



Elephant ivory trade in China: Trends and drivers



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ABSTRACT

Poaching of African elephants is threatening the species viability. International non-governmental organizations and media often attribute the basic problem to China's domestic ivory market. We present quantitative and qualitative information on trends and drivers of the ivory trade in China. Results show that ivory is traded in "white" legally licensed retail outlets, "black" illegal shops and online trade forums, and "gray" live auctions of uncertain legality. White markets are primarily in Beijing, Shanghai, and Guangzhou. The numbers of legal factories and retail outlets increased from 9 and 31 in 2004 to 37 and 145 in 2013. Black markets thrive in online trading platforms, such as Baidu Post Bar. Gray markets auction ivory items surging around 2006, mushrooming after 2009, peaking in 2011, and plummeting over 97% following government intervention. During 2002 to 2011, the ivory auction in China and elephant poaching in Africa are strongly positively correlated. Drivers of the ivory trade are multiple and complex, including Chinese consumers' motivation stemming from the socially-constructed economic, social, cultural, aesthetic, religious, and medical values of ivory. We highlight China's intangible cultural heritage preservation, the boom of arts investment, and the auction ban in changing ivory values and influencing markets. We argue that elephant conservation can be more effective if it is based on a more comprehensive and contextual understanding of China's domestic ivory trade.

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1. Introduction

African elephants (*Loxodonta africana*) are in great danger. The remaining 419,000–650,000 elephants occur across 35–38 sub-Saharan countries (UNEP et al., 2013). The species viability is jeopardized by habitat loss and fragmentation, human–elephant conflict, and illegal killing. People place differential emphases on various parts of the overall, multifaceted problem. Nonetheless, one factor—poaching and the associated illegal ivory trade—is a significant threat requiring urgent, collective, and cooperative action (UNEP et al., 2013). Data shows that poaching increased from 2006 onwards and rose to an unsustainable level with illegal killing rates estimated to average 6.8% between 2010 and 2012 (CITES Secretariat, 2014a; Wittemyer et al., 2014). Likewise, illegal international ivory trafficking activity in 2011 represented about three times as much as present in 1998, and it remains at an alarming level (CITES Secretariat, 2014a). These trends threaten the goal "to secure and restore where possible sustainable elephant popula-

tions throughout their present and potential range in Africa" (African Elephant Range States, 2010:5).

Although, the world community (via the Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES) banned international commercial ivory trade in 1989, domestic trade continues in many countries (e.g., Martin and Stiles, 2008). China is a primary destination for illegal ivory (Underwood et al., 2013). Many nongovernmental organizations (NGOs) and media contend that China's ivory trade control policy is widely abused and that the Chinese demand for ivory is huge and growing (e.g., BBC "Ivory Wars," 2011; EIA, 2011; Gabriel et al., 2012; National Geographic "Battle for the Elephants," 2013; WildAid, 2013). Claims about the ivory trade in China are based on limited investigations by a few NGOs, researchers, and journalists, mostly from western countries. These claims produce mixed reactions in China. Whereas some people consider the allegations plausible, officials from China's State Forestry Administration (SFA) insist western NGOs and media exaggerate China's illegal ivory trade. Clearly, more reliable data are needed on the nature and scale of the illegal domestic ivory trade in China. A problem-oriented, comprehensive and contextual understanding of China's domestic ivory trade might help move beyond pejorative clichés and practically toward a more constructive approach for African elephant conservation.

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In this paper, after reviewing some history, we first characterize and analyze current ivory markets; second, we discuss ivory values relative to Chinese perspectives and relevant societal changes influencing values and thus driving the trends; third, we compare our findings with the literature. On this basis, we offer recommendations to aid elephant conservation. The word “ivory” refers exclusively to elephant ivory unless otherwise stated.

1.1. History of ivory carving and trading in China

In China, ivory is primarily used for carving. Ivory carving, as a traditional art, peaked in Ming (1368–1644 AD) and Qing (1644–1911 AD) dynasties (Kao, 1990). Several sites became centers of ivory carving, including Beijing, Jiangnan (i.e., Shanghai and nearby areas), Guangdong, and Fujian (Kao, 1990; Zhang, 2012). The major ivory consumers were the imperial court, scholar-officials, and other upper-classes. Catering to their tastes, assorted items were produced, including figurines, ornaments, scholar’s articles, vessels, and other functional objects. In the first half of 20th century, great economic and political upheavals seriously impacted the industry. Around 1936 there were 126 ivory facilities with over 2780 employees in an ivory specialty street named “Da Xin” in Guangzhou. In contrast, by 1942 there were only 19 ivory facilities (Zeng and Lu, 2008). Similarly, by 1948 in Beijing there were only 40 ivory workshops with 56 employees (Zhang, 2012).

