

Russia's mammoth ivory industry expands: what effect on elephants?

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Abstract

The commerce in woolly mammoth tusks (*Mammuthus primigenius*) in Russia, the main source for this raw material, has been going on for thousands of years, but during the communist period (1917-1989) the trade declined sharply. Since the early 1990s the domestic and international trade in these tusks has greatly expanded due to the freeing up of the Russian economy, more foreign visitors to the country and greater demand due to the prohibition of international trade in elephant ivory in 1990. In recent years, 60 tonnes of mammoth tusks have been exported annually from Russia, mostly to Hong Kong for carving in mainland China. Additionally, there are local carving industries in several areas of Russia, but most of the objects emerging from these locales are sold within the country.

Many thousands of recently-made mammoth ivory items are for sale in Asia, Europe and North America. People wishing to buy an elephant ivory object may purchase a similar one crafted from mammoth ivory that is legal and free of cumbersome paperwork. Mammoth ivory items are not for sale in Africa. If mammoth objects were to be offered in Africa, they could serve as cover for elephant ivory items. There are pros and cons for supporting a mammoth ivory trade in respect to elephant conservation. At the moment, however, there is no evidence that the worldwide mammoth ivory trade is adversely affecting the African or Asian elephant. For this reason, and because the species is extinct and large quantities of tusks are still available in Siberia, the commerce in mammoth ivory should not be banned.

Résumé

Le commerce dans les défenses de mammouth laineux (*Mammuthus primigenius*) en Russie, la source principale de cette matière première, a continué pendant des milliers d'années, mais pendant la période communiste (1917-1989), le commerce a brusquement décliné. Depuis le début des années 1990 le commerce domestique et international dans ces défenses s'est largement développé à cause de la libéralisation de l'économie russe, du nombre accru de visiteurs étrangers au pays et d'une plus grande demande due à la prohibition du commerce international de l'ivoire d'éléphant en 1990. Ces dernières années, 60 tonnes de défenses de mammouth ont été exportées annuellement de Russie, principalement à Hong-Kong pour la sculpture en Chine continentale. En outre, il y a des industries locales de sculpture dans plusieurs régions de Russie, mais la plupart des objets qui émergent de ces localités sont vendus dans le pays.

Des milliers d'articles en ivoire de mammouth récemment fabriqués sont en vente en Asie, en Europe et en Amérique du Nord. Les gens désireux d'acheter un objet en ivoire d'éléphant peuvent en acheter un semblable fabriqué en ivoire de mammouth qui est légal et sans paperasserie encombrante. Les articles en ivoire de mammouth ne sont pas en vente en Afrique. Si les objets en ivoire de mammouth étaient disponibles en Afrique, ils pourraient servir de camouflage pour les articles en ivoire d'éléphant. Il y a des pour et des contre pour le soutien du commerce de l'ivoire de mammouth pour la conservation de l'éléphant. Cependant, il n'y a actuellement aucune preuve que le commerce mondial de l'ivoire de mammouth affecte l'éléphant d'Afrique ou d'Asie de façon défavorable. Pour cette raison, puisque l'espèce a disparu et de grandes quantités de défenses sont encore disponibles en Sibérie, le commerce de l'ivoire de mammouth ne devrait pas être interdit.

Introduction

Since 1990 the mammoth ivory trade has greatly expanded due to the CITES ban on international trade in elephant ivory. In fact, there may now be a larger quantity of mammoth tusks in international commerce than there are of elephants from both legal and illegal sources, if the one-off sale of elephant ivory from southern Africa in 2008 is excluded. However, there have been no studies to assess whether the mammoth ivory trade has been advantageous or disadvantageous to elephants. This is a complex issue, especially as there are almost no recent surveys on consumer preferences in the major ivory markets nor published literature on the subject. Nevertheless, we will attempt to look at the pros and cons of the mammoth ivory trade in relation to elephant conservation in Africa. First, because there has been essentially no published information, we will examine the present-day Russian mammoth tusk trade, which is the largest source by far for mammoth tusks today.

