

Are we winning the case for ivory substitutes in China?

Esmond Martin

PO Box 15510 – 00503, Nairobi, Kenya; email: rhino@wananchi.com

Abstract

The main manufacturers of objects made of ivory, and nowadays ivory substitutes as well, are in mainland China. Following the 1990 CITES ban on international trade in elephant ivory, carvers and dealers in China, including Hong Kong and Macau, had to find alternative materials. They tried several animal and vegetable products, such as tagua nuts, but they were unpopular and uneconomic so they stopped using them. Objects made from buffalo, camel and cow bone, and hippo teeth are still being used. They are inexpensive compared with elephant ivory but have been accepted for carving items, especially at the lower end of the market. In the mid-1990s businessmen in Hong Kong and south-east China started to import fairly large quantities of mammoth tusks from Russia. The Hong Kong traders sent them to Guangdong and Fujian Provinces for carving as labour was much cheaper there than in Hong Kong or Macau. Although there is considerable wastage in mammoth tusks, and they are a harder material than elephant ivory, thousands of items are now being made from mammoth ivory both for sculptures on the high end of the market and for curios that are relatively cheap. Customers, especially from the USA and western Europe, are attracted to mammoth ivory because it looks similar to elephant ivory and is thousands of years old. The trade in mammoth ivory has continued to expand and should be encouraged, especially for expensive items. It decreases the demand for elephant ivory, which in turn reduces the pressure to poach elephants.

Résumé

Les principaux fabricants d'objets en ivoire, et aujourd'hui en substituts d'ivoire également, se trouvent en Chine continentale. Suite au ban décrété en 1990 par la CITES sur le commerce international d'ivoire d'éléphant, les sculpteurs et les revendeurs qui vivaient en Chine, y compris Hong-Kong et Macao, ont dû trouver une matière alternative. Ils ont essayé plusieurs produits d'origine animale et végétale, comme les noix de tagua, mais elles étaient impopulaires et peu économiques et ils cessèrent donc de les utiliser. Des objets en os de buffle, de chameau ou de vache, et en dent d'hippopotame sont toujours utilisés. Ils ne coûtent pas cher comparé à l'ivoire d'éléphant, mais ils ont été bien acceptés, spécialement au niveau le plus bas du marché. Au milieu des années 1990, les hommes d'affaires de Hong-Kong et du sud-est de la Chine se sont mis à importer d'assez grandes quantités de défenses de mammoths de Russie. Les commerçants de Hong-Kong les envoyaient dans les Provinces de Guangdong et de Fujian pour les sculpter étant donné que la main-d'œuvre y était beaucoup moins chère qu'à Hong-Kong ou Macao. Bien qu'il y ait beaucoup de déchet dans les défenses de mammoths, et qu'elles soient un matériau plus dur que l'ivoire d'éléphant, des milliers d'objets sont désormais fabriqués en ivoire de mammoth, aussi bien pour des sculptures vendues sur le marché haut de gamme que pour des curios qui sont relativement bon marché. Les clients, spécialement ceux des USA et d'Europe, sont attirés par l'ivoire de mammoth parce qu'il ressemble à celui d'éléphant et qu'il a des milliers d'années. Le commerce d'ivoire de mammoth continue à augmenter et il faudrait l'encourager, spécialement pour les objets de luxe. Cela permet de réduire la demande d'ivoire d'éléphant, ce qui réduit la pression sur le braconnage des éléphants.

Introduction and methodology

For elephant poaching to lessen, not only must elephants be well protected and managed in the wild,

but also demand for their tusks must be reduced. One of the best ways is to encourage substitutes and win acceptance for materials that can take the place of elephant ivory.

The CITES ban on the international trade in elephant ivory that came into force in January 1990 caused many carvers and businessmen to lose their livelihoods in Europe, Africa and Asia. However, some of the more enterprising of these people decided to seek alternative animal products to craft. The most successful endeavours with ivory substitutes have been in south-east China, especially in Guangdong and Fujian Provinces.

As no academic study had been carried out on the craftsmen and businesses using substitute materials for elephant ivory in eastern Asia since the 1990 ivory ban, I visited Hong Kong, Macau, Guangzhou (the capital of Guangdong Province) and Fuzhou (the capital of Fujian Province) in November and December 2004. I surveyed shops for ivory and its substitutes, and interviewed craftsmen, sales persons, and owners and managers of factories producing items made from animal products. I also held discussions with government officers in Hong Kong and Macau.