The ivory industry began a revival after the establishment of People’s Republic of China. In 1958, the Beijing Ivory Carving Factory (Beijing ICF) and Guangzhou Daxin Ivory Factory (Daxin IF) were established. These two are among the largest and best-known ivory carving entities (Zeng and Lu, 2008; Zhang, 2012). Raw ivory was obtained via Hong Kong or directly from a few African countries with which China had diplomatic relations. There was almost no ivory sale in the domestic market, and ivory products were almost all exported through Hong Kong to the international market. Ivory carving became one of the major foreign-currency-generating industries in cities like Guangzhou (Zeng and Lu, 2008). During the Cultural Revolution (1966–1976), the industry suffered a severe setback, as did other traditions. The craft grew soon after the revolution. The Beijing ICF workforce increased from 496 in 1958 to 715 in 1980 (Zhang, 2012).

In response to poaching in the 1970s and 1980s, CITES in 1989 added the African elephant in Appendix I, which bans all international commercial trade for listed species (UNEP et al., 2013). Consequently, the Chinese ivory industry dwindled as supply dried up and sales fell dramatically. The number of employees in Daxin IF declined from over 600 before the ban to about 50 in 2005 (Anon, 2005). In the Beijing ICF, the number decreased from about 800 to near 60 in 2009 (Zhang, 2010). Many ivory carvers turned to other materials, for example, bones of cattle and camel, and ivory from the extinct mammoths (*Mammuthus primigenius*).

Simultaneously, some Southern African countries convinced CITES to down-list their elephant populations to Appendix II (i.e., Botswana, Namibia, and Zimbabwe in 1997 and South Africa in 2000) (UNEP et al., 2013). The international commercial trade in Appendix II species may be authorized if certain conditions required by authorities are satisfied (CITES, 1973). In order to become a CITES-approved ivory trading nation, the Chinese government introduced an Ivory Registration and Certification Policy in 2004. After evaluation by a CITES verification mission, China was granted an ivory trading nation status (CITES Secretariat, 2005).

In 2008, the China National Arts & Crafts Group Corporation, Beijing Ivory Carving Factory, Guangzhou Daxin Ivory Factory, and Beijing Mammoth Art Co., Ltd. participated in a one-off ivory auction in Southern Africa. China purchased about 62 metric tons of elephant tusks. Presently, the 62 tons of raw tusks and the

remaining stockpiles that were imported before the CITES ban are the only legal source of ivory in China. The amount of raw ivory released to the current market is controlled to about 5 tons per year (SFA, 2008).

2. Materials and methods

We used multiple methods to examine the “white,” “black,” and “gray” ivory markets. The “white” market consists of the licensed ivory facilities approved by the government. The “black” market is the illegal trade in unauthorized physical locatable shops or on the Internet. And, the “gray” market, whose legality is ambiguous, refers specifically to the live auction of ivory artworks.

To investigate the “white” market, we obtained the official Chinese list of legal ivory processing factories and retail outlets from 2004 to 2013. This list, updated every two years, is posted on the SFA’s official website available to the public. We located addresses of ivory facilities in Google map, and plotted the distribution of the current white ivory market using ArcGIS. We also investigated the ivory enterprises using corporation databases managed by the State Administration for Industry and Commerce (SAIC).

To investigate the “black” market, first, Gao visited the unlicensed ivory shops in Guangzhou, Beijing, and Chengdu. While there, he had conversations with ivory sellers and buyers. Second, we monitored the illegal ivory trade on the Internet. From one of the most popular trade forums (“white plastics” in Baidu Post Bar), we collected 300 ivory advertisements posted from December 2013 to February 2014. We documented the date, the pseudonym (screen name) of sellers, and price, weight, size, type and photo of the ivory offered for sale, as information was available. We distinguished three kinds of ivory: raw, semi-worked, and worked (Martin and Stiles, 2008). Following the practice of Chinese ivory dealers, we further categorized raw ivory into: (1) trimmed whole tusk, (2) tusk section, including “tip,” “pie (disk),” “pillar,” and other fragments, and (3) carving waste. If the same pseudonym added on more than one posts for the same type of ivory, we used the lowest unit price (per gram) in our analysis. Ultimately, we collected 69 records of raw ivory, 11 records of semi-worked ivory, and 143 records of worked ivory. We summarized and reported the prices for raw ivory and a group of standard representative semi-worked and worked ivory.

To investigate the “gray” market, first, we collected the yearly number of ivory items on auction in mainland China ($n = 12,382$, 2002–2013) from an online auction database developed by Artron (auction.artron.net). This source is a leading Chinese art data company that gathers auction outcomes from auction houses all over China. In the Artron database, we searched auctioned items with “xiang ya” (象牙, elephant ivory) in the names. We restricted our search within the category of “ivory carving” (“Ya Diao”), and excluded data about mammoth ivory (“meng ma xiang ya,” $n = 6$). In this way, we were able to verify that all the records that we collected are elephant ivory items. Using the same method, we collected a second data set ($n = 29,475$, 2002–2013) from Artxun (artxun.com), another top Chinese art data management company. The Artxun database did not allow us to restrict the search under the “ivory carving” category. Therefore, Artxun data, albeit more comprehensive as it encompasses elephant ivory items that appear under categories other than “ivory carving,” might contain any auctioned items with “xiang ya” in the names. The two sets of figures (i.e., yearly number of auctioned ivory items from Artron and Artxun) are strongly correlated ($r = 0.994$, $p < 0.001$). To be cautious and conservative, we used the Artron data to illustrate the trend of ivory gray market. Second, we explored the correlation between the