Methodology

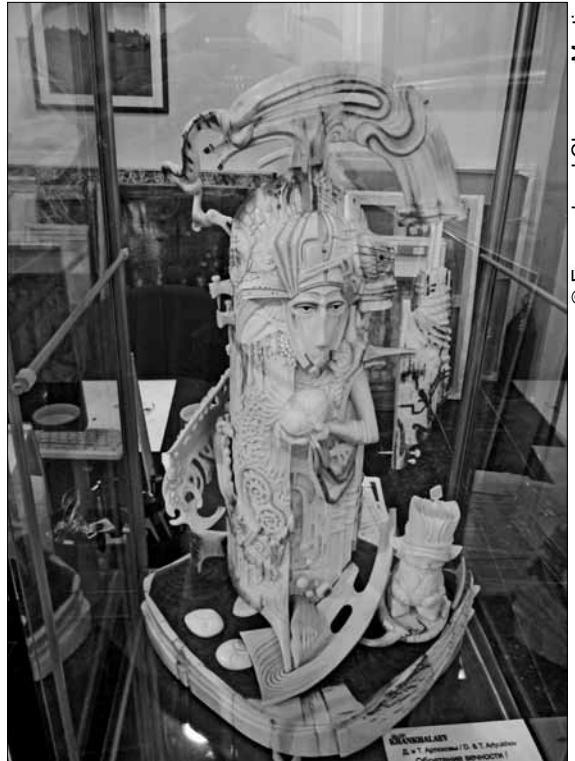
We carried out fieldwork in Moscow and St Petersburg in August 2009; specifically, we surveyed the retail establishments selling mammoth ivory and elephant ivory items. We interviewed craftsmen, vendors and owners of large companies dealing in mammoth ivory today. We were fortunate to meet the Chief Executive of the largest company buying raw tusks in Russia; this company exports more mammoth tusks than any other in the world. We also visited various museums to ascertain what mammoth ivory items were produced, both in the past and today, in Russia. We talked with zoologists in Russia, Britain and the Netherlands who have studied the woolly mammoth.

Results

History of the trade in mammoth ivory in Russia

Mammoth tusks have been collected from the tundra in what is now Russia for thousands of years and used by the local people for practical and artistic purposes. One of the earliest references to mammoth ivory is to be found in Chinese ceremonial books dating from the 4th century BC. In the 10th century mammoth tusks were sent to southern Europe and central Asia, and in the 13th century the throne of the great Moghul Khan

Kuyuk was crafted from mammoth tusks (Tolmachoff 1929). However, it was not until the 17th century that the trade began to increase significantly, after Siberia was conquered by the Russians. The industry expanded in the mid-18th century with the discovery of the New Siberian Islands, which had large quantities of tusks (Tolmachoff 1929; Lister and Bahn 2007).



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Figure 1. This large mammoth ivory sculpture, carved in 2007, is named 'Call of the Wild'. It weighs 5 kg, is 50 cm in height and is priced at USD 45,000.

The 19th century was a boom period for the mammoth ivory industry. Various estimates have been made for the weight of tusks sold annually. During the first half of the century, perhaps 16 tonnes were sold annually in the town of Yakutsk in Siberia; from 1887 to 1893 the figure rose from 18 to 29 tonnes annually (Tolmachoff 1929). The Russian scholar, A.N. Smirnov, wrote that from the second half of the 19th century up to the beginning of the 20th century an average of 25 tonnes of mammoth tusks was found in the Russian Arctic each year (Lazarev et al. 2004). Tolmachoff (1929) estimated that from the end of the 16th century up to the early years of the 19th century, 46,750 mammoths were excavated

for this trade but not all the tusks were exported. In the early 1870s it was estimated that 54% of the tusks recovered for trade were of bad quality and a further 15% were decayed and thus useless. Bassett Digby, a major buyer of mammoth tusks in the early 20th century, estimated that only about a quarter of Siberian tusks were of 'fine preservation' (Digby 1926). From 1900 up to the First World War most tusks which were exported were sent to Europe and the USA (40.8 tonnes in 1914), with smaller amounts to Japan (Spinage 1994). After the 1917 Russian Revolution the mammoth industry declined sharply due to the nationalization of almost all private businesses, and the low number of foreign visitors to the country, who would have been major buyers of mammoth ivory items. The Soviet Government did, however, establish some schools for mammoth ivory carving. For example, a tusk carving workshop was established in 1931 on the Bering Strait coast, which that became a centre for Chukchi Eskimo art. In 1945 a painter helped to open an art school in Yakutsk which in 1960 introduced the teaching of mammoth ivory carving (Lazarev et al. 2004).