I limited my research to those substitutes for elephant ivory coming from such animals as cattle, buffalo, camels, hippos and, most importantly, mammoths, avoiding synthetic substances such as plastics and resins because elephant ivory carvers do not like to use them. Little creative ability is needed for producing items out of synthetic materials. They have been used for many years but have not found general acceptance because they look cheap and artificial.

I start here with the status of the elephant ivory business in Hong Kong, Macau, Guangzhou and Fuzhou. This is necessary to understand the background of the ivory substitute business. Then I focus on the main substitutes: cow, buffalo and camel bones, hippo teeth, and mammoth tusks.

Results

Elephant ivory

HONG KONG

Hong Kong is still one of the largest elephant ivory markets in the world. In June 2004, Hong Kong traders reported to the government that they had stocks amounting to about 260,000 kg of raw and worked ivory in their possession. At that time, there were 677 registered ivory traders, slightly up from 664 in 2002; 822 commercial ivory possession licences had been issued, again up from 781 in 2002. Under the official personal effects exemption from 2002 to June 2004, only 35 kg of elephant ivory were officially exported, and 51 kg imported (Hong Kong Special Administrative Region, Agriculture, Fisheries and Conservation Department, unpublished statistics, 2004). In addition, other ivory, both raw tusks and worked items, was illegally exported, but statistics do not exist on these quantities.

In 2004 it was extremely difficult to obtain the price for raw elephant tusks as few were sold, although traders said that it remained roughly the same as two years earlier when a 5-kg tusk changed hands for USD 200/kg and a 10-kg tusk for USD 320/kg.

Elephant ivory items offered for sale in Hong Kong in December 2004 numbered 37,948 among 80 retail outlets (table 1), which are similar figures to those from a comparable survey made in 2002: 35,884 items in 85 retail outlets (Martin and Stiles 2003). There were, however, no full-time carvers working in elephant ivory, because the cost of labour in Hong Kong is much higher than on mainland China. For instance, if a businessman wished to hire an ivory

Table 1. Economic indicators, 2004

Site	Wholesale prices, elephant tusks (USD)		Retail elephant ivory (no.)		Wholesale prices, mammoth tusks (USD)		Retail mammoth ivory (no.)	
	1–3-kg tusks	10-kg tusks	Outlets selling	Items for sale	Grade A	Grade B	Outlets selling	Items for sale
Hong Kong	200	320	85	35,884	275	225	29	11,282
Macau	250	–	21	1,718	–	–	4	151
Guangzhou	–	–	72	4,406	–	–	17	3,064
Fuzhou	316	–	39	737	364	243	2	6

– no data



Ornaments made from bone are for sale in large quantities in Hong Kong.

carver in Hong Kong, he would have to pay him between USD 1000 and 2600 per month, depending on his skills, whereas on the mainland a carver would earn as little as USD 85 a month if he had only recently been trained, and up to USD 700 if he were a master carver. Nevertheless, there are a few craftsmen in Hong Kong, who are occasionally asked to repair ivory items.

Types of items for sale in Hong Kong in 2004 included bangles for USD 57 each, 15-cm coloured cabbages for USD 1442, name seals for USD 71, beaded necklaces for USD 70, netsukes for USD 107, 5-cm pendants for USD 10, and a 25-cm carved tusk for USD 1600. There was a range of small sculptures: humans of 5 cm for USD 45 or 12 cm for USD 498, and animals of 2.5 cm for USD 28, or 4 cm for USD 31, or 7 cm for USD 114.

MACAU

Macau's elephant ivory trade is small in comparison with Hong Kong's. There has been only one official stock-taking of both raw and worked elephant ivory,

which was in November 1989, just before the CITES ban. At that time, there were 773 kg of raw tusks, 13,484 kg of pieces, 1439 kg of semi-finished objects and 2037 kg of finished objects, totalling 17,734 kg. Twenty-five companies registered their stocks (Macau 1989).

Only one full-time ivory craftsman was found in December 2004, in a small shop on a street leading to the ruins of Sao Paulo cathedral. His name is Heong Ka Wa and he was born in 1938 in Hubei Province, where he studied painting and calligraphy. He became a specialist in miniature sculptures and engraving Chinese classical literature on tiny pieces of ivory. He moved to Macau in 1994. In 2004 he purchased very small pieces of ivory at USD 31/kg for making miniature sculptures and 1-kg pieces at USD 250/kg for making name seals and small sculptures. Over the past several years, he has used only about a kilogram of ivory in a year. He was probably the only full-time ivory craftsman in Macau at the time, but there could have been a couple of other part-time carvers.

