Essay

Legal Ivory Trade in a Corrupt World and its Impact on African Elephant Populations

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Abstract: *Illegal hunting of African elephants* (Loxodonta africana) *for ivory is causing rapid declines in their populations. Since 2007, illegal ivory trade has more than doubled. African elephants are facing the most serious conservation crisis since 1989, when international trade was banned. One solution proposed is establishment of a controlled legal trade in ivory. High prices for ivory mean that the incentives to obtain large quantities are high, but the quantity of tusks available for trade are biologically constrained. Within that context, effective management of a legal ivory trade would require robust systems to be in place to ensure that ivory from illegally killed elephants cannot be laundered into a legal market. At present, that is not feasible due to corruption among government officials charged with implementing wildlife-related legislation. With organized criminal enterprises involved along the whole commodity chain, corruption enables the laundering of illegal ivory into legal or potentially legal markets. Poachers and traffickers can rapidly pay their way out of trouble, so the financial incentives to break the law heavily outweigh those of abiding by it. Maintaining reliable permitting systems and leak-proof chains of custody in this context is challenging, and effective management breaks down. Once illegal ivory has entered the legal trade, it is difficult or impossible for enforcement officers to know what is legal and illegal. Addressing corruption throughout a trade network that permeates countries across the globe will take decades, if it can ever be achieved. That will be too late for wild African elephants at current rates of loss. If we are to conserve remaining wild populations, we must close all markets because, under current levels of corruption, they cannot be controlled in a way that does not provide opportunities for illegal ivory being laundered into legal markets.*

Keywords: corruption, ivory, organized crime, wildlife trade

Comercio Legal de Marfil en un Mundo Corrupto y su Imapacto sobre Poblaciones de Elefantes

Resumen: *La cacería ilegal de elefantes africanos* (Loxodonta africana) *por su marfil esta provocando declinaciones rápidas en sus poblaciones. Desde 2007, el comercio ilegal de marfil ha incrementado más del doble. Los elefantes africanos están enfrentando la crisis de conservación más seria desde 1989, cuando se prohibió el comercio internacional de marfil. Una solución que se propone es el establecimiento de un comercio legal controlado de marfil. Los altos precios del marfil significan que los incentivos para obtener grandes cantidades son altos, pero la cantidad de colmillos disponibles para el comercio está limitada biológicamente. En ese contexto, el manejo efectivo de un comercio legal de marfil requeriría del funcionamiento de sistemas robustos para asegurar que el marfil obtenido de elefantes cazados ilegalmente no sea lavado hacia el mercado legal. Actualmente, eso no es factible debido a la corrupción de oficiales de gobierno encargados de implementar la legislación relacionada con vida silvestre. Con la presencia de empresas del crimen organizado a lo largo de la cadena, la corrupción permite el lavado de marfil ilegal hacia mercados legales o potencialmente legales. Los cazadores y traficantes ilegales pagan por evitar problemas, así que los incentivos financieros para quebrantar la ley son mucho más fuertes que los incentivos para cumplirla. En este contexto, el mantenimiento de sistemas confiables para emitir permisos y para cadenas de custodia herméticas es un reto, y el manejo efectivo se descompone. Una vez que el marfil ilegal ha entrado al comercio legal, es difícil o imposible que los oficiales sepan que es legal e ilegal. Evitar la corrupción en la red de comercio que permea en el mundo llevará décadas, si alguna vez puede lograrse. Entonces será muy tarde para los elefantes africanos silvestres considerando las tasas actuales de declinación. Si hemos de conservar poblaciones silvestres remanentes, debemos cerrar todos*

los mercados porque, con los niveles de corrupción actuales, no pueden ser controlados de manera que no proporcionen oportunidades para que el marfil ilegal sea lavado hacia mercados legales.