The present-day traders in mammoth tusks

With the collapse of the Soviet Union in the early 1990s, the collecting of mammoth tusks for export began to recover. Every year, from mid-June, when the tundra melts, until mid-September, hundreds if not thousands of mostly local people scour the tundra in northern Siberia looking for mammoth tusks. All are Russians as foreigners cannot obtain a permit to collect tusks in the field. Some tusks are easily seen on the banks of rivers while others are detected on the flat lands. All types of transport are used to collect the tusks: boats, trucks, aeroplanes and helicopters. Once the tusks are accumulated in one place, traders send large planes to pick them up and bring them to Moscow. They are paid for by weight.

Moscow's currently largest mammoth ivory company started in 1979 when the founder began collecting mammoth ivory items. The Chief Executive told us that his company's exports grew from the mid-1980s, reaching 40–50 tonnes annually in 2007 and 2008. Almost all the tusks went to Hong Kong. Although official Russian export figures are unavailable, considered restricted information, official Hong Kong import statistics confirm increases in exports of tusks from Russia. In 1996 Russia exported 6000 kg out of a total of 12,204 kg imported into Hong



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Figure 2. These large whole mammoth tusks in a Moscow shop were for retail sale at USD 700/kg in 2009.

Kong (Hong Kong Government 1997). The remaining 6205 kg were imported from mainland China and Germany (some originating in Russia). By 2001 Russia exported 10,370 kg to Hong Kong. In 2007 the figure jumped to 45,778 kg out of Hong Kong's total imports of 46,230 kg (Hong Kong Government 2002 and 2008). There are about seven other companies in Russia which export to Hong Kong, but in much smaller quantities. The largest company also exports small numbers of mammoth tusks to Germany and the USA. Total exports from Russia in 2007 and 2008 averaged about 60 tonnes per year (Chief Executive of the largest mammoth tusk exporting company in Russia, pers. comm. August 2009).

Most of the Russian mammoth tusks sent to Hong Kong are re-exported to mainland China to be crafted into a wide variety of objects. Labour costs in mainland China are around 10% of those in Hong Kong and now almost all the Hong Kong craftsmen have either died or changed professions. Of the 184,243 kg of mammoth tusks imported into Hong Kong from 2000 to 2008 (of which 99% was from Russia), 162,972 kg (or 88%) were re-exported to mainland

China (Hong Kong Government 2001 to 2009). After the tusks are crafted in mainland China many items remain there for wholesale and retail sales while considerable amounts are sent to Hong Kong for sale. Russian-worked ivory items, especially those crafted in Siberia, are rarely exported wholesale as they are considered to be souvenirs from Russia like the ubiquitous painted wooden nested dolls (*matryoshki*) that are widely available in large quantities in souvenir shops, but not so common outside the country.

We collected some prices for mammoth tusks from the late 19th century to 2009. In Yakutsk, the major town in Siberia for the sale of tusks, from 1887 to 1893 one kg sold for USD .14 to .23 per kg. In 1913 the price in Yakutsk increased to USD .33 a kg (Tolmachoff 1929). In Hong Kong in 1996 the declared import price of Russian mammoth tusks was USD 76 per kg. Mammoth tusks in Russia are classified into four grades based on quality; those with the fewest cracks are considered to be of the highest quality. In Moscow the wholesale price for the highest quality tusks in 2004 was USD 250/kg, rising in 2006 to between USD 350 and 400/kg. In 2009 this price had increased to USD 500, with the lowest grade costing USD 100. The average price for all grades in 2009 was USD 350/kg, despite the failed efforts of some Hong Kong traders to reduce the price from Russia because of the relatively low prices they paid for elephant ivory (USD 144/kg) at the 2008 auctions in southern Africa under the auspices of CITES (Chief Executive of the largest mammoth tusk exporting company in Russia, pers. comm. August 2009).