ivory auction volume in China and the elephant poaching level in Africa. Our data on elephant poaching came from the CITES Monitoring Illegal Killed Elephants (MIKE) project (CITES Secretariat, 2012; CITES Secretariat, 2014b). Data (2002–2013) includes the number of elephant carcasses encountered and the number of illegally killed elephants from 53 MIKE sites in 29 elephant ranges States in Africa. Using the same method adopted by other researchers (CITES Secretariat, 2012), we calculated the annual continental proportion of illegally killed elephants (PIKE) and used PIKE as an indicator of poaching level. Third, we collected detailed ivory auction results ($n = 2975$, 2000–2013) directly from China Guardian, the second largest auction house in China. We documented the name, year, origin, and realized price for each auctioned item. We adjusted prices to the 2013 value using the Urban Consumer Price Index gathered from the Chinese National Bureau of Statistics, and converted to US dollars (1 USD = 6.15 RMB).

3. Results

Ideally, all ivory trade in China must abide by the Ivory Registration and Certification Policy. This authoritative policy stipulates that, “only government-approved ivory processing factories and retail outlets are allowed to engage in ivory trade” (SFA, 2013:1). Furthermore it states, “One ivory product one identification card” and that, “each ivory product is inseparable from its own identification card” (SFA, 2013:1). In reality, apart from the “white” or legal market, there are “black” or illegal and “gray” markets wherein legality is vague. Ivory products are offered in these markets ranging from ivory antiques showing great craftsmanship to the downscale machine-produced recent ivory jewelries.

3.1. White market

The white market consists of the licensed processing factories and retail outlets. Their numbers have increased since 2004, and started leveling off after 2009 (Fig. 1). In 2004, there were 9 factories and 31 retail outlets. In 2013, they increased to 37 factories and 145 retail outlets. Fifteen of the factories are also accredited to sell their products to consumers. The factories are located in 16 cities in 9 regions (3 autonomous cities, 5 provinces, and 1 autonomous region), and retail outlets are in 39 cities in 23 regions (4 autonomous cities, 17 provinces, and 2 autonomous region). Most facilities are concentrated in three cities of eastern China (Fig. 2): Beijing ($n = 54$), Shanghai ($n = 18$), and Guangzhou ($n = 28$). The 37 factories belong to 37 enterprises, whereas the 145 retail outlets are owned by 91 enterprises, including corporations (“Gong Si”) and individually-owned business (“Ge Ti Hu”). Thirty enterprises own both factories and retail outlets, therefore in total there are 98 enterprises engaged in ivory trade. Ivory specialty enterprises are few; the majority of enterprises are involved in a wide range of business activities. Among the 41 enterprises in Beijing, Shanghai, and Guangzhou, three are owned by the state. These three possess 2 ivory factories and 19 retail outlets.

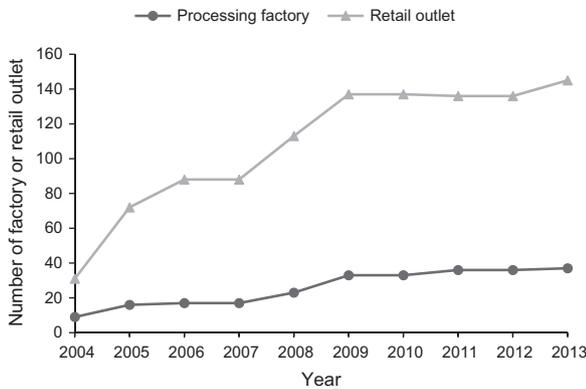


Fig. 1. The number of licensed ivory processing factories and retail outlets from 2004 to 2013. Data source: China State Forestry Administration.