Palabras Clave: comercio de vida silvestre, corrupción, crimen organizado, marfil

Introduction

Illegal hunting to provide wild animals or their parts for illegal trade is causing rapid declines of many species, including saiga (*Saiga tatarica*) (Milner-Gulland et al. 2001), tigers (*Panthera tigris*) (Sanderson et al. 2006; Walston et al. 2010), pangolins (*Manis* spp.) (Shepherd 2009; Challender & Hywood 2011), Asiatic black bears (*Ursus thibetanus*) (Foley et al. 2011), tortoises and freshwater turtles (Horne et al. 2012), and many more (Wyler & Sheikh 2013). Recent concern in many circles has arisen out of the major losses of African elephants (*Loxodonta africana*) (Maisels et al. 2013*a*; UNEP et al. 2013) and rhinoceroses (Milliken et al. 2009*a*; Rademeyer 2012; CITES Secretariat 2012, 2013*a*); much of the poaching supplies wildlife products to markets in East Asia (e.g., Milliken et al. 2009*b*; Christy 2012; Rademeyer 2012; Underwood et al. 2013).

One solution proposed to address the issue of illegal wildlife trade is establishment of a controlled legal trade. Rationales for this approach are that legalization could allow more effective regulation and control of the trade; sales could contribute to conservation by satisfying demand, thereby taking pressure off wild populations of the species; and funds generated could be used to support conservation of the species (e.g., Delegation of the People's Republic of China to the CITES Standing Committee 2006; Mitra 2006; Lapointe et al. 2007; Martin et al. 2012). The legal market would be supplied from animals in the wild now or recent past (e.g., sales from stockpiles of ivory and saiga horn), from captive or semicaptive animals (e.g., rhinoceros horn removed from live animals), or from farmed animals (e.g., bear bile, tiger bones). Numerous plant and animal species are already subject to a managed trade which, in many cases, is sustainable; legal trade dominates the market and illegal trade is minimal (e.g., ornamental plants [Oldfield 2002], crocodilian skins [Thorbjarnarson 1991; Webb et al. 2010]). Unsustainable levels of poaching and trafficking of ivory from African elephants is of paramount global conservation concern (e.g., Christy 2012; CITES Secretariat 2013*b*; UNEP et al. 2013). Could controlled legal trade in elephant ivory be a viable approach to ensuring the survival of wild African elephants?

The Ivory Trade

All international commercial trade in African elephant ivory was effectively banned in 1989 when the species was transferred from CITES Appendix II to Appendix I. Listing in Appendix I effectively bans all international commercial trade in a species and its products, including ivory. Since then, apart from one-time ivory sales from government stockpiles from 3 African countries to Japan in 1997 and from 4 African countries to Japan and China in 2008, all international sales have been illegal (UNEP et al. 2013). In spite of the international trade ban, illegal trade continues. The increase in disposable income in East Asia, coupled with increasing economic and infrastructure links between Africa and Asia, have been implicated in rapid recent increases in elephant poaching and illicit international trade in ivory; this has become especially pronounced from 2006 onwards (Milliken et al. 2009*b*, 2013; UNEP et al. 2013). Illegal ivory trade and the weight of ivory being traded globally has more than doubled since 2007 and is more than 3 times greater than it was in 1998 (CITES et al. 2013). As a consequence, African elephants are facing the most serious conservation crisis since 1989. Forest elephants (*L. a. cyclotis*) have suffered the most dramatic recent losses. From 2002 to 2011, their total population declined by 62%, and the taxon lost 30% of its geographical range (Maisels et al. 2013*a*). Similarly, African savannah elephants (*L. a. africana*) in Central Africa lost 76% of their numbers between 1985 and 2010 (Bouche et al. 2011). Previously secure populations of African savannah elephants in eastern and southern Africa are under growing threat as the wave of poaching spreads (CITES et al. 2013). The Selous Wildlife Reserve in Tanzania lost 66% of its elephants from 2009 to 2013 (Tanzania Ministry of Natural Resources and Tourism official figures). Many countries, including the United States, China, and Japan, still have legal domestic ivory markets; most ivory is sold under some form of certification as coming from legal stockpiles or as antiques. Hence, the question arises— could the uncontrolled declines in African elephants be addressed by opening up a controlled steady-supply legal trade in ivory (e.g., Walker & Stiles 2010)?

When considering this question, 2 characteristics of African elephants are relevant. First, ivory is of high value per unit mass. The hunter potentially receives a highly disproportionate price, equivalent to annual earnings, from the sale of ivory from even a single animal, and prices increase all along the trade chain. Second, with the longest gestation period of any mammal to produce single offspring, with long maturation and interbirth intervals (Wittemyer 2011), elephants have among the lowest maximum finite rate of population increase (λ) of any mammal. Hence, the potential sustainable productivity

of the wild populations is low (see Robinson & Redford 1991; Robinson 2000). That provides a potential challenge in managing a sustainable legal trade in which supply meets demand without source populations being depleted. On the one hand, the incentives to obtain large quantities of ivory are high, but on the other, the quantity of tusks available for trade are biologically constrained.

