, with 87% supporting. Western pharmaceutical studies show that although rhino horn might slightly reduce fever in high dosage, it is not worth pursuing as a medicine because acetaminophen works more effectively. The 2014 AWF and Horizonkey Survey showed that seeing graphic images of poached rhinos is the most effective way to persuade consumers to end their ivory consumption (WildAid/AWF n.d.).

China has taken some steps in the right direction, albeit small in reducing demand. In 1993, the Chinese government banned the use of rhino horn in traditional Chinese medicine, removing it from Chinese pharmacopoeia administered by the Ministry of Health of the People’s Republic of China (Brooks 2010), following studies that presented
scientific evidence that the rhino horn has no medicinal value (Collins, Fraser, & Snowball, 2013). The link between rhino horn and medicine is a myth, as there is no proven medical value (Sheldrick, personal communication, February 23, 2016). The State Council of China issued the ‘Notice on Prohibiting the Trade of Rhino Horns and Tiger Bones’ and publicized the prosecution of illegal rhino horn dealers. The ban in China, Hong Kong, Taiwan, and Singapore, combined with increased public awareness campaigns, reduced demand for rhino horn and reports of poaching greatly decreased (AWF n.d.).

Kenya has been quite vocal on rhino poaching and is involved through various public and private agencies in protecting the species. Kenya has been piling stocks of rhino recovered from poachers, which are set ablaze in public ceremonies, in the hope that it will help send awareness to the public and poachers. On the 29 April 2016, Kenya plans to set ablaze up to 1.5 tonnes of rhino horn that has been confiscated from poachers and smugglers in order to send a very strong signal on its position as regards the issue of trade (Leakey, personal communication, February 26, 2016). Such tonnage at current black market prices of US $65,000 per kilo translates to around US $97 million dollars. Whether such Kenya’s strategy of burning is a viable deterrent approach in contrast to stockpiling remains an issue of debate and warrants further research and discussion.

The international community funds various research that is useful to rhino conservation. Some authors have argued that some of the research funded contributes little directly to rhino conservation, and that enormous research has already been achieved, especially in the areas of rhino behavior, physiology and physiology, hence the need to shift focus to action. With existing uncertainties or inexhaustive science on the reproductive potentials of the rhino in captivity, it may be worth investing in further research to address the challenges faced in captivity to inform the successful breeding of rhinos ex situ. Sheldrick, an expert in nurturing rescued baby rhinos from the wild, points out that it is highly challenging to raise their babies given the complexity of the animals (personal communication, February 23, 2016). Scientists in Kenya, such as Okita-Ouma (personal communication, March 31, 2016) and Sheldrick (personal communication, February 23, 2016) pointed to specific areas which may require additional research, including studies in rhino genetics, studies in attaining consistent reproductive levels to sustain populations in situ, and the studies on the interaction of rhinos with their habitats, and on density effects on reproduction.
Black rhino populations dropped by 95 percent in the span of 24 years in sub-Saharan Africa. However in Zimbabwe, black rhino numbers only started to decline 10 years later. All efforts to curb the poaching including dehorning live rhinos, banning the trade of rhino horn, and having intensive Protection Zones failed. In an effort to assist the rhinos, cattle ranchers took it upon themselves to shift to wildlife protection, and two private conservancies were established in Zimbabwe: Savé Valley, and Bubiana Conservancies. These conservancies have been so successful, that since their establishment, there has been not a single case of poaching of those rhinos, and black rhino numbers have actually began to recover (Alessi, 2000).
Recommendations for Potential CoP 17 Proposal

South Africa does engage in trade involving live rhino specimens and trophies, despite increased poaching incidents in the country (Okita-Ouma, personal communication, March 31, 2016). As home to the largest number of rhinos worldwide, the 17th meeting of the Conference of the Parties to CITES (CoP17) may have to deal with a speculated proposal by South Africa to lift the international ban on trade in rhino horn. From the economic analysis undertaken in this report, the funding required to conserve South Africa’s rhinos are not that astronomical, yet legal international trade in rhino horn presents it an opportunity to raise even more funds that could contribute to conservation and socioeconomic development of its people.

The CoP17 could consider this approach, or discuss alternative options of defeating the complex international criminal syndicates involved in illegal rhino horn trade which have thus far proved extremely challenging to track, by both CITES and national wildlife authorities. An international trade that leads to increased poaching and rhino population decline only motivates the desire by consumer markets to purchase and stockpile the horn as populations become more scarce (Sheldrick, personal communication, February 23, 2016). A legal trade, said to lower the price of the rhino horn, may also result in an unintended increase in the demand base, as more can afford it. It is therefore useful to conserve larger numbers of rhino populations possible, as smaller populations require a shorter time before they become extinct. With a growing body of scientific evidence that rhino horn does not cure any human ailment, there is no need for its trade in the horn, and hence the need to focus on rhino conservation as the overarching goal. The best strategy to eliminating rhino poaching and ensuring species survival is through killing demand in all consumer markets (Sheldrick, personal communication, February 23, 2016).

