

A Tale of Two Cities

A Comparative Study of Traditional Chinese Medicine Markets in San Francisco and New York City

Leigh Henry



TRAFFIC
— NORTH AMERICA —

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TRAFFIC North America
World Wildlife Fund
1250 24th Street NW
Washington DC 20037

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BACKGROUND

Wild plant and animal species around the globe are confronted with a variety of threats to their continued survival, including habitat loss, pollution, and poaching. For thousands of species, illegal and unsustainable collection and trade poses a long-standing, consistent threat that remains inadequately addressed. One of the most deep-rooted and complex of these aspects is the international trade in certain species for use in traditional medicines.

Numerous cultures throughout the world have depended on traditional medicines for thousands of years, and traditional medicine, in turn, depends on tens of thousands of plant and animal species used as ingredients. Though traditional medicines predominately utilize plants, the parts of many animal species — such as Tigers *Panthera tigris*, Leopards *Panthera pardus*, rhinos *Rhinocerotidae* spp., musk deer *Moschus* spp. and bears *Ursidae* spp., also are used as ingredients. Table 1 illustrates the use of these species in traditional Chinese medicine (TCM). Some of these species are threatened in large part because of their use and trade in a number of traditional medicine systems. This report, for reasons of practicality, focuses on only one of those systems — TCM — examining the availability of parts and products derived from rhino, tigers, leopards, musk deer, and bears, within the two largest Chinatowns in the USA — those in San Francisco and New York City.

International and National Controls

International commercial trade in tigers, leopards, and rhinos, including parts and derivatives, has been strictly regulated since the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) came into force in 1975. However, illegal trade has continued despite extraordinary efforts by CITES, government agencies, and conservation groups to eradicate it.

In 1994, the CITES member nations (hereafter Parties) agreed that additional measures focused on the protection of tigers needed to be taken, including specific acknowledgment of the threat posed to unsustainable trade in tiger parts for use in traditional medicine. Similarly, in 1997, the Parties saw the need to increase efforts in bear conservation and to stem illegal bear trade, as well as to increase public awareness efforts in the traditional medicine industry (Gaski, 1998). The Parties found these efforts necessary to focus attention on the conservation of overexploited wild species used in traditional medicines. The Parties recommended that law enforcement be increased, forensic analyses be developed or improved, substitutes or alternatives be sought, and captive-bred or artificially propagated sources of specimens be developed. In response to these recommendations, the TRAFFIC network, along with other nongovernmental organizations, provided governments with information on

Table 1. Uses of Focus Species in Traditional Chinese Medicine

Part Used	Symptom Treated
Rhino horn	Extreme heat or heat signs; high fever; erythema; purpura; nosebleed; vomiting of blood; convulsions; delirium; manic behavior
Tiger bone, leopard bone	Migratory joint pain and stiffness; paralysis; weak knees and legs; spasms; stiffness and pain in the lower back; pain in bones
Bear gall	High fever and convulsions; spasms; hot skin lesions; red, painful, swollen eyes; trauma; sprains; swelling and pain; hemorrhoids
Musk grains	Convulsions; delirium; stupor and fainting; closed disorders; titanic collapse; seizures; swelling and pain; toxic sores; carbuncles; coronary artery disease

Source: Bensky and Gamble, 1993

threatened species involved in traditional medicines so that a profile of the trade could be developed in order to form a conservation strategy, both for the species and traditions involved (Gaski, 1998).

As part of these efforts, TRAFFIC North America (hereafter “TRAFFIC”) conducted market surveys in TCM shops in seven North American cities with large, well-established Chinese-American communities — Atlanta, Los Angeles, New York City (Manhattan), San Francisco, Seattle, Toronto, and Vancouver — in 1996-97 (Gaski, 1998). At that time, the illegal trade in raw products of endangered species for use in TCM was an undisputed problem, but there was debate over, and a lack of information on, whether or not manufactured medicines posed a similar threat to these species as well. TRAFFIC’s market surveys, which investigated the availability of these manufactured medicines, showed that

50% (55 shops) of the TCM stores surveyed offered for sale one or more medicines or products labeled as containing derivatives of tiger, leopard, or rhino. The surveys also assessed the availability of products labeled as containing musk deer and bear. Products labeled as containing musk were very common, while bear products were the least common (Gaski, 1998).

The species included in the surveys, or certain of their populations and/or subspecies, are listed as “endangered” under the U.S. Endangered Species Act (ESA). Table 2 shows the status, and the meaning of that status, of these species under the ESA as well as CITES. Under the ESA, the law through which the USA implements CITES, the U.S. government bears the burden of proof to show that products claiming to contain protected species actually contain those species. However, forensic techniques are often unable to confirm the

Table 2. Status of surveyed species under CITES and the U.S. Endangered Species Act

	CITES*	U.S. Endangered Species Act**
Tiger	Appendix I	Endangered
Rhino	Appendix I (except the South African population of <i>Ceratotherium simum simum</i> , which is App. II)	Endangered (except for <i>Ceratotherium simum simum</i>)
Leopard	Appendix I	Endangered (<i>Panthera pardus</i> is listed as endangered except in Africa, in the wild, south of, and including, the following countries: Gabon, Congo, The Democratic Republic of the Congo, Uganda, Kenya — where it is listed as threatened.)
Musk deer	Appendix I (Only the populations of Afghanistan, Bhutan, India, Myanmar, Nepal and Pakistan; all other populations are included in App. II) Appendix II (Except the populations of Afghanistan, Bhutan, India, Myanmar, Nepal and Pakistan, which are included in App. I)	Endangered (populations in Afghanistan, Bhutan, Burma/Myanmar, China (Tibet, Yunnan), India, Nepal, Pakistan)
Bear	Appendix II (except for species listed on App. I: <i>Ailuropoda melanoleuca</i> , <i>Ailurus fulgens</i> , <i>Ailuropoda melanoleuca</i> , <i>Helarctos malayanus</i> , <i>Melursus ursinus</i> , <i>Tremarctos ornatus</i> , <i>Ursus arctos</i> (only the populations of Bhutan, China, Mexico, Mongolia — all others on App. II), <i>Ursus arctos isabellinus</i> , <i>Ursus thibetanus</i>)	Endangered (<i>Ailuropoda melanoleuca</i> and these subspecies/populations only: <i>Ursus thibetanus gedrosianus</i> , <i>Ursus arctos pruinosus</i> , <i>Ursus arctos arctos</i> in Italy, <i>Ursus arctos nelsoni</i> in Mexico)

*CITES: Appendix I – prohibits all international commercial trade; Appendix II – strictly regulates commercial trade through a permit system.

**U.S. Endangered Species Act: 50 CFR 17.11 and 17.12, December 1999. “Endangered” means any species that is in danger of extinction throughout all or a significant portion of its range. Endangered species cannot be traded commercially.

presence of prohibited species ingredients such as tiger bone or rhino horn in manufactured medicinal products labeled as containing those ingredients. In addition, the ESA only prohibits the import and export of, and interstate commerce in, listed species and does not specifically prohibit intrastate sale.