The use of mammoth tusks past and present in Russia

Archaeological digs have found spears and supports for huts made out of mammoth tusks dating back 30,000 years; in 2001 a well-carved ivory bison was discovered in Zaisan in European Russia, which is estimated to be 26,000 years old (Lister and Bahn 2007). Today there are five main mammoth ivory carving centres in Russia. Two are in European Russia (Kholmogory town near the White Sea, and in and around Moscow) and three in Asian Russia (Tobolsk town, the Yakutia region, and the Chukchi region). The oldest modern school of mammoth tusk carving was established in Kholmogory in the 17th century. At the beginning of the 17th century a few craftsmen made combs and prayer beads and from the late 18th century they carved European-style figures. Today



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Figure 3. The craftsman seen here in a shop in Moscow is making mammoth ivory objects for sale in the shop. He uses both electrically powered machines and hand tools.

they concentrate on making jewellery boxes, chess sets and small cabinets. The Moscow artisans, who now number around 20, also carve in the European style making jewellery, key rings and figurines. The Tobolsk craftsmen started working on mammoth tusks in the early 18th century when the city was the administrative, military and religious centre of Russian Siberia. Nowadays the artisans are noted for carving human and animal figurines. The Yakutia carvers employ an ethnic style of carving to make human and animal figurines depicting their traditional lifestyle. In Chukotka town the Chukchi mammoth ivory carving industry started in the late 19th century when the artisans first offered their items for sale. Today, they produce animals, often quite naïve in appearance (Wood and Chidlovskiy 2003).

The number of Russia's artisans who craft mammoth ivory is unknown, but up to 300 supply items to the largest mammoth ivory company. Of the 20 craftsmen living in and around Moscow, two are master carvers and can earn up to USD 100,000 a year while the others earn about USD 15,000–20,000 annually. The Chief Executive of the largest company told us

that he is seriously thinking of employing some of the craftsmen to construct a special room in which all the walls and perhaps the ceiling as well would be inlaid with mammoth ivory. It would be similar to the world-famous Amber Room in the Catherine Palace outside St Petersburg. The projected cost is estimated at USD 20 million.

Retail outlets selling mammoth ivory items in Moscow in 2009

In the course of our extensive Moscow survey of 338 flea market stalls, souvenir, antique and gift shops, we counted 1305 mammoth ivory items in 27 of the outlets. The largest mammoth tusk company displayed for sale 547 items, or 42% of Moscow's total. Eight retail outlets in the Vernisazh Market in the Izmailovskiy Park were selling 407 items or 31% of the total seen. The remaining mammoth ivory items offered for sale were mostly in the very expensive hotels and souvenir shops around Red Square.

In Moscow as a whole, 18% of the mammoth ivory items offered for sale were animal figurines, especially mammoths, 18% human figurines, 10% pendants, 10% key rings, and a wide variety of other items in smaller numbers (see Table 1). Almost all had been made after 1995; there were few antiques.

The biggest shop was divided into two sections: a tourist shop with small mammoth ivory items, and a large adjoining exhibition hall displaying 405 higher quality, more expensive pieces. The most numerous items were animal figurines, 22%, followed by 18% human figurines and 8% chess sets and other games. The quality of the workmanship varied considerably from poor to very good.

Some of the most expensive items for sale here were whole raw tusks. There were 12 such tusks seen, priced on average at USD 700/kg retail. Carved tusks were also expensive. Of 22 counted, the most expensive was 3 m long with many animals carved along it, priced at USD 50,000. Other expensive items included a special table made of four elaborately-carved tusks that supported a glass top; it had recently taken one craftsman three years to complete and the asking price was USD 250,000. The most expensive item was a throne that was started in 1993, to be presented to then President Boris Yeltsin; it was not completed until 2000, a year after Yeltsin lost the Presidency. Mammoth tusks weighing a total of 570 kg were used to make it. It

is now for sale for USD one million. It is similar to a throne made in Western Europe, which was used by Ivan the Terrible in the 16th century, now on view in the Armoury Museum in Moscow.

The cheaper items consisted of simple pendants for as little as USD 8, key rings for USD 16 and crudely carved animals as low as USD 47 (see Table 2). Prices for these were quoted in Russian roubles, but the expensive items were quoted in US dollars.

The Vernisazh Market is the largest flea market in the city, with over a thousand stalls. There were 136 souvenir outlets, and of the eight that sold mammoth ivory, some of the vendors displayed their own carvings that they produced from home. Most of the



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Figure 4. One of the most popular carvings made out of mammoth tusks in Russia is, not surprisingly, the woolly mammoth.

items for sale were inexpensive, such as key rings and small figurines. The main buyers were Russians, but some Russian-carved netsukes were popular with Chinese visitors.