Some experts point out that in many voting processes on CITES proposals, the SADC region tends to vote as a block, hence will likely support a proposal by neighboring South Africa. Other countries across Africa may not have an incentive or motivation to support South Africa’s proposal, while the EU, US, and Asian countries are expected to oppose such a move (Okita-Ouma, personal communication, March 31, 2016; Leakey, personal communication, February 26, 2016; Sheldrick, personal communication, February 23, 2016). Despite the many political and economic interests by various countries that come into play during voting, previous CoPs have shown that the diplomatic relations between US, EU or China and many African countries has significant potential to influence or sway how countries vote. Voting is therefore not based on conservation interests alone. At the moment, the wider view is that African countries, including many South Africans acknowledge that conservation of the species is of utmost importance, and is easier to implement in the context of the prevailing international ban on trade in rhino horn (Leakey, personal communication, February 26, 2016). Leakey, a renowned wildlife conservationist in Africa, predicts that opening up of an international legal
trade will have detrimental effects on rhino’s continent-wide. Instead, he proposes for adjustments to current sanctuary management and monitoring models to improve their effectiveness in conserving the rhino.

CoP17 is an invaluable opportunity that should give priority to developing appropriate legislation and penalties that are high enough to deter criminals from engaging in poaching activities. It is important to address poverty, corruption and human greed, dimensions that are characteristic of many communities in both range and consumer market states, which serve as an incentive for low level poachers, and makes it difficult to monitor (Leakey, personal communication, February 26, 2016; Sheldrick, personal communication, February 23, 2016). National programs that economically empower larger proportions of the South African society at large will go a long way in reducing the incentive for poaching. In addition, there is need to increased fiscal discipline and prudence in South Africa, if the country is to explore funding revenues that could be diverted towards wildlife conservation. Leakey makes the argument that moving the black rhino from Appendix I to II will make it very difficult to manage a legal trade, as ‘legal smuggling’ will likely increase, given how easy it is to forge documents across many African countries. The staff working in Customs and border control will therefore have a difficult time, considering that they are not engaged and benefitting from the legal smuggling.

There is no consensus in South Africa on the lifting of the domestic moratorium and also on the proposal to open up international trade in rhino horn or delist the black rhino to Appendix II. The contest seems to be vastly economically motivated, with a major driving force underlined by the interests of private breeders, who were behind the lawsuit for lifting the domestic moratorium. Leakey observes that this private interests are making it very difficult for the rest of Africa to manage their rhino conservation effectively, as poachers continent-wide look to the outcome of South Africa’s proposal. The private breeders have put forth the idea that it is possible to undertake a successful and safe dehorning of rhino horn in the farms. This does not deter poachers, as evidence shows that poachers will still hunt and kill dehorned rhinos for the remaining stump, which still has high value. Increased farming of rhinos may also threaten their existence in the wild, defeating the purpose for which CITES was established. In addition, our economic analysis demonstrates that it is much more cost effective to conserve rhinos and other biodiversity in the wild, as compared to smaller spaces such as farms.

Recent news from South Africa point to an increased possibility that a proposal may be in the running, that calls for legalization of commercial, international trade in rhino horn. The desire to pursue the proposal may be reflected in the National Treasury’s Estimates of National Expenditure, Environmental Affairs 2016 section, released in February 2016, quoted herein.
“South Africa will submit its rhino horn trade proposal at CITES COP 17. The proposal aims to reduce rhino poaching, as it promotes the legal selling of rhino horn. If this were implemented, the sales could generate significant revenue to supplement conservation funding. R75 million has been reprioritized for 2015/16 and R48 million for 2016/17 for the event.” (Department of National Treasury: Republic of South Africa, 2016) (Watson, 2016).

Whether South Africa will actualize this aspiration and submit a formal proposal at the CoP17 of the CITES is not fully known at this stage. There is a prevailing view by many that the country will only proceed if it foresees an indication of support from its allies and the CITES secretariat. South Africa being the host country for CoP17 is expected to support the CITES process and will therefore likely flow with the agenda of the majority of the member states, hence may not make a formal proposal (Leakey, personal communication, February 26, 2016). Not judging the context of this issue carefully and correctly, could lead to a major setback for the proposing country if it were to fail to win a majority of the member states.