As a result of our 1996-97 survey findings, and in recognition of these existing loopholes, TRAFFIC worked with the U.S. Congress to pass the Rhino and Tiger Product Labeling Act (RTPLA) in October 1998. The RTPLA, an amendment to the Rhino and Tiger Conservation Act, prohibits the import, export and sale of any product for human consumption or application containing, or labeled or advertised to contain, any substance derived from any species of rhinoceros or tiger; carries a penalty of up to six months in prison, and fines of up to USD12 000 per violation; and provides for the development and implementation of an education outreach program in the USA for the conservation of rhinos and tigers. With the passage of the RTPLA, significant progress was made in closing existing loopholes – but only for rhinos and tigers.

In 1999, the same investigator who conducted the 1996-97 survey returned to San Francisco and New York City (Manhattan) to again survey the TCM markets. The goal of this unpublished survey was to gauge the progress of the RTPLA in stemming the availability of medicines labeled as containing rhinos and tigers, and of a new World Wildlife Fund (WWF) cooperative conservation outreach program with the American College of Traditional Chinese Medicine (ACTCM) in San Francisco. The outreach program, which included materials targeted at educating

both the business community and the consuming public, was launched in 1998 and continues today.

Of the 44 shops visited in the two cities in 1999, 71% (31 shops) offered medicines labeled as containing the target species. Table 3 shows the percentage and number of inspected shops in each city that offered each target species.

Medicines labeled as containing tiger bone were found in 64% of New York City shops and 32% of San Francisco shops in the 1999 survey, while leopard bone medicines were found in only 45% and 9% of these shops. Twenty-three percent of New York City shops offered medicines labeled as containing rhino horn, compared to only 14% of San Francisco shops. Musk and bear bile medicines were found in 64% and 27% of New York City shops, and in 23% and 5% of San Francisco shops, respectively.

As they had done for tigers and bears, CITES Parties agreed in 2000 to undertake measures to heighten awareness and conservation efforts targeting another species used for medicinal purposes - musk deer – whose raw musk is heavily utilized in traditional medicine and is subject to substantial illegal and unsustainable trade.

In 2002, the Parties expanded the tiger conservation measures they had first agreed to in 1994 to include all Asian big cats, including leopards, as it became clear that many big cat species face many of the same threats as tigers, including use in traditional medicines. Further, it was recognized that, as tigers received greater protection and attention, the demand for tiger parts used in traditional medicines

Table 3. Availability of Medicines Claiming to Contain Target Species in 1999

Stores Selling:	New York City <i>22 stores surveyed</i>	San Francisco <i>22 stores surveyed</i>
Tiger bone	64% (14)	32% (7)
Leopard bone	45% (10)	9% (2)
Rhino horn	23% (5)	14% (3)
Musk	64% (14)	23% (5)
Bear bile	27% (6)	5% (1)

shifted to other Asian big cats and further threatened their continued survival. In recognition of these increasing threats, the Parties agreed to expand tiger conservation measures to include tigers and other Appendix I Asian big cat species.

In the spring of 2003, researchers returned to the Chinatowns of New York City and San Francisco to again measure the efficacy of the RPTLA, CITES, and five years of collaborative outreach work by WWF and ACTCM within San Francisco's Chinese-American communities.

METHODOLOGY

In 2003, TRAFFIC assessed traditional markets and pharmacies in the Chinatowns of San Francisco and New York City. Two investigators conducted an initial walk-through of each Chinatown to identify as many TCM shops as possible and to set a plan to survey them. Each survey was then conducted over a period of roughly three days.

The investigators mirrored as closely as possible the methodology and shops visited in the 1996-97 and 1999 surveys. Where possible, the same shops were visited. Some of these shops, however, were no longer in business, and new shops were surveyed in their place; therefore, a different number of shops are included in each of the three surveys. In 1996-97, 1999, and 2003, most TCM shops in both cities were surveyed. Additionally, the 2003 survey included shops in Oakland, California, in the San Francisco metropolitan area, and in Flushing, another part of New York City, each of which have large Chinese-American communities. The 1999 survey also included shops in Oakland. Only shops with significant selections of traditional medicines were chosen. If a shop, for example a grocery store, carried only a few shelves of medicines, it was not included in the survey.

The two investigators — both female, one Chinese and one American — posed as

customers at each shop, scanning the shelves, reviewing ingredients, and talking with shopkeepers. As in previous surveys, no attempt was made to persuade any shopkeeper into selling a product that was not normally available; the survey was aimed at finding what items would be readily available to the average consumer on any given day. Upon leaving the shop, notes were made about what was found. Never, in either city, did the investigators feel that the shopkeepers were at all suspicious of their intent, which is most likely due to the presence of the Chinese investigator, as well as the rapidly increasing popularity of TCM in Western society.

The survey documented the availability of both raw parts and manufactured medicines labeled as containing tiger, rhino, leopard, musk deer, and bear. Where possible, investigators recorded the name and address of the shop, raw products of protected species, the name of any manufactured medicine labeled as containing protected species, the species the medicine was labeled as containing, the manufacturer, the date of manufacture, and the price. Where applicable, investigators also noted any differences in the ingredients listed in Chinese versus English on any product. No attempt was made to verify the actual ingredients of any of the products reviewed.

RESULTS

San Francisco

Results

The two investigators visited the Chinatowns of San Francisco and Oakland, California, during the week of 3 March 2003, to assess the availability of products containing threatened or endangered species in TCM shops. While every attempt was made to follow previous surveys, 5 of the shops surveyed in 1999 had since closed and 12 not previously surveyed were added. The shops were surveyed for raw and manufactured medicines made from or labeled as containing tiger bone, leopard bone, rhino horn, musk, or bear bile. Assessments were made by browsing the shelves, as well as by requesting particular products from shopkeepers. The percentage and number of the 33 stores (29 in San Francisco, 4 in Oakland) found to be carrying these products is outlined in Table 4, compared with the previous surveys.

Between 1996-97 and 2003, the number of San Francisco shops readily offering medicines labeled as containing tiger dropped from 42% to 3%, making these products virtually unattainable in the city. Rhino horn medicines

could not be found in any shop. However, there was an increase in the availability of medicines labeled as containing leopard bone, musk, and bear bile over this seven year period, from 5% to 27%, 32% to 58%, and from 0% to 24%, respectively. No raw products of any of the target species were found.

While the sample of stores surveyed in Oakland was small – only 4 compared with the 29 surveyed in San Francisco – a comparison of the different results is informative nonetheless (Table 5).

Roughly the same percentage of stores in San Francisco and Oakland offered items for sale labeled as containing tiger bone (3% vs. 0%) and leopard bone (28% vs. 25%), with none offering rhino horn. However, there was a significant difference in musk and bear bile products: all stores surveyed in Oakland offered musk and bear bile products, while only 52% and 14% sold them, respectively, in San Francisco.