Within that context, effective management of a legal ivory trade would require that systems be in place to ensure that illegal ivory cannot be laundered in significant quantities into the legal market. First, the supply of legal ivory entering the market must be controlled, with little illegal ivory allowed to enter the trade. This means that illegal hunting must be prevented; legal hunting well managed with scientifically based quotas to ensure sustainability; and only legally designated animals are removed so only products from legally sourced animals enter the market. This is challenging because the disparity between the value of the resource and the income of local people creates a powerful incentive to hunt elephants illegally, but it is feasible in theory, especially if local people benefit from sales to a legal market. Second, the trade itself must be regulated with tightly controlled chains of custody from source to consumer. This again is feasible in theory, especially if modern genetic or other techniques are used to identify individual items, with marking systems that are tamper proof. Third, markets must be managed effectively to maintain the chain of custody of legal ivory through to the end consumer. Along the whole trade chain, these management systems must be robust enough to prevent illegal hunting and leakage of illegal ivory into the trade chain. This necessitates transparency, good governance throughout, and effective systems of enforcement in place all along the trade chain.

Such management systems along the whole trade chain must be robust to counter the significant incentives to undermine controls, given the high current prices of ivory and the high demand for such products in the expanding markets in East Asia (Milliken et al. 2009b, 2013; TRAFFIC 2010; UNEP et al. 2013). Indeed, current levels of demand for ivory are greatly driving up the price and thereby providing major incentives to hunt elephants well above sustainable levels.

In 2012, if 10% of households in the wealthy middle class in China that earned US$16,000/year or more each bought a 50 g piece of ivory (probably a considerable underestimate [National Geographic 2012]), 32,000 elephants would have to have been harvested (Maisels et al. 2013b). This is approximately the number of elephants poached across Africa in 2012, part of a pattern leading to population declines across much of the continent (UNEP et al. 2013), especially in Central Africa (Maisels et al. 2013a). At the current rate of households joining the wealthy middle class in China, by 2022, 163,000 elephants would be needed to supply ivory to 10% of households (Maisels et al. 2013b). Hence, management systems and enforcement would have to be very effective to prevent the strongly incentivized illegal trade depleting elephant populations.

The Role of Corruption

In theory, such robust, transparent, well-governed management systems and enforcement could allow for a legal trade of high-value ivory. At present, that is not feasible due to one major factor: corruption among government officials charged with implementing wildlife-related legislation. Given the involvement of organized criminal enterprises along the entire commodity chain, from elephant range states to some of the main ivory consumer countries, corruption enables the laundering of illegal ivory into legal or potentially legal markets. This can involve officials demanding bribes for compliance or political influence and accepting bribes to overlook illegal activities (Garnett et al. 2011). Bribery opportunities exist and are exploited at all points in a trade chain. Officials are paid to turn a blind eye to poaching (Walker 2009) or trafficking (e.g., Corruption Tracker 2011); to switch or alter CITES or other permits along the trade chain so that, through fraudulent paperwork, an illegal item seems legal (Christy 2008; UNODC 2012); and to falsify certification at the point of processing or end point of sale (Gabriel et al. 2012). Six of the 8 countries identified by CITES as the worst offenders in ivory trafficking globally (CITES Secretariat 2013c) are in the bottom half of the most corrupt countries in the world, out of 177 assessed (Transparency International 2013). Of the 12 countries in Africa estimated to have elephant populations of 15,000 animals or more (UNEP et al. 2013), 8 are among the bottom 40% of the world's most corrupt countries and 3 are among the bottom 11% (Transparency International 2013). Moreover, with elephants occurring in 37 range states across Sub-Saharan Africa, even if some local areas and countries control a legal trade effectively, corrupt leakage into that trade chain from other countries is almost inevitable.