A Plan to Raise Awareness and Engage the Public on Issues of Wildlife Trafficking

Social Media
The WCS has also requested the integration of a social media component into our project, in order to involve and educate citizens on the animals and issues to be discussed during the CITES CoP17. The aim of the Social Media Plan is to target both the United States audience and the countries involved in the animal trade to help reduce the demand.

**Why Social Media?**

Environmental organizations, with an effective social media outreach portfolio, have the opportunity to reach and impact a diverse audience. Environmental issues are being increasingly communicated now through new technologies and media (Facebook, Instagram, Twitter, YouTube, Google+ among others) and reaching a large majority of the world’s population. Through these advancements in technology, and a larger range of people having access to the internet, organizations can harness these new communication channels to educate people about environmental issues, including wildlife conservation.

An article titled *Challenges for Environmental Education: Issues and Ideas for the 21st Century* by Stewart J. Hudson, suggests that scientists will need to adapt to new strategies of communication to better address the public, where the information is relevant to the needs of the public’s interest. It is important to consistently engage and captivate an online audience, in order to educate the population of environmental issues (Hudson, 2001).

A paper titled *Restarting the conversation: challenges at the interface between ecology and society*, concludes: “Ecologists need to adopt new models of engagement with their audiences, frame their results in ways that are more meaningful to these audiences, and use new communication tools, capable of reaching large and diverse target groups” (Groffman et al., 2010).

The Wildlife Conservation Society acts to educate the public on wildlife conservation using social media tools that are available. This organization has been active primarily on Facebook, Twitter, YouTube and Instagram, with a secondary online presence on various other social media websites including Google+, Reddit and Tumblr. The WCS has taken advantage of the newest technologies and broken the barriers of communication in order to reach the largest audience possible to make a change for the safety and security of wild animals and wild places across the world.
**What Social Media to use?**

*Facebook:* 72% of online American adults, which constitutes 62% of the entire adult population use Facebook (Duggan, 2015). Approximately 30 percent of adults in the United States obtain news about current events on Facebook. Facebook now has one-fifth of the world using its platform monthly. The experienced communications team at the Wildlife Conservation Society have honed in on best ways in which to communicate with the public on Facebook, that generate responses and actions from their audience.

*Instagram:* 28% of online American adults, which account for 24% of the entire adult population use Instagram (Duggan, 2015). Instagram gained momentum and followers, rapidly becoming more popular than twitter in just 6 months of the app launching. The WCS has taken advantage of the “location” feature of Instagram, indicating exact locations where the pictures originate, allowing their followers to be captivated by their high-definition pictures, but also learn where the species originate from in order to gain more perspective on the animals.

*Twitter:* 23% of online American adults, which account for 20% of entire adult population use Twitter (Duggan, 2015). The older generation is very involved with Twitter, and it is not used mainly by teens. This statistics illustrates the bigger picture that while social media cannot fully reach every single person in the world, it does however reach a large majority, spanning over a large demographic, even age.

**How to use it?**

The challenge of local and international engagement is often correlated with geographic distance. Therefore using Social Media is an appropriate strategy for communication and outreach that can communicate with remote cities and countries around the world. It allows rapid, frequent, and convenient interaction with global citizens. Several approaches can be used to engage the local and international community:

- Using or creating an international network of supporters and partners, including existing local environmental NGOs;
- Contacting local and national media companies, which can engage via
  - Social media, via a “like” or “retweet” of WCS’ posts;
  - Traditional communication outlets such as television, radio, websites;
- Using the global reputation of WCS:
  - Requesting citizens to contact their government (letter, email, phone call, etc.) to better address the conservation of the concerned species;
  - Supporters and partners taking the government to court and having them have better laws.
When using Social Media, it is important to understand the audience and to send the appropriate message. Therefore, a few guidelines need to be followed:

- Introducing the species to educate the public about its existence and function in the wild with the understanding that the general population may be unaware of this foundational knowledge;
- Building a story to gain and keep attention of the intended audience;
- Using scientific facts that are accessible and comprehensible for non-scientific audience;
- Using visual content as much as possible;
- Using the appropriate hashtag for every species but not using too many to avoid confusion.

All these actions also allow raising awareness among all communities to have a responsible and respectful attitude towards the environment.
USE OF CHAMPIONS

Another approach that has been developed by several NGOs and the United Nations is involving celebrities to raise awareness. This strategy has shown to be quite effective since celebrities usually have a considerable platform to amplify their messages. It is however necessary to use credible and committed personalities to send strong messages. Here are few examples of celebrities that are currently supporting wildlife protection.