The interactions between the investigators and shopkeepers in San Francisco were extremely positive. The majority of these shopkeepers were aware that rhino and tiger products were now illegal and that the species were

Table 4. Availability of Medicines Claiming to Contain Target Species in San Francisco Area TCM Shops

Stores Selling:	1996-97 <i>19 stores surveyed</i>	1999 <i>22 stores surveyed</i>	2003 <i>33 stores surveyed</i>
Tiger bone	42% (8)	32% (7)	3% (1)
Leopard bone	5% (1)	9% (2)	27% (9)
Rhino horn	5% (1)	14% (3)	0% (0)
Musk	32% (6)	23% (5)	58% (19)
Bear bile	0% (0)	5% (1)	24% (8)

Table 5. Availability of Medicines Claiming to Contain Target Species in San Francisco and Oakland TCM Shops in 2003

2003 Percentage of stores selling:	San Francisco <i>29 stores surveyed</i>	Oakland <i>4 stores surveyed</i>
Tiger bone	3% (1)	0% (0)
Leopard bone	28% (8)	25% (1)
Rhino horn	0% (0)	0% (0)
Musk	52% (15)	100% (4)
Bear Bile	14% (4)	100% (4)

endangered, and many told the investigators not to waste time looking for these products, as they could no longer be found. In fact, one shopkeeper lectured the investigators about the need to preserve species such as tigers and rhinos for future generations, so that our children and grandchildren can enjoy them. San Francisco shopkeepers also readily suggested alternative therapies.

Discussion

We believe that three key factors have led to the declining availability of rhino and tiger medicinals in San Francisco.

- **Outreach:** WWF and ACTCM, as well as TRAFFIC, have conducted significant outreach work in the San Francisco area focusing on tiger and rhino conservation and on the laws prohibiting the sale of tiger and rhino medicinal products. This includes meetings and collaborations with TCM practitioners, retailers and manufacturers, and participation in Chinese community events, such as Chinese New Year and Mother's Day celebrations, to educate users of TCM on some of the conservation issues involved in its practice. This education and awareness effort, coupled with the passage of the RTPLA, seems to have produced a positive change in the market for and availability of tiger and rhino products in San Francisco.
- **Improved Legislation:** The passage of the RTPLA in 1998 closed a large enforcement loophole by making the sale of any product labeled as containing rhino or tiger illegal. In this way, enforcement officials no longer bear the burden of proof to show that a product actually *did* contain either of these species, making their job much more straightforward.
- **Enforcement Action:** In addition, in February 2003, immediately prior to our survey, an Oakland, California, TCM shop owner was sentenced to four months in prison and a USD10 000 fine for conspiracy to violate the RTPLA and the ESA by offering medicines containing protected species (U.S. Fish and Wildlife Service *in litt.* to TRAFFIC North America, 18 December 2003). Though convictions under the RTPLA had been virtually nonexistent until this time, this conviction

may have helped to dissuade other shop owners in the area from also attempting to sell similar illegal products.

However, it is possible that the increase in the availability of leopard products, from 5% to 27% of stores, is also a result of these three factors, and that leopards are now being utilized as a tiger substitute. Indeed, most of the products found labeled as containing leopard bone, such as medicinal plasters used to alleviate joint pain, are those that previously utilized tiger bone. Tiger bone and leopard bone are used to treat the same symptoms and it appears that, as awareness of the illegality of the sale of products labeled as containing tiger has grown amongst TCM practitioners and consumers, they have made a shift in use to medicines labeled as containing leopard bone. As with tigers, commercial import of leopard parts and products is also prohibited into the USA under CITES, but unlike tiger products, leopard products are not covered by RTPLA or an equivalent labeling law. Therefore, it is much more difficult to enforce the import restriction as it would be necessary to prove that items labeled as containing leopard bone actually contain leopard bone, and enforcement is therefore also extremely difficult. In addition, no outreach work has been conducted in the area on the conservation issues surrounding the use of leopard bone in traditional medicinals.

A significant increase was also found in the availability of musk and bear bile TCM products. As with leopard products, this is probably due in part to the fact that these species are not covered by a labeling law and, therefore, enforcement efforts have been difficult. Again, the community outreach in San Francisco has focused solely on rhinos and tigers to date, and musk deer and bear species have yet to receive the same attention.

The reason for the discrepancy between the targeted TCM products available in San Francisco versus Oakland is also unclear, but one explanation may be that the conservation outreach conducted in San Francisco simply did not filter out to the surrounding areas. This hypothesis is supported by the fact that no shopkeepers in Oakland informed the investigators of the laws governing the sale of products containing the target species as they had so readily in San Francisco.

New York City

Results

The two investigators visited two Chinatowns in New York City: Manhattan and Flushing, during mid-April 2003, to assess the availability of products containing threatened or endangered species in TCM shops. While every attempt was made to follow previous surveys, 7 of the shops surveyed in 1999 had since closed and 14 not previously surveyed were added. The shops were surveyed for raw and manufactured medicines made from or labeled as containing tiger bone, leopard bone, rhino horn, musk, or bear bile. Assessments were made by browsing the shelves, as well as by requesting particular products from shopkeepers. The percentage and number of the 27 stores (21 in Manhattan, 6 in Flushing) found to be carrying these products is outlined in Table 6, compared with the previous surveys:

In New York City, the percentage of stores readily offering medicines labeled as containing tiger dropped from 83% to 41%, and those offering to sell medicines labeled as containing rhino were essentially unchanged between 1996-97 and 2003. As in San Francisco, medicines labeled as containing leopard were more abundant, with 63% of

stores selling these products, compared to only 17% in 1996-97. Medicines labeled as containing musk increased from being available in half of New York City's TCM shops to all of them, and bear bile medicines increased from being available in 17% of stores to 70%. No raw products of any of the target species were found.

While many of the New York City shopkeepers informed the investigators that they did not sell certain products, none ever mentioned that they were illegal or offered any alternative remedies, nor did they mention the conservation concerns regarding the use of the species in TCM. A TCM practitioner in one shop even recommended a prescription containing tiger bone to both investigators.

As with San Francisco and Oakland, there were some noteworthy differences in the products available in Manhattan versus Flushing shops. Flushing had significantly fewer shops offering tiger bone products at 17% compared to Manhattan's 48%, and no stores selling rhino horn products, while 10% of Manhattan shops still offered these for sale. Sixty-two percent of Manhattan shops offered bear bile products, while 100% of the Flushing shops did, but there was virtually no difference in the availability of leopard bone and musk products (see Table 7).