The luxury hotels displayed in their gift shops mostly high quality and very expensive mammoth ivory objects. For example, a recently-made 35-cm mammoth ivory orchid, decorated with gold and silver, was offered for USD 37,500, but with bargaining a 20% discount was possible. A 45-cm new dagger with an elaborate and finely carved mammoth ivory handle topped with a small piece of malachite was priced at USD 25,000; again a 20% discount would be given for cash. The shop manager said that an Arab or a Russian oligarch would probably buy the dagger as a special gift. Other customers in the luxury hotel shops were Europeans and Americans.

Up until 2006 the main buyers of mammoth ivory objects were Americans, but since then, Russians have bought the most as they have more interest and now the money. Most of the very rich Russians live in Moscow and as a result the majority of expensive items are found for sale here. Other significant buyers are still Americans and Western Europeans (especially Italians), who purchase both European- and ethnic-style items.

Retail outlets selling mammoth ivory items in St Petersburg in 2009

We surveyed 211 souvenir, antique, museum and flea market outlets in St Petersburg and counted on display only 158 mammoth ivory objects in just 15 outlets. This is because St Petersburg is neither the capital nor the largest city. There are no longer many expensive mammoth ivory items for sale as the wealthiest Russians live in Moscow.

The highest priced object seen was a 75-cm tusk with seven mammoths carved along it, selling for USD 5688. Items in St Petersburg tended to be cheaper compared to those of similar quality in Moscow (see Table 3). Most luxury hotels in St Petersburg do not stock mammoth ivory items. The main flea market, the Udelnaya Market, which has hundreds of stalls, had no mammoth ivory items for sale either. Some of the vendors in the main souvenir shops along the central shopping street, called Nevsky Prospekt complained that foreign tourists were not buying as many mammoth ivory items as they used to. They explained that recently these items have become too expensive due to the increase in price of the raw product and the higher cost of labour; in addition they said that foreigners are afraid to buy mammoth ivory items in case customs officials think it is elephant ivory.

For the city as a whole, of the 158 mammoth items displayed for sale, 24% were animal figurines, 10% pendants, 9% necklaces, 9% brooches, 8% human figurines, 8% rings and 34% miscellaneous items (see Table 1). The outlets selling the most mammoth ivory items in the city were the two shops in the Hermitage Museum, which attracts millions of Russian and foreign visitors. These shops had the highest quality of modern mammoth ivory carving; and the 61 items, mainly animal figurines and jewellery, were all made in Siberia.

Walrus ivory and elephant ivory items in Russia

Two animal products most similar to mammoth ivory available in Russia are walrus ivory and elephant ivory. Walrus ivory has been used for thousands of years in Russia and is still being crafted today, mostly in Siberia. It is significantly cheaper than mammoth ivory: USD 100–200 per kg wholesale, according to figures obtained from Russian traders. Many newly-made objects from walrus ivory can be seen in the souvenir shops in Moscow, but we did not count them.

We did, however, carry out an extensive survey of elephant ivory items in Moscow and St Petersburg. We counted 327 such items in 19 retail outlets in Moscow, and 103 items in 14 retail outlets in St Petersburg. Most were antiques made in Europe and Russia prior to 1917. During the Soviet period elephant tusks were not imported into the country (Alexey Vaisman, TRAFFIC Europe-Russia, pers. comm. August 2009). Even after the collapse of the Soviet Union and the opening up of the economy, there have been very few incidents of elephant tusks brought into Russia. The last large consignment seized was in transit around 1998. A North Korean diplomat travelling from Africa to China via Moscow was arrested at Sheremetev Airport with 408 kg of elephant tusks. The government authorities gave the elephant tusks to the Russian Orthodox Church to use for repairs and carving; artisans crafted religious statues and parts of furniture (Alexey Vaisman pers. comm.). Except for this incident Russians do not craft elephant tusks because they are unavailable, and there are plenty of mammoth tusks.

Almost all the 327 elephant ivory objects seen in Moscow were in antique shops and dating from the 19th and early 20th centuries. Most (74%) were from Japan, followed by China (15%), and Europe (7%). Only 3% were Russian-made. We saw 20 Chinese-made netsukes, all of which were carved after the CITES ban, and there were probably a few more recently-made items from China, such as human figurines. In St Petersburg, of the 103 items, 52% were crafted in Japan, 20% in China and only about 2% Russian-made. These were all made before 1990 except for at least 10 of the Chinese items that were produced after the CITES ban. We found no evidence that vendors are selling elephant ivory objects under the guise of mammoth ivory.