Yao Ming

Since 2012, former NBA star and Chinese icon, Yao Ming has been involved in raising awareness to reduce pressure on wildlife. In April 2013, in partnership with WildAid, Save the Elephants, African Wildlife Foundation, and the Yao Ming Foundation, he launched a major public awareness campaign targeting consumption of ivory and rhino horn in China (AWF, 2013). In September 2013, Yao Ming, Prince William, and David Beckham supported a WildAid campaign to reduce demand for ivory and rhino horns in China, Hong Kong and Thailand.

Leonardo DiCaprio

In September 2014, UN Secretary-General Ban Ki-moon designated Leonardo DiCaprio, Academy Award-winner actor and environmental activist, as a UN Messenger of Peace. In this role, Mr DiCaprio addressed the UN Climate Summit 2014, a forum that brings together leaders from government, business, and civil society to promote climate action for a healthy planet, sustainable economic growth and better standards of living for all. Through his foundation established in 1998, “Leonardo DiCaprio Foundation”, Mr
DiCaprio shows a longstanding commitment to fighting for environmental causes, and protecting biodiversity and Earth’s last wild places (United Nations, 2014).

Gisele Bündchen

Gisele Bündchen, fashion icon and one of the world’s most famous models, was designated a Goodwill Ambassador for United Nations Environment Programme in 2009. Her longstanding and passionate commitment to the environment has been recognized by the Harvard Medical School that honored her with the Global Environmental Citizen Award. Gisele uses her fame to raise people’s awareness about protecting the planet and to help the United Nations to call attention to environmental issues (UNEP, n.d.). Recently, she attended the UN World Wildlife Day on March 3rd, 2016.
Kristin Davis

Kristin Davis, known as Charlotte York in TV series Sex and the City, is passionate about animals and utilizes her status to attract significant media attention for the David Sheldrick Wildlife Trust. Through her Facebook page and Twitter feed, Kirstin raises awareness on conservation issues, such as the illegal ivory trade (DSWT, 2011). She also produced in 2013 a documentary on elephant crisis called ‘Gardeners of Eden’.

We researched several possible celebrities/champions that could be specifically involved in raising awareness for the species discussed in this report. The Wildlife Conservation Society could approach them and involve them in awareness campaign.

For the African Grey Parrot, we identified Jesse Eisenberg, American actor, author, playwright, and humorist, who played a parrot in the animated kids movie Rio, and led a campaign for the Humane Society of the United States. We also identified Derren Brown, English mentalist and illusionist, as another potential champion who is patron of the Parrot Zoo Trust since 2004.

For the pangolins, we identified Hoai Anh, Vietnamese Newscaster known as “the female Anderson Cooper of Vietnam”, who has already been involved in awareness campaigns to protect pangolins.
TIMELINE

In order to maintain the social media component of the project even after graduating, the team has looked into UN international days up until CITES CoP17, in which to post information about the animals.

UN International Days

22 April: International Mother Earth Day
22 May: International Day for Biological Diversity
1 June: Global Day of Parents
5 June: World Environment Day
8 June: World Oceans Day
17 June: World Day to Combat Desertification and Drought
11 July: World Population Day
30 July: International Day of Friendship
12 September: United Nations Day for South-South Cooperation
21 September: International Day of Peace
27 September: World Tourism Day
3 October: World Habitat Day

CITES major dates

27 April: Deadline for proposals to amend Appendices I and II at CoP17
27 April: 150 days before CoP17
22 May: 125 days before CoP17
16 June: 100 days before CoP17
11 July: 75 days before CoP17
5 August: 50 days before CoP17
30 August: 25 days before CoP17
14 September: 10 days before CoP17
19 September: 5 days before CoP17
23 September: 1 day before CoP17
24 September - 05 October: CITES CoP17

To conclude, we believe this Social Media Plan will help the WCS to efficiently raise awareness, involve and educate citizens on these animals at the local and international levels. With this strategy, we ultimately aim to reduce demand in the concerned countries and to promote the development of best conservation practices.


Upon conducting research on each of the focal animals, the team identified some overall common recommendations.

- Government at all levels need to reinforce established regulations and address the demand for illegal trade
- More research and data needs to be compiled in order to better ensure the survival of these animal populations and to develop the most effective best management practices for these populations
- Enforcement policies need to be upheld and reinforced and violations need to be documented with more diligence and accuracy

Wildlife trafficking affects many aspects of society and has ecological, political, and economic impacts. Combatting this issue requires all parties to cooperate and commit to the conservation of all wildlife. With the creation of the Conference of the Parties, CITES brings all concerned parties together in an effort to inspire international unity to tackle these complex issues.

We hope that the research material contained within this report will help protect and conserve wildlife for generations to come.