In December 2004, there were 21 retail shops offering for sale 1718 ivory items. The shop with the

most had 557 objects, mostly necklaces, pendants, rings and small sculptures. In USD, there was a bangle for 10, cigarette holder for 87, beaded necklace for 44, netsuke for 186, and a 5-cm pendant for 23. There were small animal sculptures of 2.5 cm at USD 20 and 9 cm at USD 75.

GUANGZHOU

Ivory carving is still active in and around Guangzhou. The number of craftsmen could not be established because many of them work secretly at home in the suburbs and were illegally doing business. I counted in the government-owned Daxin Ivory Carving Factory in Guangzhou 15 craftsmen carving elephant ivory. One master craftsman was making a 50-layer Cantonese ball from a 20-kg ivory tusk.

In early 2002 there had been 21 retail outlets carrying 3855 ivory items in Guangzhou (Martin and Stiles 2003). In December 2004 there were 72 retail outlets displaying 4406 ivory items; 43 of these were small so-called antique shops. With the easing of some restrictions on private enterprises since 2002, more people have opened these shops where they are displaying ivory items, mostly new pieces. They generally have few old ivory items: an average of fewer than 10 per shop, totalling 382. Almost all these old items had been made in China, and the most common were small sculptures (15% of the total), cigarette holders (10%), name seals (8%), arrows (6%), bangles (6%), chopsticks (6%), pendants (6%) and rings (4%).

Of the 4406 old and new ivory items seen in Guangzhou at the end of 2004, the most numerous were pendants (31% of the total), sculptures (27%), other jewellery (10%) and name seals (10%).

Prices were usually less than in Hong Kong. Types of items for sale in Guangzhou included bangles for USD 23, chopsticks for USD 139 a pair, a small cigarette holder for USD 24, name seals for USD 48, beaded necklaces for USD 39, 5-cm pendants for USD 13. There were small animal sculptures of 2.5 cm for USD 27 and of 7 cm for USD 70.

FUZHOU

The number of ivory craftsmen has fallen in this city since the 1990 CITES ivory ban. A few craftsmen were working on ivory sculptures in a large factory, specializing in cow-bone carvings when I was there.

The factory owner bought elephant tusks from government stock, ivory that apparently the government had confiscated. In November 2004 he paid USD 316/kg for 115 kg. If he bought from private people, he claimed he would have had to pay up to USD 485/kg for a 1-kg tusk and up to USD 728/kg for a 5-kg tusk.

Fuzhou is smaller than Hong Kong or Guangzhou with a population of 1,600,000; unlike Hong Kong, Macau and Guangzhou, it attracts few foreign tourists, who are the main ivory buyers. The Chinese in this city are not interested in buying ivory, and there were only 39 shops with 737 ivory items. These objects had mostly been made in Fuzhou in the last 15 years or so. Name seals were most numerous (45% of the total), followed by sculptures (15%), pendants (12%) and cigarette holders (6%). Most of the items were inexpensive compared with those in Guangzhou and Hong Kong. The most expensive item found in Fuzhou was a pair of recently carved tusks for USD 6553, as opposed to Hong Kong where a new sculpture can go for USD 100,000. There were bangles for USD 31, chopsticks for USD 73, small cigarette holders for USD 26 and medium ones for USD 46, name seals for USD 25, beaded necklaces for USD 41, and 5-cm pendants for USD 6. There were small human sculptures of 5 cm for USD 64 and of 12 cm for USD 388.

The main retail buyers of ivory items in Fuzhou are Taiwanese and Japanese, but it is highly unlikely that a Japanese would risk taking a large new ivory carving back home.

Cow, buffalo and camel bones

HONG KONG AND MACAU

Cow, buffalo and camel bones have been used for carving in China for centuries. Since labour is more expensive in Hong Kong and Macau today, craftsmen there do not use these materials. Certainly none of the former ivory craftsmen switched to making items from any bones.

Large quantities of bone carvings made elsewhere in China are for sale, especially in Hong Kong. Superficially they look like ivory, but are cheap. The quality of their carving is poor because little effort is put into the workmanship since bone is not valuable. Only tourists buy them. Examples of items for sale in Hong Kong included a 15-cm coloured cabbage for USD 128, an 8-cm human figurine for USD 38, and a 6-cm animal figurine for USD 8–16. In Macau, 15-



Cow bones are small compared with elephant tusks; thus many bones are glued together to produce large items.

cm human figurines were about USD 20 and 2.5-cm animal figurines USD 6.