Effective management is particularly susceptible to subversion by corrupt officials because most wildlife officials are very poorly paid (e.g., Nshuli 2013). This encourages bribes, especially when dealing with wildlife products of high value (Smith et al. 2003; Smith & Walpole 2005). This is especially the case in countries such as Cameroon, where rangers sometimes do not receive their salaries for months at a stretch (Peh & Drori 2012). Inspections at any point in the trade chain can be a mechanism for eliciting bribes, rather than an effective regulatory tool (Ferraro 2005). In those circumstances, increasing the numbers of enforcement officers merely results in the need to pay more bribes. If the judiciary is also weak, as is often the case, even strong regulations do little to enhance good management but merely

provide more opportunities for corruption (Damania 2002). The more valuable the item being trafficked, the greater the incentive for corruption, so the higher the bribes. High demand driving up prices of ivory at the consumer end further drives corruption all along the trade chain to ensure supplies. In Cameroon, the Last Great Ape Organization (LAGA) documented bribery attempts in 85% of its field enforcement operations against wildlife traffickers and in 80% of all court cases (LAGA 2013). At 3 smuggling points on the Vietnam–China border, an estimated $18,000–30,000/day is given in bribes to border officials (WCS 2012), and in Quang Binh Province, Vietnam, 45% of all wildlife outlets surveyed reported corruption, collusion, or leniency of officials (WCS 2013). Within such a system, where poachers and traffickers can rapidly pay their way out of trouble, the financial incentives to break the law heavily outweigh those of abiding by it.

The illegal ivory trade is largely run by organized criminal networks (Milliken et al. 2009*b*; UNEP et al. 2013) who resort to violence and whatever else is necessary to ensure that the trade can operate (Christy 2012). Even 10 years ago, governance scores explained the numbers of African elephants better than any other factors (Smith et al. 2003), and the situation has deteriorated greatly since then (Wyler & Sheikh 2013). Governance at the national level consistently emerges as a strong predictor of elephant poaching levels in CITES Monitoring of Illegal Killing of Elephants (MIKE) program analyses (CITES Secretariat et al. 2013). In this context, maintaining reliable permitting systems and leak-proof chains of custody for a legal trade is challenging, and effective management breaks down.

Once illegal ivory has entered the legal trade, it is difficult or impossible for enforcement officers to know what is legal or illegal. Even without such ambiguities, enforcement of illegal wildlife trade is challenging because, around the world, wildlife agencies are given low priority and are severely understaffed, undertrained, and underresourced. Moreover, in many countries, the responsibility for enforcement in urban markets is legally ambiguous and often lies with transportation or urban authorities whose interest and training in wildlife crime is negligible (Bennett 2011). Expecting such officers to be able to distinguish legal from illegal commodities is unrealistic. Some modern tools are available, for example, DNA testing to determine the origin of ivory (Wasser et al. 2008, 2010) and isotope testing to determine the age of whole tusks (Uno et al. 2013), but they generally involve a significant time lag between detection of the item and verification of its provenance or age, making them unsuitable tools for immediate enforcement operations, although they enhance understanding of the trade and potentially support subsequent prosecutions.

The role of consumers is key because, knowingly or not, they are the ultimate drivers of the trade—both legal and illegal (TRAFFIC 2008). Consumers might choose not to buy illegal ivory because of its illegality. In China many potential buyers of ivory do not realize that some products on the market are from illegal sources (Gabriel et al. 2012), so educating potential consumers would help, as many organizations are currently trying to do. The problem would be further reduced if consumers prefer wildlife items from legal sources to illegal ones. Increasingly, consumers favor crocodile skins from legally sourced or ranched animals due to conservation concerns (FAO) and because the ex situ products are more intact and less damaged than wild-sourced crocodile products (Thorbjarnarson 1991). This is not the case for elephant ivory, however; both legally and illegally sourced ivory comes, originally, from the same overall wild source. Hence, if a corrupt system allows illegal ivory to enter the market, public lack of awareness of or concern about its provenance undermines the controls of a legal trade. Ultimately, demand will only be reduced in one of 3 ways. First, legal trade must be controlled effectively with no illegal leakage into the supply chain so that limited supply drives prices up beyond the levels that most potential buyers can afford. This is not feasible under current conditions of poor governance. Second, ivory is no longer a high status product. This is also currently not the case, although it could change in future. Third, all trade is effectively closed, at least until ivory no longer has it current cache.