Table 6. Availability of Medicines Claiming to Contain Target Species in New York City TCM Shops

Stores Selling:	1996-97 <i>12 stores surveyed</i>	1999 <i>22 stores surveyed</i>	2003 <i>27 stores surveyed</i>
Tiger bone	83% (10)	64% (14)	41% (11)
Leopard bone	17% (2)	45% (10)	63% (17)
Rhino horn	8% (1)	23% (5)	7% (2)
Musk	50% (6)	64% (14)	100% (27)
Bear bile	17% (2)	27% (6)	70% (19)

Table 7. Availability of Medicines Claiming to Contain Target Species in Manhattan and Flushing TCM Shops in 2003

2003 Percentage of stores selling:	Manhattan <i>21 stores surveyed</i>	Flushing <i>6 stores surveyed</i>
Tiger bone	48% (10)	17% (1)
Leopard bone	62% (13)	67% (4)
Rhino horn	10% (2)	0% (0)
Musk	100% (21)	100% (6)
Bear Bile	62% (13)	100% (6)

Discussion

The survey results for New York City indicate that the RTPLA and other related laws have had a nominal effect on the market for tigers and rhinos. Outreach efforts have been far less extensive in New York City than in San Francisco, and the survey results suggest that outreach similar to that conducted in San Francisco may be necessary to underscore these laws by educating consumers as well as retailers. Tiger bone and rhino horn products were still available in 41% and 7% of the stores surveyed, respectively. Since the sale of these products is now completely illegal, these numbers are of concern, and indicate that law enforcement and outreach efforts have been ineffective to date.

Despite the fact that tiger bone products are still available in New York City, a dramatic increase in the availability of leopard bone products is still apparent. However, similar to what was found in San Francisco, the leopard bone products found in New York City, namely plasters, were those that were formerly

labeled as containing tiger bone. So again, it appears that leopard bone is being substituted for tiger bone as an ingredient in certain products. Additionally, the products found claiming to contain tiger bone appeared to be very old and may have been imported into the USA prior to enactment of the RPTLA in 1998, and may not be indicative of current trends in the industry.

As in San Francisco and Oakland, the explanation for the differences between Manhattan and Flushing remains unclear. It is possible, however, that the difference lies in the fact that the newer shops sprouting up in the suburb of Flushing have newer stock, and therefore offer fewer tiger bone or rhino horn products because they are no longer readily available. The older stores in Manhattan, where these products are still available, are possibly just carrying over old stock that still has not sold. Investigators attempted to identify the date of manufacture on all of the products surveyed, but, for most, the date was not visible or easily identifiable on the external packaging.

San Francisco vs. New York City

Discussion

The differences in availability of medicines labeled as containing protected or regulated species in the San Francisco and New York City areas are alarming (Table 8). Only 3% of San Francisco stores offered any medicines labeled as containing tiger, while 41% of New York City shops did. Only 27% of San Francisco shops offered leopard bone products, compared to New York City’s 63%. Rhino horn medicines were not found for sale in San Francisco, while they were still available in 7%

of New York City shops. Musk medicines were offered for sale in 58% of San Francisco stores and in all New York City stores; and bear bile medicines were found in 24% of San Francisco shops and 70% of New York City shops.

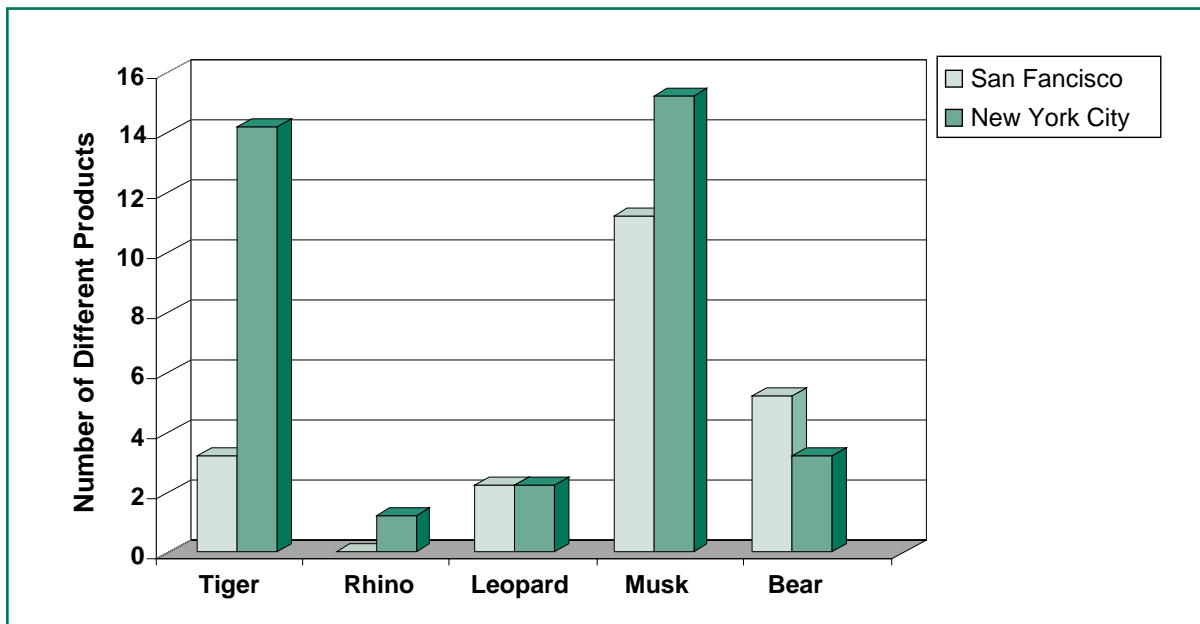
New York City stores offered a greater variety of tiger, rhino and musk products for sale than San Francisco shops. Both cities offered the same two leopard bone products — both plasters — and San Francisco offered a greater variety of bear products. (See Appendices II and III for a list of products.)

Additionally, San Francisco shopkeepers were acutely aware of the laws regulating the use of these species, and many also demonstrated that

Table 8. Availability of Medicines Claiming to Contain Targeted Species in the San Francisco and New York City in 2003

Percentage of stores selling:	San Francisco (including Oakland) 33 stores surveyed	New York City (Manhattan and Flushing) 27 stores surveyed
Tiger bone	3% (1)	41% (11)
Leopard bone	27% (9)	63% (17)
Rhino horn	0% (0)	7% (2)
Musk	58% (19)	100% (27)
Bear Bile	24% (8)	70% (19)

Figure 1. Comparison of Variety of Products Found in New York City and in the San Francisco Area in 2003



they were aware of the reasons behind these regulations – that these species are endangered, due in part to unsustainable use of their parts in traditional medicines. In New York City, however, no shopkeepers mentioned the illegality of these products, much less the conservation status of the species used in their manufacture.

The disparities between the two cities existed in 1996-97 (compare Tables 4 and 6), but have continued to increase over the past seven years. Both cities have shown improvement where medicines claiming to contain tiger and rhino products are concerned, though medicines labeled as containing these species are virtually unattainable in San Francisco, while still available in 41% and 7% of New York City's TCM shops, respectively (see Table 8). These disparities are probably a result of the extensive outreach work conducted in San Francisco to raise awareness about the RTPLA and the conservation status of tigers and rhinos, and possibly of the February 2003 conviction of the Oakland TCM shop owner as well (see page 7).

While awareness of the RTPLA may have acted as a deterrent, it is unlikely that enforcement of this law has had much impact in the five years that it has been in place. The U.S. Fish and Wildlife Service reports a total

of 29 convictions under the RTPLA, but 26 of these have been civil violations, mostly of individual international travelers bringing personal supplies of tiger or rhino medicines into the USA. Of the three criminal cases, only one resulted in a four-month prison sentence and USD10 000 fine, while the two others resulted in only USD250 and USD500 fines via a Notice of Violation (U.S. Fish and Wildlife Service *in litt.* to TRAFFIC North America, 26 February 2004).