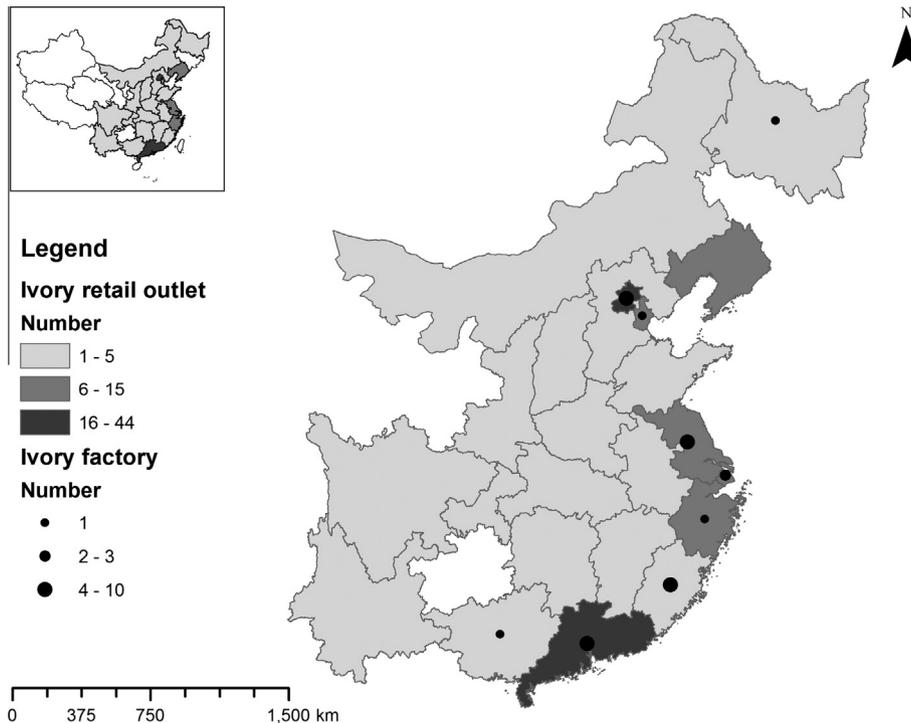


Fig. 2. The distribution of legal ivory market in China in 2013. Most of the ivory processing factories and retail outlets are located in and nearby Beijing, Shanghai, Guangzhou, and Fuzhou.

3.2. Black market

The black market takes two forms. First, is the unauthorized outlets. Our investigation, albeit brief and unsystematic, found unlicensed shops illegally offering ivory in Guangzhou, Beijing, and Chengdu. These sites are often in antique and curio, jewelry and accessory, and gift markets. Ivory often makes up a small part of what they sell. Most ivory items are small, mass-produced products (e.g., rings, bangles, bracelets, necklaces, pendants, and chopsticks). In Chengdu there is only one licensed ivory retail outlet, but in August 2013 on our one-day visit to three markets (one antique market, one tourist resort, and one on-street Tibetan arts and crafts stores), we found 9 unlicensed shops offering new ivory sales. At one shop where we saw the most ivory displayed, there were 4 bangles, 15 pendants, 8 Buddhist necklaces, and over 10 figurines of Buddhism characters. All of the venders were aware that it is illegal to sell ivory without government permits. Most said that business was risky because, “recently the authorities have tightened the control,” and they hoped to sell off their old stock and end the business.

The second is the online market. We found a thriving ivory trade in the Baidu Post Bar (Baidu Tieba), one of the largest online communication platform operated by the Chinese search engine Baidu. We identified the top five ivory trading forums in Baidu Post Bar—white plastics (“bai su liao”), ivory carving (“ya diao”), elephant ivory carving (“xiang ya diao ke”), African elephant ivory (“fei zhou xiang ya”), and elephant ivory bar (“xiang ya ba ba”). In March 2014, each forum enjoyed an average of 4680 memberships and at least a few thousand visitors daily. We read over 2000 posts in two forums: “white plastics” (6898 members) and “ivory carving” (3493 members). Most posts were advertisements of raw or worked ivory. Raw ivory typically weighed less than 2 kg; worked ivory items were mainly jewelries, such as pendants, rings, bangles, and guru beads, followed by simple figurines. Dealers posted ivory photos and information about the size and price, and they asked prospective buyers to contact them through WeChat. Payment was typically processed via Zhifubao (a popular Chinese online payment platform), and ivory was sent to buyers through express delivery. Prices of raw, semi-worked, and worked ivory are shown in Table 1. Raw and semi-worked ivory were

typically sold by weight (per gram), whereas worked ivory was often sold by piece. The average prices of trimmed whole tusk, tusk section (including pie, pillar, and other tusk fragments), and carving waste were respectively: USD 2.15 ± 0.15/g, USD 2.74 ± 0.06/g, and USD 1.03 ± 0.06/g.

3.3. Gray market

Ivory is also traded in the gray market—the live auction of ivory artworks. Legality of the auction market is unclear. This is partly because the current ivory trade control policy does not differentiate antique and new ivory, whereas ivory carvers, traders, and collectors do, “according to national regulations on cultural relics” (Gao and Zheng, 2012: 64), as they claim, distinguish ivory carvings into pre-1949 cultural relics (but also includes post-1949 items on special themes, e.g., historical events) and post-1949 contemporary crafts. Perceived as a legitimate trade channel for antique ivory, the ivory live auction had been thriving until the SFA strengthened the market control in late 2011.

Up to 2011, 250 auction houses had been approved by the Chinese State Administration of Cultural Heritage for antiques (China Association of Auctioneers, 2011a). Antiques appeared in the annual spring and autumn auctions and occasionally ivory-specialized auctions. Diverse products were put on auction and sold at a wide range of prices. In the China Guardian, for example, among the 2011 auctioned ivory items, 24% were scholars’ articles (USD 197–181,087), such as brush holders, seals, and arm rests; 24% were ornaments (USD 591–255,884), including decorative items (“baijian”); jewelries, 22% were human and animal figurines (USD 591–157,467); and 6% were vessels (USD 787–285,250). Of these auctioned items, 3.0% came from the Ming dynasty (1368–1644), 27.5% from Qing dynasty (1644–1912), and 0.7% from China’s Republican period (1912–1949). The rest, 63.4% did not specify origins.