GUANGZHOU

The Guangzhou area is one of the main centres for making carvings out of bone. A large factory that I visited on the city outskirts had 80 craftsmen, and it also had a retail outlet with a small workshop employing 10 additional craftsmen in a tourist area. The factory manager purchased his camel bones from north-west China, mainly in Xinjiang Province. His cow and buffalo bones came from various other places. The craftsmen believe there is not much difference between camel and cow bones, but because the latter are more common they make up almost 90% of the total used.

Cantonese do not like working animal bones because they smell and produce a lot of dust when cut on machines. People from poor areas of China are brought into this factory to work on the bones; they receive 1000–2000 yuan (USD 121–242) a month. They make small items since the bones are thin and

hollow. When they need to make a large item, they glue pieces of carved bone together.

Of the 325 finished bone items for sale in the retail outlet mentioned above, 70% were sculptures, 8% pendants and 7% necklaces. Most were bleached white, but some were stained dark (using coffee) or painted. A painted cabbage 15-cm long cost USD 67, a 7-cm elephant was USD 30, a 12-cm tall human figure USD 24, a comb USD 7 and a bracelet USD 3. A more expensive item made from cow bone was a 30-cm tusk consisting of many individual pieces, and it was priced at USD 874. An exceptionally large, 180-cm tusk made of camel bone, with figures on it, which had taken 10 craftsmen almost a year to make, was priced at USD 14,320.

To illustrate the difference in prices, chopsticks here were USD 182 for those made of elephant ivory and USD 4–12 for those of cow bone. The manager told me that he has an office in the United States to facilitate his sales of bone items there, which is his main market. He also exports them to France, Germany and Spain.



Huge imitation tusks made of cow bones are often displayed in Chinese shops to attract customers.

FUZHOU

At the Neolithic site of Hemudu in Zhejiang Province, adjacent to Fujian Province, 20 ivory carvings dating back to 5000 BC have been found. Partly due to the shortage of minerals and precious stones, Fuzhou developed a major crafting industry based on wood, lacquer ware, elephant ivory, buffalo horn and various bones. Wood carving may be the oldest. In the Tang Dynasty (618–907 AD), wood craftsmen in Fuzhou carved images of gods and decorated baldachins (ceremonial canopies) and Buddhist temples, according to information from the Fujian Provincial Museum. This carving tradition has continued over the years in Fuzhou.

There were two large carving factories in Fuzhou in December 2004, and another five elsewhere in the province. I visited the two in Fuzhou; one used mammoth ivory and the other bone, the latter having switched from elephant ivory in 1990 after the CITES ban. In 2004 the factory obtained cow bone from Sichuan Province, the manager saying it was the best quality. Classified according to three types, per tonne, ‘circle bone’ costs USD 971, ‘triangular bone’ USD

765, and ‘rib bone’ USD 607. The factory employs 70 people on its premises and 30 who work elsewhere, mostly from home. At the time of my visit 48 craftsmen were working in the factory. About two-thirds were working on cow bone and one-third using elephant ivory and mammoth ivory. No camel bone was used. The factory consumes about 50 tonnes of cow bone a year.

The process of making a cow-bone carving in this factory is as follows: the bone is first cooked in hot water to eliminate the oil in it. Afterwards, it is cut into pieces of desired sizes and sanded down. A craftsman uses machine tools to shape the item, then another one uses engraving tools for details. When finished, the bone is bleached, dyed or painted. Many small items are made using this process. When a large item is wanted, the pieces of cow bone are glued onto a wooden mould for support. The main large cow-bone carvings are replicas of elephant tusks—Americans, Europeans and Chinese buy them, the latter to put in their shops to impress customers. The other large cow-bone items are usually figures of gods, which Americans and western Europeans occasion-

ally purchase. The factory's wholesale markets are mainly in the United States (60%), and Europe (30%), with lesser quantities going to Japan, Thailand and Malaysia. Only a small amount is bought by Chinese.

Hippo teeth

HONG KONG

Hippo teeth are not good for carving because they are too hard and crack easily. To illustrate this, when Ian Parker was culling hippos in Uganda from 1964 to 1967 to reduce the population, he removed the lower jaws and put them into the Nile for the flesh to rot. He then extracted the teeth and put them on the ground in the shade, intending to examine them later to age the animals. However, within a short period he heard loud noises, similar to pistol shots—made by cracking teeth (Ian Parker, pers. comm. 2005).