However, a more significant impact may have been made in February 2004 when the U.S. Fish and Wildlife Service served search warrants on 16 retail TCM shops and one TCM wholesaler/distributor in New York City. The warrants focused on rhino and tiger products, with the vast majority of products seized being those that were labeled as containing tiger. All of the products seized were manufactured medicines, with the exception of one raw bone that is in the process of being identified. The U.S. Fish and Wildlife Service believes that this case has sent a strong message and that it will probably have a significant impact on the availability of rhino and tiger products in TCM shops, particularly in the New York City area (U.S. Fish and Wildlife Service, pers. comm. to Craig Hoover, 16 March 2004).

CONCLUSIONS

Three key conclusions can be extrapolated from the San Francisco and New York City market surveys, though the margin of error inherent in surveys conducted in different stores of varying numbers over a seven year period should, of course, be kept in mind.

Laws are a deterrent but appear to be much more effective when coupled with outreach work and active enforcement

Comparisons of surveys conducted in 1996-97 with the more recent survey conducted in 2003 strongly indicate that enactment of the RPTLA, together with educational outreach work, has had a positive effect on the availability of rhino and tiger medicines in San Francisco and New York City. In New York City, the percentage of stores selling medicines labeled as containing tiger dropped from 83% to 41%, while the percentage of stores selling medicines labeled as containing rhino remained low. In San Francisco, the percentage of stores selling medicines labeled as containing tiger dropped from 42% to 3%, and those selling medicines labeled as containing rhino dropped from 5% to none.

Though both cities had a drop in the availability of both tiger and rhino medicines, the result in San Francisco is much more positive, with the elimination of the availability of medicines labeled as containing rhino, and with only 3% of shops still selling medicines labeled as containing tiger. This difference demonstrates that the concentrated outreach efforts of WWF and ACTCM regarding the RTPLA and endangered species conservation in this area, as well as the U.S. Fish and Wildlife Service's enforcement effort in Oakland, have been highly effective, all but wiping out these illegal sales. The Chinese American community in San Francisco was not only more aware of the law at the time of the survey, but was also aware of the impacts their actions have on the continued survival of species in the wild.

Eliminating one problem may lead to another

As people have become aware that tigers are endangered and that medicines containing them are illegal, demand for products containing substitute species grows. The availability of medicines labeled as containing leopard bone has increased dramatically between the 1996-97 and 2003 TCM market surveys, undermining the otherwise positive trend of reduced availability of tiger medicines. In New York City, the percentage of stores selling medicines labeled as containing leopard increased from 17% to 63%, and in San Francisco, the percentage increased from 5% to 27% (See App. I, Fig. 2).

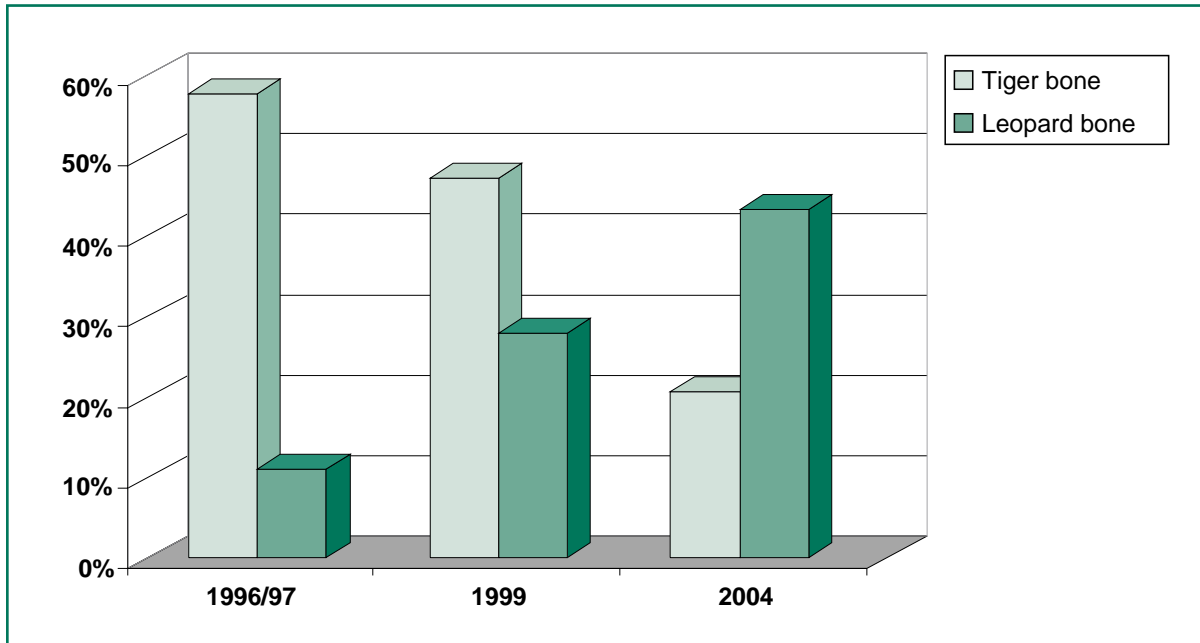
As the percentage of stores in both San Francisco and New York City selling tiger bone products decreased from just under 60% in 1996-97 to 20% in 2003, the percentage of stores selling leopard bone products increased from 10% to over 40% (See Fig. 2). Leopard and tiger bone are used interchangeably to treat the same ailments (Bensky and Gamble, 1993) and leopard bone is, in fact, listed as an ingredient in some of the very same products that were once labeled as containing tiger, such as a specific brand of plaster. The trend is a strong indication that leopard bone is being used as a replacement for tiger bone.

Leopards are banned in international commercial trade, as they are listed in CITES Appendix I. Thus, it is likely that all leopard medicines found in the survey were illegally imported into the USA. However, leopards are not covered under the RTPLA as are tigers and rhinos, making the government's task of identifying and prosecuting illegal sales far more difficult.

Enforcement Challenges for Other Species Remain

In addition to the increase in leopard products, an increase in the availability of musk and bear products was also found in TCM shops in both cities. Some populations of musk deer are

Figure 2. Percentage of Stores Offering Tiger and Leopard Products (NYC and SF areas combined)



listed in CITES Appendix II, while others are listed in Appendix I. Musk, therefore, may be legally traded on the international market with the appropriate permits. Similarly, bears are listed in CITES Appendices I and II, depending on the species or population, and products labeled as containing bear bile may or may not have been legally imported, or may or may not have come from legal domestic sources. TRAFFIC’s review of legal imports into the USA from 1999 to 2001 shows no legal imports of bear and musk products, however, which would seem to indicate that the majority of bear and musk medicines found in recent market surveys were, in fact, illegally imported. (TRAFFIC analysis of USFWS LEMIS data, 2003.)