Trends in the Chinese auction ivory market and elephant poaching in Africa are shown in Fig. 3. The total number of ivory items traded in China’s live auction market started to surge around 2006. This increase mushroomed after 2009 and reached a peak in 2011. The number of auctioned ivory in 2011 ($n = 5052$) is more than an order of magnitude greater than that in 2006 ($n = 370$), 3.3

Table 1
The ivory price in the online black market (in USD), December 2013 to February 2014. Chinese names commonly used by ivory traders for different types of raw ivory are given in parentheses.

Type	Number of records	Weight or size	Price per gram		Price per piece
			Range	Mean ± SE	
<i>Raw ivory</i>					
Trimmed whole tusk	6	623–1847 g	1.71–2.60	2.15 ± 0.15	
Tusk section	43	28–1386 g	1.95–3.74	2.74 ± 0.06	
Tip with cover (Jian Zi)	9	62.7–323 g	2.28–3.74	2.89 ± 0.14	
“Pie” (Bing Zi)	21	41–112 g	1.95–3.74	2.78 ± 0.07	
“Pillar” (Zhu Zi)	9	82–1386 g	2.03–3.25	2.63 ± 0.13	
Other tusk fragments	4	28–181 g	1.95–2.93	2.40 ± 0.20	
Carving waste (Xiao Liao)	20		0.65–1.63	1.03 ± 0.06	
<i>Semiworked ivory</i>					
Polished tusk	1	–	2.93	2.93	
Polished tip	7	44–672 g	2.93–5.54	4.15 ± 0.29	
Polished tusk end	1	21 g	4.55	4.55	
Plain plaque	2	6–12 g	1.95	1.95 ± 0.00	
<i>Worked ivory</i>					
Bangle	28	$d = 5.7\text{--}6.3\text{ cm}$; width = 1.8–2.0 cm	4.88–10.73		260–732
Plain ring	65	30–60 g	2.93–6.67		114–407
Carved ring	7	40–60 g	4.55–8.78		260–520
Rectangular pendant	28	$4 \times 6 \times 1\text{ cm}^3$	3.25–8.94		179–374
Guru bead	8	$r = 2.0\text{ cm}$	5.47–8.78		39–106
Misc., i.e. figurine, bracelet	7		4.88–6.83		220–537

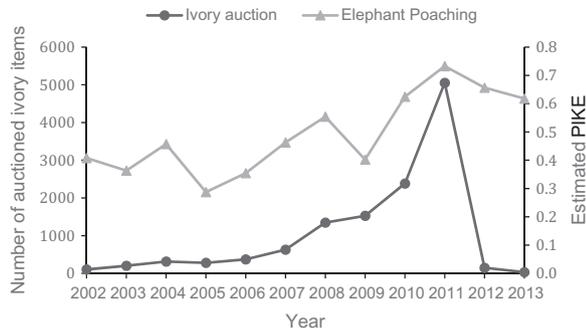


Fig. 3. The number of ivory items traded in the auction market (2002–2013, data source: Artron) and the estimated proportion of illegally killed elephants. (2002–2013, data source: CITES documents SC62 Inf. 1 and SC65 Inf. 1).

times of that in 2009 ($n = 1527$), and 2.1 times of that in 2010 ($n = 2382$). From this high, the trend suddenly plummeted in 2012, falling to 147 in 2012 and 31 in 2013. Moreover, the volume of ivory auctioned in China (2002–2011) was significantly correlated with the proportion of illegally killed elephants (Pearson's $r = 0.873$, $P = 0.001$). Since 2012, elephant poaching has also experienced a downward trend, but did not dropped as sharply as the auction market.

China Guardian data showed that in this single auction house, the trend in ivory auction mirrors those of the national trends described above. The number of ivory on auction, the number of bids, the maximum price realized for a single item, and the total sale experienced similar trends, all increasing substantially after 2009, peaking around 2011, and then plummeting in 2012 and 2013 (Table 2).

4. Discussion

China's domestic ivory markets were on the rise in the last decade. More recently, expansion of the white market has slowed, the gray market apparently diminished, and the black market is still ongoing, especially in the online trade. These trends are driven by multiple factors. Here, we described the values Chinese society attaches to ivory, and then we discussed the societal changes that had contributed to the trends.

4.1. Ivory values from the Chinese perspective

Chinese society attaches diverse values to ivory: economic, social, cultural, aesthetic, religious, and medical. These different values give us insight into ivory consumers' motivations. First,

the economic value of ivory products as an investment is widely advertised on the market. Almost every shop that Gao visited, ivory sellers talked of ivory as “bao jia” (inflation-proof) and “zeng zhi” (value appreciation). As well, investment is emphasized in articles by carvers and collectors (e.g., Gao and Zheng, 2012).