Nevertheless, after the CITES ban, Hong Kong businesses imported an annual average of 17,063 kg of 'other ivory excluding mammoth ivory' between 1992 and 2000, according to statistics provided by the Hong Kong Census and Statistics Department (Hong Kong 1993–1997, 1998–2001). Government officers told me that this category of 'ivory' was almost entirely hippo teeth, although a few warthog tusks may have been included (Hong Kong Special Administrative Region, Agriculture, Fisheries and Conservation Department, pers. comm. 2004). Since the Hong Kong figures for this category show that Uganda and Tanzania were the main exporters, and both these countries had large hippo populations during this period, this supports the Hong Kong government's view that the 'ivory' was hippo teeth.

From 2001 to 2003, the annual quantity of hippo teeth and perhaps a few warthog tusks imported into Hong Kong declined to 10,472 kg, mainly due to the fact that mammoth tusk imports increased considerably because they had been recognized in China as a better material for carving. The declared import value for these three years averaged USD 20/kg, and again the exporting sources were Uganda

and Tanzania (Hong Kong 2002, 2003, 2004). The average wholesale price in Hong Kong for the better quality teeth was USD 38/kg.

Almost all the hippo teeth were re-exported to mainland China to be made into a great variety of items and then sent back to Hong Kong for sale both locally and abroad. In late 2004, at least 11 Hong Kong shops had on display a minimum of 1089 hippo-tooth objects. Most of these were netsukes and small sculptures. Hippo teeth rarely weigh more than 2 kg each, and when something large is made from them, several are glued together. I saw a 180-cm-long barge made from hippo teeth, priced at USD 120,000, but this was certainly an exceptional work.

Most of the netsukes and small sculptures, around 6 cm in size, had a retail price between USD 20 and



Esmond Martin

Mammoth tusks have their own unusual shape and can be easily recognized in the raw form from elephant tusks.



Mammoth tusks are often larger and heavier than elephant tusks, and the big ones are prominently curved.

USD 50. Although not especially well carved, they were nicely polished, creamy in colour and shiny in appearance. A large hippo tooth, 20-cm long with carved figures on it was offered for USD 269. A statue of a Chinese emperor, 30-cm tall, made of pieces of hippo teeth, was priced at USD 5385.

GUANGZHOU

One of the main factories producing carvings in Guangzhou today was started by a businessman from Hong Kong who came to Guangzhou in 1990 to set up a factory. He hired 10 apprentices whom he taught to carve tagua nuts; he had trouble selling these, so he then bought wood and cow bone for his apprentices to use. The items made from these materials were not profitable either. So he decided to try hippo teeth for the carvings, found it sold better, and continued with it until 1997, when he started using mammoth tusks, realizing they were far superior. Several other factories in Guangdong Province with Hong Kong connections tried the same alternatives to elephant ivory and had similar experience.

FUZHOU

The two large factories I visited in Fuzhou used hippo teeth for carving in the 1990s, but both switched to alternative materials as sales in hippo-tooth items were poor. One of the factories is still trying to sell its hippo-tooth items and is having difficulty selling the large ones. For example, there was a sculpture entitled *Queen of the Gods*, 150-cm tall and 90-cm wide, priced at USD 24,272, but the manager said that if it had been made of mammoth tusk instead, he could have easily sold it for twice the price.

Mammoth tusks

HONG KONG

Fewer than 10 craftsmen in Hong Kong were working with mammoth ivory in 2004. They used small pieces for calligraphic engraving of names, proverbs and poems. However, Hong Kong is the major entrepot for mammoth tusks and has become the world's largest wholesale and retail market for mammoth ivory carvings. The tusks originate mainly in the tundra of Russia and Alaska, and especially those from Russia are shipped via Hong Kong to mainland

China for carving. In 2002 Hong Kong traders imported 20,022 kg of mammoth tusks, of which 16,696 kg came directly from Russia. In 2003 imports totalled 15,997 kg, and from January to September 2004 the amount was 13,995 kg. The declared import value rose from USD 54.73/kg in 2002 to USD 77.44/kg in 2003 and USD 98.61/kg for the first nine months of 2004 (Hong Kong Special Administrative Region, 2003 and 2004) due to increased demand.