An underlying issue for all of these concerns is whether or not medicinals labeled as

containing rhino, tiger, leopard, musk or bear actually do, and therefore, how much of a conservation threat the use of these products actually poses to these species. Further investigation is warranted into whether or not medicinals labeled to contain leopard, for instance, actually contain leopard. If these medicines do not contain leopard, perhaps they are fraudulently labeled as containing it to make the product more appealing, or perhaps they are labeled as containing it as a known cover for an illegal ingredient, such as tiger. These are all questions that remain unanswered, as tests to determine these ingredients are expensive and, sometimes, inconclusive.

RECOMMENDATIONS

1. The U.S. government should enact regulations that incorporate the definition of "readily recognizable part or derivative" under CITES Resolution Conf. 9.6 (Rev.) and prohibit the import, export, and interstate commerce of species and products containing, or claiming to contain, all protected species (i.e., those listed in CITES Appendix I or as Endangered under the ESA).
2. State and local governments should enact laws that prohibit the sale of products containing, or claiming to contain, all species listed as Endangered under the ESA.
3. Appropriate federal agencies should make enforcement of the RTPLA, as well as of the ESA and CITES, a priority and insure that blatant offenses, such as those seen in San Francisco and New York City, are addressed. To this end, TRAFFIC has provided the appropriate authorities with the information gathered in this survey, including names and addresses of shops in violation of U.S. law, and will continue to provide such information as appropriate.
4. As provided for under the RTPLA, appropriate government agencies, such as the U.S. Fish and Wildlife Service, as well as conservation groups, should conduct education outreach programs with TCM stakeholders (i.e., manufacturers, retailers, practitioners, consumers) throughout the USA, and particularly in the greater New York City area. Similar to the successful outreach work in San Francisco, the New York outreach should focus on these stakeholders as well as the broader community, through schools, special events, and other venues, and — where possible — should be expanded beyond tigers and rhinos to include other regulated species being illegally or unsustainably utilized in traditional medicines.
5. Appropriate federal agencies, as well as U.S. conservation groups, should work with their partners in China to determine where the enforcement gaps lie that allow illegal medicinals manufactured in China to be offered for sale in U.S. shops, and should work to quickly close those gaps once identified.
6. The increasing availability of medicines labeled as containing leopard, bear and musk should be investigated to determine whether or not these products actually contain these species and how the increased production of these medicines may be affecting leopard, bear and musk deer populations in the wild.
7. Trends in various traditional medicine systems should be monitored in an effort to understand the constantly changing use of wildlife species for medicinal purposes. Such monitoring allows for more targeted and effective law enforcement and outreach efforts. These trends, as well as the conservation status of species used for medicinal purposes such as bears and musk deer utilized in TCM, will need to be carefully monitored in the future so that appropriate outreach efforts and legislative and enforcement actions can be undertaken.

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APPENDICES

APPENDIX I

Percentage of All Stores Surveyed Offering Medicines Claiming to Contain each of the Target Species

Figure 1.

Percentage of Stores Where Tiger Products Were Offered for Sale

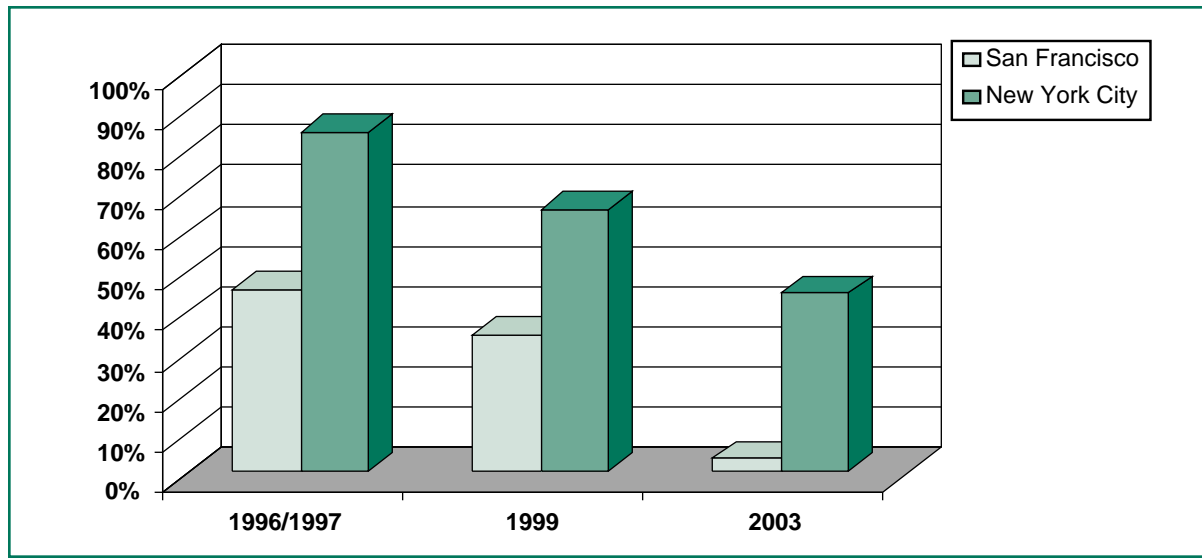


Figure 2.