Other large mammoth ivory markets

While Russia is the major source for the mammoth tusks, it is not the largest producer of mammoth objects—China is. Also craftsmen in Germany (Erbach and Michelstadt) and the USA carve mammoth tusks in some quantities (Martin and Stiles 2005, 2008). The main markets where mammoth ivory items have recently been found for retail sale are Hong Kong (12,207 items counted in 2002), San Francisco (c. 2500 in 2006), Moscow (1305 in 2009), New York City and Los Angeles (over 1000 each in 2006), Erbach (1254 in 2004) Paris (c. 1200 in 2004) and Guangzhou (819 in 2002) (Martin and Stiles 2002, 2003, 2005, 2008). According to Esmond Martin and Dan Stiles, mammoth ivory objects have not been seen in various ivory market surveys in Africa carried out by TRAFFIC, Martin or Stiles. Presumably the reason for this is the availability of elephant tusks, legal and illegal. Also, mammoth tusks are much more expensive than elephant ivory; the latter can be purchased in some towns in Central Africa for less than USD 50/kg, compared with USD 350/kg for mammoth ivory in Russia.

Mammoth ivory trade and African elephant conservation

When the CITES international trade ban on elephant ivory came into effect in 1990, the commerce in mammoth ivory expanded greatly. One would expect that if a supply of a product increased significantly, prices would go down. This has not happened for mammoth tusks because demand has been going up even more than supply. This is due to the increase in the number of mainland Chinese purchasing mammoth ivory objects and other new consumers.

A key question arises: has this growth affected the elephant ivory trade in Africa? The answer is complicated. Obviously, mammoth ivory items attract new buyers who like ivory, but do not want to purchase new elephant ivory and move it to their home countries where it is illegal. There are no restrictions on mammoth ivory, except in India, as the species is extinct. The Indian Government banned the import and use of mammoth ivory because officials believed that mammoth tusks and items could be used as a cover for elephant ivory. However, ivory market surveys in Europe, USA and Asia have shown hardly any vendors trying to deceive their customers by claiming elephant ivory to be that of mammoth (Martin and Stiles 2000, 2002, 2003, 2005, 2008). On the other hand, some buyers of mammoth ivory



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Figure 5. A Russian shop displays various types of mammoth ivory carvings, including a mammoth hunting scene. Prices marked are in Russian roubles. (USD 1=RUB 32)

items may notice that the quality of elephant ivory is usually superior for larger pieces and may switch to elephant ivory objects, which might encourage more elephant poaching.

If mammoth ivory objects were to be introduced into Africa, businessmen might try to use them as a cover for their illegal elephant ivory objects; small items can be difficult to distinguish. Recent advances in DNA and microscopic analysis techniques make identification easier, but this takes place in the laboratory, not at customs checkpoints. If this fraud were to occur, it could produce problems for elephant conservation, especially in African countries with elephants and corrupt governments where the problem could escalate. However, it is unlikely that mammoth ivory items made in Russia, Europe and the USA would be offered for sale in Africa because they are so much more expensive than African ivory ones crafted in Africa. For example, in Addis Ababa in 2009 a plain elephant ivory ring cost USD 3 retail and in Moscow a similar mammoth ivory one cost USD 94. A cigarette holder made of elephant ivory in Addis Ababa in 2009 cost USD 6 (Martin and Vigne 2010), but in Moscow a mammoth ivory one was a minimum of USD 469. The reason for the huge differences in price is that labour costs are much lower in Africa. Although labour costs for carving mammoth tusks in China are similar to those of Africa, Chinese mammoth ivory carvings are much more expensive than African-carved elephant ivory due to the high price of the raw material. Traders in Africa do not find it economically viable to import the expensive mammoth tusks directly from Russia to carve themselves, even in small quantities to act as a cover for elephant ivory.

The large quantities of mammoth tusks imported into Hong Kong, around 60 tonnes annually, which are mostly sent to the Chinese mainland for carving, probably reduce demand for elephant ivory from Africa. This may in the long run lower elephant ivory prices and reduce incentives to poach elephants. China's only sources of new elephant ivory are smuggled consignments and the 60 tonnes legally imported from the CITES sale of southern African tusks in 2008. From 2000 to 2009 China imported more mammoth tusks than elephant tusks.