In 2003, the last full year for which statistics are available, over 98% of the mammoth tusks were re-exported from Hong Kong to mainland China. There they were carved into various items that were in turn either exported wholesale to the USA and Europe and a few other destinations or sent back to Hong Kong for sale. The wholesale dealers in Hong Kong sent their items mainly to the USA, but also to France and other western European countries. Some shop owners claimed that Americans bought retail as much as 70% of their stock. The other purchasers were Europeans. In late 2004 there were 29 shops offering for sale a minimum of 11,282 mammoth ivory items. The greatest number in any one shop was 3192. The most common items were netsukes and sculptures; little jewellery was made from mammoth ivory.

Prices were almost the same as for elephant ivory. Small sculptures of mediocre workmanship, 4-cm in size, were priced between USD 32 and 140. The few necklaces and brooches varied in price between USD 50 and 88. Larger, well-carved items included an 8-cm erotic couple for USD 120, a 20-cm female nude for USD 1500 and a 30-cm monkey for USD 9600.

There were in addition some outstanding and beautifully carved items at extremely high prices. One shop in Hollywood Road had a huge mammoth tusk, over 100 kg, covered with intricately carved animals, people and gardens, priced at USD 115,385. Another shop in Wanchi had a 3-m-long mammoth tusk with 38 horses carved on it, priced at USD 270,000 after a 15% discount. The most expensive mammoth carving I saw was a 150-cm-tall dragon with tourmaline and amber eyes, made in

Guangzhou in 1999, offered for sale at USD 959,000. Several shops had large, uncarved but well-polished mammoth tusks. Sometimes the outer brown skin is removed and sometimes it is left intact. Among the most expensive was a pair totalling 195 kg, which had fairly recently been sold to an Italian for USD 100,000.

MACAU

Macau had only 171,885 visitors from the Americas and Europe in 2003, compared with 1,470,791 to Hong Kong from the Americas, the UK, Germany, France and Italy that year. In Macau, most visit for the day whereas they spend three or four nights in Hong Kong (Macau Special Administrative Region, 2004; Hong Kong Special Administrative Region, 2004). Consequently, it is not surprising that there were only 151 mammoth ivory items, mostly small sculptures, carved on mainland China (none made in Macau) found in just four retail outlets in Macau. Items such as 5-cm cigarette holders and pendants were USD 23, while a 25-cm carved tusk was USD 1250.

GUANGZHOU

The main provinces in China for carving mammoth ivory are Guangdong and Fujian. There were about four large factories making mammoth ivory items in and

Esmond Martin



Many mammoth tusks, originating in the Russian tundra, are exported to Hong Kong, where traders send them to mainland China for carving.

around Guangzhou. Some were fully or part-owned by Hong Kong businessmen. One such mammoth ivory-carving business in December 2004 was employing 40 craftsmen. In addition to carvings, they made furniture with inlays of mammoth ivory. There was one government factory using mammoth ivory, the previously mentioned Daxin Ivory Carving Factory—one of the biggest for elephant ivory (15 craftsmen), and I saw two craftsmen working mammoth ivory there in 2004.

Most educated Chinese have never heard of the mammoth, and even if they have knowledge of this extinct animal, they presently prefer to buy items made from gold, jade or other valuable substances. However, foreign visitors do come to Guangzhou in fairly large numbers, especially to attend the Canton Trade Fair, held twice a year, and they do purchase mammoth ivory carvings.

In fact, the number of shops and total number of mammoth ivory items increased significantly from 2002 (Martin and Stiles 2003). In December 2004, 17 retail outlets were offering 3064 mammoth items. The shop with the most had 1130, 93% of which were small sculptures and netsukes. The 1.25-cm animal figurines were selling for only USD 7.30, but the workmanship was not good. In other shops, a beaded necklace was priced USD 55, 5-cm animal figurines such as horses and monkeys were USD 20–34 each, a 5-cm pendant USD 32, and a small cigarette holder USD 8.

FUZHOU

Like Guangzhou, Fuzhou had several factories for crafting mammoth ivory objects in and around the city in 2004. The manager of one of the prominent factories gave me detailed information on the firm's activities. He said he purchased mammoth tusks in five grades. Grade A has almost no cracks and hardly any odour, and in 2004 he paid USD 364/kg for it. Grade B has a few small cracks and cost USD 243/kg. Grade C, with more cracks, was USD 103/kg, and Grade D, with broken outer layers and many cracks, USD 52/kg. Grade E, really poor quality, cost USD



Esmond Martin

A higher percentage of women carve ivory and bone in China than in any other carving centre.