Percentage of Stores Where Leopard Products Were Offered for Sale

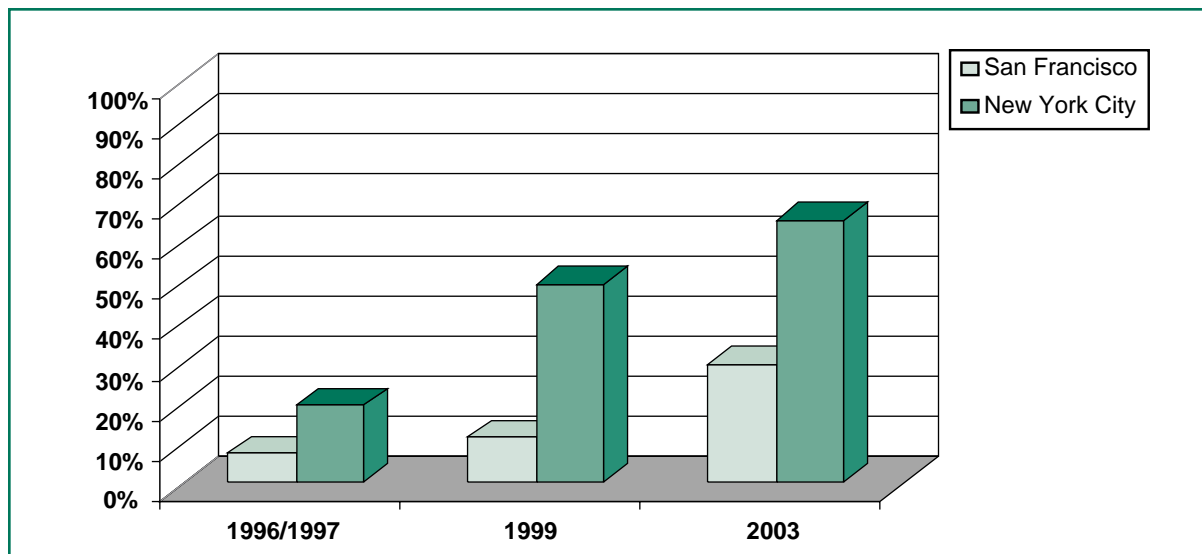


Figure 3.
Percentage of Stores Where Rhino Products Were Offered for Sale

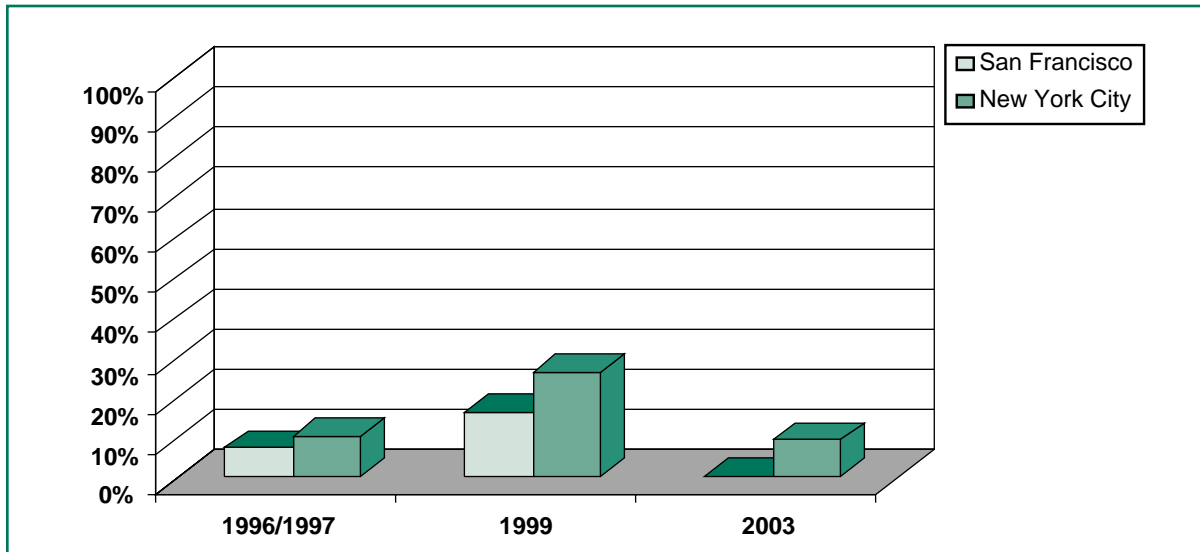


Figure 4.
Percentage of Stores Where Musk Products Were Offered for Sale

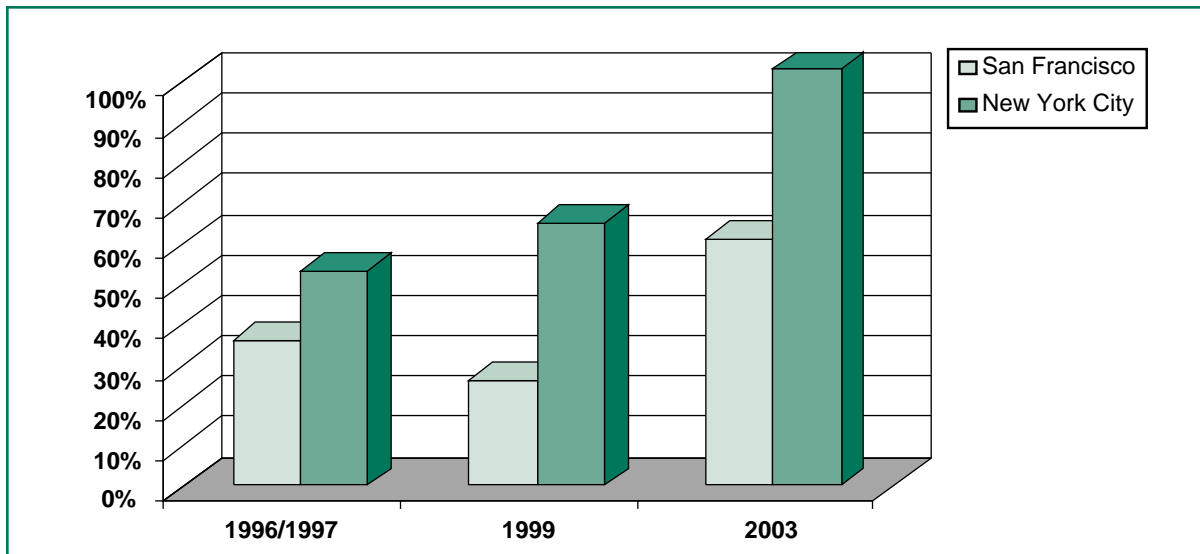
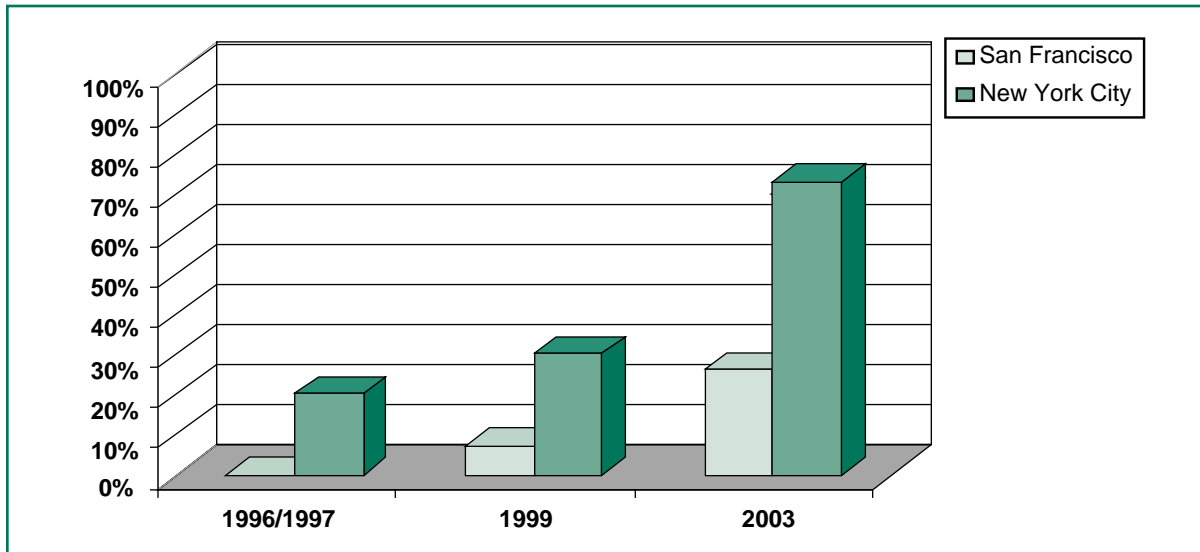


Figure 5.