Second, the social value of ivory, both as monetary wealth and a status symbol, as historically only a privileged few people owned ivory. Today, possessing an ivory carving, especially high-end ivory, gives owners a sense of prestige (or “face”). Third, carvers and collectors cherish ivory for its cultural and aesthetic value as historic fine art. Some respondents complained that the market overemphasizes ivory's rarity, while neglecting its artistic quality (Gao and Zheng, 2012). These sources noted that machine-produced ivory products, such as chopsticks and bangles, contribute little to the preservation of the ivory craft. Yet, culture preservation is hardly a concern for most average consumers of low-end ivory products. These buyers purchase ivory trinkets often simply because of ivory's beauty and its relative affordability, compared to other more luxurious products. Fourth, religious and traditional beliefs is also an important motivation for consumers. Ivory is believed to be of “intelligence” (“Ling Xing,” a complicated Buddhism concept). Ivory beads are used to make Buddhism prayer's bracelets. Ivory pendants with Buddha images and figurines of religious icons, such as “Guan Yin,” are often seen in the offline and online markets. Additionally, it is believed by some that ivory exorcises evil spirits (“Bi Xie”). Some people also make the link between “xiang ya” (elephant ivory) and “ji xiang” (auspicious), and believe ivory can bring good fortune. Lastly and least importantly, some people buy ivory because of its medical value. Ivory powder is used in traditional Chinese medicine (Lin, 1998), and some people believe that ivory bangles can purge toxins from the body, thus keeping wearers healthy.

Above all, people buy ivory either for personal use (decorating, collecting, and speculating) or gift giving. Gift giving involves “guanxi, renqing” and face, which are deemed important by Chinese for maintaining interpersonal relationship (Zhou and Guang, 2007). Ivory with its diverse values is considered a precious present. Gift giving is also closely related to bribing. Upscale ivory artworks were reported in some official corruption cases (e.g., Anon, 2010). These socially constructed values added on to the market value of ivory are flexible and subject to changes within Chinese society. In sum, three factors play significant roles in influencing ivory values and thus shaping the recent trends of ivory trade in China: (1) the promotion of intangible cultural heritage since 2002, (2) the boom of arts investment after 2009, and (3) the ivory “auction ban” in 2011.

Table 2

Auction sales of ivory items sold by China Guardian from 2000 to 2013. All prices listed in inflation-adjusted 2013 USD.

Year	# Items	# Bids (%)	Total sale	Max. price realized for a single item
2000	11	7 (64%)	93,247	45,312
2001	12	9 (75%)	55,328	16,694
2002	60	30 (50%)	85,274	16,436
2003	127	88 (69%)	130,593	21,940
2004	122	102 (84%)	209,059	27,875
2005	90	52 (58%)	327,589	90,563
2006	66	40 (61%)	394,882	111,789
2007	157	130 (83%)	1,040,998	241,356
2008	231	179 (77%)	1,279,453	86,918
2009	569	485 (85%)	3,563,465	376,787
2010	608	546 (90%)	5,027,151	829,630
2011	918	730 (80%)	7,605,648	314,934
2012	3	3 (100%)	24,675	9253
2013	1	1 (100%)	5984	5984

4.2. Promotion of intangible cultural heritage

In the early 21st century, the nearly extinct Chinese ivory industry (see Section 1.1) began a revival owing to a social movement focused on preserving China's intangible cultural heritage. In November 2002, the 16th National People's Congress (the highest legislative body in China) stated that, "we must give our support . . . to the protection of major cultural heritage and outstanding folk arts" (Jiang, 2002:53). One year later, in October 2003, at the 32nd General Conference of the UNESCO (United Nations Educational, Scientific and Cultural Organization), the Convention for the Safeguarding of Intangible Cultural Heritage was adopted. This convention required State Parties, including China, to take responsibility for safeguarding its intangible cultural heritages. Following on, a series of declarations was announced by the State Council, including the State Council Circular on the Strengthening of Protection for Cultural Heritage (2005) and the State Council Administrative Department's Recommendations on Strengthening the Protection of China's Intangible Cultural Heritage (2005). A nation-wide taskforce was established, made up of the Ministries of Culture, Education, Finance, the National Development and Reform Commission, and others. Institutions, including research centers, theme museums, and heritage transmission centers, were created at national, provincial, and local levels. Moreover, a national inventory of intangible cultural heritage was launched in 2005, and publicity initiatives were undertaken.

Ivory carving as a profession and tradition is one of the many traditional cultural forms that seized this opportunity for revitalization. The industry promoted the ivory carving culture in exhibitions, newspapers, TV, radios, and on the Internet. In May 2006, Beijing and Guangzhou ivory carving was included in the first National List of Intangible Cultural Heritages. This recognition guaranteed that the ivory industry could receive substantial support from the state. Indeed, preserving national intangible cultural heritage was the main reason proposed by the SFA in its attempt to acquire CITES approval to import ivory from Southern African countries. Recognition of intangible cultural heritage preservation continues today and thus enhances the cultural and aesthetic values of ivory artworks.