Esmond Martin

Craftsmen usually stain mammoth ivory items brown or red, both to hide imperfections and because customers like an antique finish.

36/kg but the factory rarely used it. These prices were paid directly to the supplier in Moscow, but if the manager needed a supply of mammoth ivory immediately, he ordered it from a dealer in Hong Kong and had to pay USD 60 to 120/kg more for the better grades. Occasionally people from Fuzhou who work near the Chinese–Russian border bring back mammoth ivory to sell to craftsmen.

The manager also told me how the mammoth ivory is treated in the factory. First, the raw tusk is cut with a saw into the required pieces; an artist sketches the shape of the item to be carved from a piece, using a pen for the outline; a craftsman carves it; a polisher uses a secret material on it to make it shiny; and a dye expert adds the first colours, after which a craftsman carves the more intricate details. If necessary, more colours are put on at this time. Unlike elephant ivory, mammoth ivory objects are usually tinted with

colours, quite often brown, to help camouflage any imperfections such as cracks or the dark lines that mammoth ivory often has. Generally, American and European customers (the main buyers) like the brown-stained mammoth pieces because they look older, and prefer them instead of those with bright colours.

Producing a good, detailed netsuke takes about a week, but something simpler, such as a cat of the same size, can be carved in a couple of days. Large pieces, for example a whole tusk with elaborate, intricate figures, or a carved barge with multiple decorations, may take several craftsmen up to two years to complete, according to Fuzhou's craftsmen.

The factory managers in Fuzhou confirmed that there is tremendous wastage in carving mammoth ivory on account of the cracks and imperfections such as conspicuous longitudinal lines. As much as 80% of a smaller tusk may have to be discarded, compared with only 20% of elephant ivory. Another problem with mammoth tusks, they agreed, is that it is not suitable for certain objects. Chopsticks are never crafted from mammoth ivory because they break almost immediately, and large Cantonese balls with over 20 layers cannot be made from mammoth ivory because they then begin to crack. (From elephant ivory a skilled craftsman can produce a Cantonese ball with 57 layers.) Nonetheless, exquisite carvings can be achieved using mammoth tusks, the managers admitted, and some equal the quality of elephant ivory, despite the difficulties of the hardness, lines and tendency to crack.

Fuzhou's mammoth ivory items, such as name seals, pendants and sculptures, are mainly sent to Hong Kong, USA and Europe since few western visitors come to Fuzhou, and Chinese very rarely buy mammoth ivory items. There were only two retail shops in the city selling mammoth ivory items totaling only six pieces. A 5-cm pendant was about USD 46 and an 8-cm name seal was USD 16–24.

Conclusion

No one knows how many mammoth tusks are left in the tundra of northern Russia, but with prices continuing to rise at a rate faster than for elephant ivory tusks due to greater and increasing demand, more efforts are being made to collect them. Mammoth tusks have proved to be the best substitute for elephant ivory in Hong Kong, Macau and mainland China. Unlike cow, buffalo and camel bones or hippo teeth

Esmond Martin



The most expensive mammoth ivory item seen in 2004 was in Hong Kong—a 150-cm-tall dragon that had been made in Guangzhou in 1999 and was priced at USD 959,000.

that were used for carving even before the CITES ivory ban, mammoth ivory carvings were rarely seen in China before the early 1990s. Mammoth ivory became important only after elephant ivory could no longer be legally traded across borders. The acceptance of mammoth ivory has spurred on a long tradition of fine carving, which was in danger of becoming a lost art. It has given more people jobs. Often promoted now as an exotic product because mammoths have long been extinct, and also because it has become expensive, it has a certain cachet. It is the most valuable substitute for elephant ivory.

The optimism for mammoth ivory of former ivory dealers in Hong Kong is obvious: they have opened factories on the mainland to produce mammoth ivory carvings, and have started to market these in Europe and the Americas. They do not believe that there is any future for the elephant ivory trade; those who have old stocks would like to sell them and can legally do so only locally—if they find willing buyers. After the 13th Conference of the Parties to CITES, held in 2004, officials of the Agriculture, Fisheries and Conservation Department of Hong Kong invited licensed elephant ivory dealers to a briefing on the outcome of the conference. But only one showed up, demonstrating the fallen interest in elephant tusks (Chi-son Cheung, Senior Endangered Species Protection Officer, Agriculture, Fisheries and Conservation Department, Hong Kong, pers. comm. 2004).