Discussion

In the long term, the issue of corruption must be addressed because it subverts the rule of law and good management across many areas of conservation. Doing so is challenging because the relationships between corruption and conservation are complex (Ferraro 2005; Barrett et al. 2006) and ways to address it are not clear. Tackling corruption throughout an illicit ivory trade network that permeates countries across the globe (CITES et al. 2013), many of them currently with weak governance, will take decades, if it can ever be achieved. That will be too late for wild populations of African elephants at current rates of loss. Within that context, the continuance of legal ivory markets undermines efforts to protect elephants (Hart 2012; Maisels 2012*a*, 2012*b*; Wittemyer 2012). If we are to conserve significant wild populations of the species across all regions of Africa, we have to close down all markets, both international and domestic, because, under current levels of corruption, they cannot be controlled in a way that does not provide opportunities for illegal ivory being laundered into the legal markets. Corruption undermines all aspects of controls as long as a legal market remains. The only way in which elephants can be conserved is for laws to be clear and unambiguous

so that no commercial trade of ivory is allowed. Without this, combating laundering of illegal goods will always be a Sisyphean task. Enforcement of such laws must be taken seriously and addressed with a level of resources, capacity, technology, equipment, and infrastructure appropriate to the scale of the problem (Bennett 2011).

A further issue that has to be addressed is that of stockpiles. Around the world are large stockpiles of ivory, generally in government hands, that come from animals that have been legally killed as part of management programs, died naturally, or were confiscated from the illegal trade. Keeping such stockpiles secure is challenging, and they are known to be a significant source of ivory entering or reentering illegal trade (Corruption Tracker 2011; UNEP et al. 2013). To prevent that occurring, countries with significant stockpiles are now subject to independently monitored audits because this monitoring is now obligatory under CITES (CITES Resolution 10.10 Rev. CoP 16 2013). To keep stockpiled items from leaking into illegal trade, these items could be destroyed in a transparent, audited manner. Their destruction ensures that leakage cannot occur and eliminates the possibility of corrupt officials selling the stock (e.g., Hranjski 2013). Ivory was publicly burned by the Kenyan Government in 1989 and 2011 (The Guardian 2011), the Philippines Government destroyed its ivory stockpile in 2013 (Hranjski 2013), the United States crushed its ivory stockpile in November 2013 (Arkin 2013), and China destroyed part of its stockpile of illegal ivory in January 2014 (Howard 2014).

Some stockpiles are in private hands, including with speculators who expect that future price increases will justify foregoing income from current sales and interest thereon (Mason et al. 2012), and items are being hoarded as financial investments, analagous to gold or diamonds. It has even been hypothesized that, under certain conditions, it might be profitable for a speculator, or several acting in collusion, to contribute actively to depletion of wild stocks, speeding up or even triggering the extinction (Meecham 1997; Bulte et al. 2001; Mason et al. 2012). Spectulators have no vested economic interest in securing a future for wild populations of elephants. If they go extinct, then the only suppliers of ivory have a monopoly and prices can soar (Mason et al. 2012). Key to stopping this is ensuring that no legal markets for ivory exist now or in the foreseeable future and, ideally, ensuring that stockpiles are destroyed—recognizing the complexities that arise if they are in private hands and considered financial investments.

With good enforcement on the ground, the tide of poaching can be slowed. Even in Central Africa forest elephants occur at densities 7 times higher in sites with ecoguards than those without ecoguards (Maisels et al. 2013*a*). Given the escalating scale and organized criminalization of the current poaching and trafficking crisis, however, the costs of such site-based protection in terms of funds and human lives will continue to increase and will be unsustainable in the long term as long as escalating prices for ivory and permeable enforcement systems create ever-greater incentives to kill elephants illegally. In the long term, the only sustainable solution is for demand for ivory—the ultimate driver of the system—to be reduced. This could theoretically be achieved by legalizing trade and creating a superluxury market, but that requires effective management along the whole commodity chain. That is unrealistic in the present situation of high levels of corruption throughout much of the system. Under these circumstances, as long as such demand remains, the presence of a legal ivory trade in a corrupt system facilitates an illegal trade, undermines efforts to protect elephants, and continues to foster conditions dangerous to the wild animals, the rangers striving to protect them, and the local communities living nearby.

Acknowledgments

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