4.3. Arts investment boom

The rapid expansion of the ivory trade after 2009, particularly in the gray market (Section 3.3), is animated by a boom of arts investment. Over the last decade, the art auction market in China has undergone extraordinary growth (Song et al., 2011). During the economic recession, the total sale of China's antiques and artworks auction market dropped from 14.1 billion RMB in 2007 to 10.2 billion RMB in 2008, but went up to 22.8 billion RMB in 2009, and 39.7 billion RMB in 2010 (China Association of Auctioneers, 2011a). In an economy facing great inflationary pressure, when mainstream investments such as real estate and stocks and bonds fail to perform well, art investment makes sense. This is particularly true for those Chinese who have a large disposable income, especially when investment opportunities are limited. Antiques and artworks have emerged as an appealing investment alternative "to store value, to hedge inflation and to diversify portfolio allocation" (Morgan, 2013:4). A large amount of capital from professional investors, companies, and the general public are pouring into this poorly regulated market (Song et al., 2011). In 2011, China surpassed the US to become the world's largest market for arts and antiques (Morgan, 2013). Many types of artworks enjoy popularity, including paintings, calligraphy, porcelains, sculptures, rare books and manuscripts, furniture, jewelries, and other items. Ivory carving is one of them. Ivory, similar to rhino horn, mila (a special type of amber), and agarwood, are seen to offer a fair return of

investment. Return for these art types depends more on the rarity of raw materials than on the artistic quality.

The investment value that ivory provides is coveted as "white gold." Particularly, ivory has its own unique character that appeals to a wide audience for several reasons. First, the price of ivory is not as high as other artifacts, such as Hetian nephrite and rhino horn. Ivory is marketed as a good choice for those who can only afford to invest in artifacts at the lower price range. It is believed that huge opportunity exists for value appreciation. Second, finding upscale genuine arts requires sharp eyes, skill, and knowledge, but it is relatively easy to distinguish between fake and genuine ivory. Ivory investment is thus perceived as less-risky than alternatives. Furthermore, the popularity of ivory investment is boosted by media hype. Extravagant claims about ivory's investment value appear in popular television programs on art collection, as well as in news and magazine articles. It is likely that the media hype is part of the marketing strategy manipulated by professional investment companies. Traditionally, most people collected ivory artifacts because of their appreciation for the cultural and aesthetic values (collectors). Today, however, more people buy ivory with an eye to its economic values as an investment alternative, regardless of whether it is an antique or a contemporary ivory carving (speculators).

4.4. Ivory auction ban

The striking drop in the ivory auction in 2012 and 2013 was due to a policy intervention that occurred at the close of 2011. In early December 2011, the SFA issued a special notice urging all Chinese auction houses to abide by the wildlife law. Subsequently, the China Association of Auctioneers sent out a notification to all auction houses, reiterating SFA's policy that, "whenever the products were made, the purchasing, transporting, and selling (*including auction*) of wildlife products shall comply with the relevant wildlife laws and regulation" (China Association of Auctioneers, 2011b). In this way, the authorities strengthened the enforcement of the existing ivory trade regulation policy, and essentially "banned" the auction of ivory artworks.

This "ivory auction ban"—a term commonly used in Chinese news articles—had an immediate effect on the gray market. As the China Association of Auctioneers reported, in 2012, "banning the trading of artworks made of rhinoceros horns and ivory has contributed to a sharp decrease of turnover in China's booming art auction market" (Anon, 2013). Besides, the ban has substantially restricted the liquidity opportunities, making ivory investment and speculation much more risky. According to a general manager of an auction house (Anon, 2012), "many speculators of ivory and rhino horn have been trapped." In the same article, a speculator was quoted saying that, "within half a year after the auction ban, generally the market prices of ivory and rhino horn has reduced at least by 20–30%." However, some legal ivory traders seemed to welcome the ban. They presumably expected the auction ban would boost their business, because the ban would encourage collectors and investors to buy ivory from the legal market (e.g., Zhao, 2012a).

It should be noted that active lobbying to lift the auction ban is presently ongoing. Ivory collectors argued that antique and new ivory carvings should not be treated in the same way. If they succeed in persuading authorities to permit a legitimate ivory auction, even if it is for antique ivory only, the price of ivory is likely to gain momentum again (see discussion below). This could have significant ramifications on ivory smuggling and elephant poaching.

4.5. Summary and literature comparison

In summary, recognition of ivory's intangible cultural heritage preservation has increased ivory's cultural and aesthetic values,

and the boom of arts investment enhances its economic value. The promotion of these values, in association with other factors, such as China's overall economic growth fosters a numbers of potential buyers. As well, China's increasing presence in Africa makes access to an ivory supply easier (UNEP et al., 2013). These factors have led to a substantial increase in the demand for ivory. The ivory auction ban has greatly diminished the gray market, but the auction trade may have gone underground after the enforcement. This may be why the elephant poaching level did not drop as sharply as the auction market did after 2011. It is also noteworthy that the promotion of mammoth ivory as an alternative to elephant ivory has been enhanced after the policy intervention (Zhao, 2012b).

As with other illegal wildlife trade issues (e.g., Raghavan et al., 2013), it is difficult to obtain high-quality, reliable information or intelligence about the illegal ivory trade in China. Previous market survey reports by Vigne and Martin (2011) and Gabriel et al. (2012) indicated a proliferation of black market activities and policy violations in legal ivory facilities. Our studies by comparison identified and described three kinds of ivory markets. Our snapshot survey added data to claims about the white and black markets. In particular, we pinpointed the existence of a gray market. Xu et al. (2007:6) in a TRAFFIC report mentioned that the “off-line [live] auction” had emerged as a new avenue for illegal ivory trade. Unfortunately, even today this market and its linkages to ivory consumption and arts investment are the little known, especially to most western conservationists and researchers. Further research should be undertaken to investigate the share that the white, black, and gray markets make to the overall ivory trade, the proportion of illegal ivory in white and gray markets, the volume of upscale ivory artworks and downscale trinkets, the movement of ivory within each market and between different markets, as well as the influence of policy intervention on the overall market.