There is no evidence of mammoth ivory traders colluding with African elephant ivory traders. Nor are there confiscations of African elephant tusks that are being mis-labelled as mammoth tusks. There would be no point in trying to carry out this deception because mammoth tusks are easy to identify. It would not be difficult, however, to bring in a few legal mammoth tusks as a cover for elephant carving in Africa and for a vendor to sell elephant ivory pretending his items are carved from mammoth tusks. This has not happened because in Africa many craftsmen find it easy to carve elephant ivory without a cover, even if it is illegal, due to poor law enforcement.

Conclusion

It is highly unlikely that the mammoth ivory trade is presently adversely affecting Asia's or Africa's elephants. Therefore, international commerce in mammoth ivory should not be banned now. In the future, however, a problem could occur if mammoth tusks or Chinese-made mammoth ivory items were to be brought into African countries, where law enforcement is poor, specifically as a cover for illegal elephant ivory carving and sales. Furthermore, if the prices of mammoth tusks and/or carvings were to drop and innocent individuals brought these to Africa for use or sale, these could get into the wrong hands and could be used as a cover for elephant ivory. This is not likely to happen in the near future because both raw and worked mammoth ivory are so much more expensive than elephant ivory. Any attempt to import mammoth ivory into Africa would be detrimental to elephant conservation as it could be used as a cover for elephant ivory.

We do not know whether many buyers of elephant ivory items will continue to switch to mammoth ivory, lessening demand for new elephant ivory. Some customers, however, who prefer high quality carvings might switch from mammoth to elephant ivory. What happens in China, the biggest mammoth ivory manufacturer, is probably the key to the future of the mammoth ivory business. Therefore it is imperative to carry out regular surveys in mainland China and in Hong Kong to determine the demand trends for new elephant and mammoth ivory, both raw and worked.

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Figure 6. An artisan from the Ural Mountains recently carved this 35 cm orchid from mammoth ivory. Silver and gold were added for decorative purposes. This orchid was for sale in a luxury hotel in Moscow for USD 37,500; the likely buyer would be a Russian or an Arab.

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Table 1. Mammoth ivory items seen for retail sale in Moscow and St Petersburg, August 2009

Item	Moscow: percent of total	St Petersburg: percent of total
Figurine, human	18	8
Figurine, animal	18	24
Pendant	10	10
Key ring	10	10
Netsuke	5	-
Tusk, carved	4	3
Scrimshaw	4	2
String tie pendant	3	-
Box	3	-
Tusk, raw or polished	3	-
Brooch	2	9
Chess set	2	-
Necklace	2	9
Ring	1	8
Misc.	15	17
Total	100	100

Table 2. Retail prices in USD for new mammoth ivory items seen in Moscow, August 2009

Item	Size in cm	Range	Average
Jewellery			
Bracelet	3	94-156	125
Brooch	3	8-375	144
Ear rings, pr	3	47-562	214
Necklace, mixed		6-1,250	392
Pendant	5	8-187	22
Ring		94-281	155
Figurine			
Human	3	36-140	70
	5	38-1,172	238
	10	266-8,000	1,602
	15	1,375-5,625	2,979
Animal	3	47-1,562	410
	5	62-1,562	543
	10	312-5,078	1,934
Tusk, carved	60	4,102-20,000	8,711
Misc.			
Box	9	4,437-5,594	5,015
Chess set	5-10	5,687-40,000	15,625
Cigarette holder	10	469-750	609
Key ring	3	16-87	39
String tie pendant	3	31-49	38
Sword, handle	14-20	3,625-5,075	4,833

NB USD 1=RUB (Russian rouble) 32

Table 3. Retail prices in USD for new mammoth ivory items seen in St Petersburg, August 2009

Item	Size in cm	Range	Average
Jewellery			
Brooch	5	84-250	157
Necklace, beads	medium	281-375	328
Pendant	4	44-140	100
Ring		34-47	43
Figurine			
Human	5	88-283	166
	8	48-781	415
Animal	5	227-625	363
	8	328-563	446
	10	500-1,900	1,269

NB USD 1=RUB (Russian rouble) 32