To encourage the use of mammoth ivory, governments should continue to allow it. Unfortunately, India has banned its use because the authorities claim they cannot distinguish it from elephant ivory and so it could create a loophole for the sale of ivory from Indian elephants. The loophole that the authorities fear in India can be avoided if it is recognized that only tusks resembling mammoth can be traded. Mammoth tusks can be identified from elephant tusks by at least one of three ways: by often being significantly larger, having a distinguishable brown outer layer, and having a noticeably different shape. Similarly, sculptures with streaks can be easily identified as being from the mammoth. Then, assuming that the supply of raw mammoth ivory can continue in reasonable quantities over the next 10 or 20 years by being sensibly harvested, encouragement of its use will decrease the demand for elephant ivory, thereby helping conservation efforts for elephants.

So, too, should the use of the other substitutes, especially bone, continue to be encouraged. Trade in hippo

teeth, however, needs to be carefully controlled to prevent overuse. Hippos have been on Appendix II since 1995, allowing trade only with a CITES export permit. While bones and teeth do not have as much effect on the market by reducing the demand for elephant ivory as mammoth ivory does, they are acceptable at the cheaper end of the market, and if they are better crafted, their role could become more important.

Recommendations

1. The smuggling of elephant ivory into southern China for the carving industry needs to be stopped. Pressure needs to be put on Chinese authorities to enforce their own laws. Chinese government officials and international NGOs with knowledge of the Chinese ivory industry need to inspect retail shops, factories and small-scale family carving businesses.

2. The quality of the carving of cow, buffalo and camel bone needs to be improved so that carvings and trinkets made from these cheaper materials become more popular.

3. To encourage people to buy more items made from mammoth ivory instead of elephant ivory, traders need to publicize and market mammoth ivory further. They should display their best carvings at local and international fairs. They should invite journalists to their factories and showrooms to write about the use of mammoth ivory as an acceptable, beautiful substitute for elephant ivory. Brochures with colour photographs of mammoth ivory carvings and explanations about its suitability for carving intricate works of art should be available to potential customers.

4. Research is needed to try to determine how much mammoth ivory is coming out of Russia and Alaska, and the prospects for future supplies. If it appears that there will not be enough for bulk manufacture in the foreseeable future, then this material should be recognized as rare and valuable, to be used only by master craftsmen for expensive carvings. Bones should be used instead to replace elephant ivory for trinkets.

5. How to identify mammoth ivory such as by its streaks or brown outer coating needs to be made clear to potential buyers through posters and marketing, so that it can be easily distinguished from elephant ivory. Trinkets should not be made. Not only as they are a waste of a valuable raw material, but also as they could be a loophole for elephant ivory as they are often too small to have streaks and thus elephant ivory looks too similar.

Acknowledgements

I would like to thank the John Aspinall Foundation and the Columbus Zoo and Aquarium Conservation Fund for financially supporting my research on this subject. Chryssee Martin helped me with the research I carried out in Hong Kong and Macau and worked with me on this article. Grateful thanks also go to Nigel Hunter, Ian Parker, Dan Stiles and Lucy Vigne for their helpful comments and additions.

References

- Hong Kong Special Administrative Region. Census and Statistics Department. 2004. *Hong Kong digest of statistics*. Census and Statistics Department, Hong Kong.
- Hong Kong. Census and Statistics Department. 1993–1997. *Hong Kong trade statistics*. Census and Statistics Department, Hong Kong.
- Hong Kong Special Administrative Region. Census and Statistics Department. 1998–2001. *Hong Kong trade statistics*. Census and Statistics Department, Hong Kong.
- Hong Kong Special Administrative Region. Census and Statistics Department. 2002. *Hong Kong trade statistics*. Census and Statistics Department, Hong Kong.
- Hong Kong Special Administrative Region. Census and Statistics Department. 2003, 2004. *Hong Kong trade statistics*. Census and Statistics Department, Hong Kong.
- Macau, Government. 1989. Existencias declaradas de marfim. *Boletim Oficial de Macau*, no. 47, 20 November, p. 289.
- Macau Special Administrative Region. 2004. *Monthly bulletin of statistics*. Statistics and Census Service, Macau.
- Martin E, Stiles D. 2003. *The ivory markets of East Asia*. Save the Elephants, Nairobi and London.