Another important issue concerns ivory prices in the white, gray, and black markets. Chinese media and some conservationists often confuse prices of raw and worked ivory, prices in legal and illegal markets, or the market price and the officially fixed prosecution price (i.e., USD 40,650 for a raw tusk or USD 6775/kg). Reliable information on white market ivory price is difficult to get. Weiqing Hong, President of Guangzhou Arts and Crafts Industry Association, mentioned that in 2011 they did a statistical analysis of legal worked ivory prices and found an annual growth rate of more than 30% (Xu and Li, 2012). A Chinese ivory dealer told us that the legal market price for raw ivory is about USD 5700/kg (RMB 35/g) in 2013, but we were not able to verify the information. As for the black market price, we found that small trimmed raw tusks weighing 0.6–1.8 kg were sold online at an average of USD 2150/kg in early 2014 (Table 1). This is roughly three times as much as the black market price reported by Vigne and Martin (2011) who found that illegal high-quality tusks weighing 1–5 kg cost USD 750/kg in 2010. Furthermore, our undercover investigation in Dar es Salaam, Tanzania, in early 2014 found that the illicit dealers sold raw elephant tusks (more than 5 kg) to the Chinese at USD 250–300/kg (Gao, unpublished data). Thus, the current illegal ivory price in China is about ten times of the price in Africa. This is consistent with the conclusion of other researchers (t' Sas-Rolfes et al., 2014). The great gap of ivory prices in the supply and demand sides of the trade has made elephant poaching and ivory smuggling lucrative compared to the downside risk. Lastly, the ivory price in the gray market serves as a “weather vane,” a metaphor used by ivory collectors (e.g., Anon, 2012), for the overall ivory market. In the auction market, the price for a single ivory item can fetch an astronomical sum, as shown in Table 2. It is these items with extraordinary prices that often catch the media's attention. Media's exaggerated coverage on the return of investment, which is common, may encourage opportunists to buy ivory, thereby increasing demand.

When it comes to factors contributing to the increase of illicit ivory trade, the International Fund for Animal Welfare (IFAW) suggested that the CITES approved 2008 one-off ivory sale to China stimulated demand and a resurgence in the illegal trade (Gabriel et al., 2012). This claim has been widely circulated. Debates, historic as well as active ongoing ones, focus on the impact of legal ivory sales (e.g., Wasser et al., 2010; Walker and Stiles, 2010). Instead of concentrating on a possible exogenous trigger (i.e., the CITES decision), we contextualized the Chinese ivory market and identified endogenous variables at play. Specifically, we elaborated the influence of cultural preservation and arts investment made possible by a booming Chinese economy. In contrast, whereas most NGO and media reports emphasize the social value of ivory as a status symbol, we argued that ivory investment is a major factor too and that it deserves much more attention than it currently receives. Gabriel et al. (2012:3) mentioned this factor in their report saying that, “the perceived value of ivory as investment has become the new driver of the strong demand for ivory products in China's domestic market.” Recognizing the investment motive only adds complexity to the issue.

Clearly the whole ivory trade dynamic in China is very complex. Some data focus on market diversity, suggest changes in volume, and speak to consumers and motivations. Long standing cultural dimensions, as well as contemporary arts investment, and other factors are all implicated in market behavior. Collectively, all the data is less than ideal and needed to fully ground the relationship of Chinese markets and the African elephant conservation challenge. Gaining additional, reliable information is difficult, costly, and time consuming. Presently, these data are all that we have to inform our management and policy analysis, problem orientations, and exploration of options.

5. Conclusions

Poaching African elephants for their ivory has risen to a level that threatens the long-term viability of the species. Given the substantial evidence that is now available, it is inescapable that the current Chinese domestic ivory market is an important driver of the poaching and trafficking problem. If the ivory price in China remains high, and effective measures are not taken in a timely manner, poaching will continue unabated to the detriment of wild elephants. Any solution requires concerted actions and collaborations from all countries concerned. In China, for example, it is vital to tackle policy loopholes and tighten control of ivory trade in all markets—white, black, and gray—through effective multi-agency cooperation, regulation, policing, and monitoring. And, perhaps a more important issue is dealing with the demand stimulated by a growing interest in arts investment. Efforts from NGOs and authorities have greatly improved public awareness of the problems. These endeavors should be continued, but they should be more targeted by grounding them in a realistic contextual and factual understanding of consumers and their motivations. To facilitate this, it is necessary to go beyond the conservation sector and involve current nonparticipants who may have an important role to play in this issue, for example, the arts investment community, cultural preservation groups, and religious groups. Overall, it is imperative to adjust the present social and decision-making process to better serve the overarching goal of African elephant conservation. In the end, African elephants are part of our shared global patrimony and we have a common interest in their healthy continuation far into the future.

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