Percentage of Stores Where Bear Products Were Offered for Sale



APPENDIX II

Products Found in San Francisco and Oakland

KEY

TB	tiger bone
LB	leopard bone
RH	rhino horn
BB	bear bile
MK	musk

Tiger

TB — pills, Du Zhong Hu Gu Wan, Guang Chang Hang distributor

TB, MK — pills, She Xiang Du Zhong Hu Gu Wan, Sichuan Yi Yao Bao Jian Gong Si

TB, MK, BB — pills, She Xiang Xiong Dan Zhui Fong Tou Gu Wan, Supervised by Tongrentang

Rhino

None

Leopard

LB, MK — plaster, She Xiang Zhuang Gu Gao, Sichuan Chong Qing Pharmaceutical factory

LB, MK — plaster, She Xiang Zhuang Gu Gao, Hu Bei Huang Shi Pharmaceutical factory

Musk

MK — powder, Yun Nan Bai Yao

MK — skin cream, Bing She Xiao, Hong Kong

MK — plaster, She Xiang Zhui Fong Gao, Guang Xi Pharmaceutical factory

MK — cream, Ma Ying Long She Xian Zhi Chuang Gao, Wu Han Pharmaceutical factory

LB, MK — plaster, She Xiang Zhuang Gu Gao, Hu Bei Huang Shi Pharmaceutical factory

LB, MK — plaster, She Xiang Zhuang Gu Gao, Sichuan Chong Qing Pharmaceutical factory

BB, MK — hemorrhoid cream, Xiong Dan Zhi Cuang Gao, Wu Han Tian Yi Pharmaceutical factory

BB, MK — hemorrhoid cream, Zhong Huan Pharmaceutical factory, 1981

TB, MK — pills, She Xiang Du Zhong Hu Gu Wan, Sichuan Yi Yao Bao Jian Gong Si

TB, MK, BB — pills, She Xiang Xiong Dan Zhui Fong Tou Gu Wan, Supervised by Tongrentang

Bear

BB — turtle and bear bile detoxic pill (Gui Xiong Dan Jie Du Wan), Guang Dong Pharmaceutical factory

BB, MK — hemorrhoid cream, Xiong Dan Zhi Cuang Gao, Wu Han Tian Yi Pharmaceutical factory

BB, MK — hemorrhoid cream, Zhong Huan Pharmaceutical factory, 1981

TB, MK, BB — pills, She Xiang Xiong Dan Zhui Fong Tou Gu Wan, Supervised by Tongrentang

APPENDIX III

Products found in New York City: Manhattan and Flushing

KEY

TB	tiger bone
LB	leopard bone
RH	rhino horn
BB	bear bile
MK	musk

Tiger

- TB** — pill, Du Zhong Hu Gu Wan, Guang Chang Hang
- TB** — pill, Du Zhong Hu Gu Wan, Hua Bei Pharm. factory
- TB** — pill, Du Zhong Hu Gu Wan, Gui Yang TCM factory
- TB** — pill, Tian Ma Hu Gu Wan, Sichuan Dong Feng Pharmaceutical factory
- TB** — pill, Tian Ma Hu Gu Wan – Chengdu 7th Pharm. factory
- TB** — pill, Tian Qi Hu Gu Wan, Sichuan Pharm. factory
- TB** — pill, Hu Gu She Xiang Tou Gu Wan – Guang Zhou Pharm. Ind. Factory
- TB** — pill, She Xiang Hu Gu Wan – Chong Qing Chinese Medicine factory
- TB** — pill, Tsei Hung Chui Fung Tou Ku Wan, Supervise manufacture – Tongrentang
- TB** — pill, Yuan Tian brand Zhui Feng Hu Gu Wan, Guang Dong Pharm. Factory.
- TB** — pill, Qiang Li Zui Feng Hu Gu Wan, Guang Zhou Pharm. Factory
- TB** — pill, Yen Shen Zai Zao Wan, Fo Shan Lianhe Pharm. Co.
- TB, MK** — pill, She Xiang Hu Gu Zhuang Gu Wan – Sichuan Yi Yao Bao Jian Co.
- TB, BB, MK** — pill, She Xiang Xiong Dan Zhui Fong Tou Gu Wan, supervised by Beijing Tongrentang

Rhino

- RH** — Golden Shield Brand Rhino horn detoxifying pill, Xi Jiao Jie Du Pian, Guang Dong Pharmaceutical factory

Leopard

- LB, MK** — plaster, She Xiang Zhuang Gu Gao, Hu Bei Huang Shi Pharmaceutical factory
- LB, MK** — plaster, She Xiang Zhuang Gu Gao, He Nan Ling Lui Pharmaceutical factory

Musk

- MK** — hemorrhoid cream, Ma Ying Long She Xiao Zhi Cuang Gao, Wu Han Ma Ying Long Pharmaceutical factory
- MK** — Tiger brand musk deer plaster, Guang Dong Yue Wei Pharmaceutical factory

MK — plaster, She Xiang Feng Shi Gao, Zhe Jiang pharm. Co.
MK —plaster, She Xiang Gou Pi Gao, Tian Jing TCM Pharm. Co.
MK — plaster, She Xiang Zhuang Gu Gao
MK — plaster, She Xiang Zhui Fong Gao
MK — plaster, Yong Fong Ya Zhou pharmaceutical
MK — pill, She Xiang Hua Shi Wan
MK — pill, Qiang Li She Xiang Hua Shi Ling
MK — pill, Qiang Li She Xiang Hua Shi Wan
BB, MK — pill, Xiong Dan She Xiang Dian Qi Du Zhong Wan
BB, MK — hemorrhoid cream, Xiong Dan She Xiang Zhi Cuang Gao, Wu Han Tian Yi
Pharmaceuticals
LB, MK — plaster, She Xiang Zhuang Gu Gao, Hu Bei Huang Shi Pharmaceutical factory
TB, MK — pill, She Xiang Hu Gu Zhuang Gu Wan, Sichuan Yi Yao Bao Jian Co.
TB, BB, MK — She Xiang Xiong Dan Zhui Fong Tou Gu Wan – Tiger bone, bear bile, musk pill,
Supervised by Beijing Tongrentang

Bear

BB, MK — hemorrhoid cream, Xiong Dan She Xiang Zhi Cuang Gao – Wu Han Tian Yi
Pharmaceutical factory
BB, MK — pill, Xiong Dan She Xiang Dian Qi Du Zhong Wan
TB, BB, MK — pill, She Xiang Xiong Dan Zhui Fong Tou Gu Wan, supervised by Beijing
Tongrentang



IUCN
The World Conservation Union

The TRAFFIC Network is the world's largest wildlife trade monitoring program with offices covering most parts of the world. TRAFFIC is a program of WWF-World Wildlife Fund and IUCN-The World Conservation Union, established to monitor trade in wild plants and animals. It works in close cooperation with the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

For further information contact:

**The Director
TRAFFIC North America
c/o World Wildlife Fund-US
1250 24th Street, N.W.
Washington, D.C. 20037
Telephone: 202-293-4800
Fax: 202-775-8287
Email: tna@wwfus.org
Web Site: www.traffic.org**