

Wildlife Products for Sale in Myanmar

E.B. Martin

Although there have been no reliable surveys of wild animal populations in Myanmar, circumstantial evidence suggests a serious decline in certain species from the effects of habitat loss and unregulated hunting, especially in the last two decades. Smuggling is rife owing to shortages of food, consumer goods and luxury items, and economists believe that over half the country's foreign trade is unofficial (Vatikiotis and Holloway, 1995). The author of this report has undertaken a number of surveys in Myanmar, most recently in December 1995, to determine the availability of wildlife products for sale in the country. His findings indicate that there is a thriving domestic trade in wild animal products aimed at foreign tourists and at the wealthier inhabitants living in the country's towns and cities. Further, a large amount of wildlife is smuggled out of the country, mostly to Thailand and China, where it is sold for consumer items or to finance the armed resistance of ethnic groups in Myanmar fighting for their independence.

In June 1997, the Government of Myanmar announced its accession to CITES (effective September). Not only is it imperative that scientific study be made of Myanmar's wildlife, but further surveys of wildlife markets need to be carried out in the near future in order to establish whether domestic legislation and CITES controls are being implemented.

INTRODUCTION

Myanmar (formerly Burma) is the largest country on the Southeast Asian mainland and shares its borders with Thailand, Lao PDR, China, India and Bangladesh. The country comprises seven States (Chin, Kachin, Kayah [Karen], Kayah, Mon, Rakhine, and Shan). A general decline in wild animal populations in Myanmar was noted in 1959 and 1960 and attributed to the use of firearms that had been brought into the country in large numbers during World War II and which were still widely available. Species then under threat from hunting were the Sumatran Rhino *Dicerorhinus sumatrensis*, Takin *Budorcas taxicolor*, Musk Deer *Moschus*, Gaur *Bos gaurus*, Banteng *Bos javanicus*, Thamin Deer *Cervus eldi*, swiftlet and sea turtle (species not recorded) (Milton and Estes, 1963). From 1981 to 1984, the Food and Agricultural Organization of the United Nations (FAO) and the United Nations Development Programme (UNDP) worked with the Myanmar Government in order to identify and establish national parks and reserves. The UN official in charge of the programme wrote, "In the almost total absence of reliable data on the present status

of wildlife populations in Burma it is impossible to give anything other than a very subjective impression of the degrees to which individual species may or may not be endangered" (Blower, 1982). Blower believed that the number and range of wild elephants was decreasing rapidly owing to excessive mortality incurred during their capture and subsequent training for timber extraction, as well as from the poaching of the animals for their tusks. The evident decline in numbers of Sumatran Rhinos, Gaurs, Bantengs, Saltwater Crocodiles *Crocodylus porosus*, Leatherback Turtles *Dermochelys coriacea* and Hawksbill Turtles *Eretmochelys imbricata* was ascribed to poaching by the army, the People's Militia and insurgents (Blower, 1982; 1985). In 1994, a survey in Tamanthi Wildlife Sanctuary found a high incidence of illegal hunting of Tigers *Panthera tigris*, Sambar Deer *Cervus unicolor*, Gaurs and otters, mostly with steel traps and wire snares (Rabinowitz *et al.*, 1995). That investigation indicated that poaching has resulted in a steady decline in wild animal populations over the past few decades in the forest reserves (which occupy 15% of the country) and parks and wildlife sanctuaries (which cover 1%).



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Indian Muntjac *Muntiacus muntjak* (top) and Sambar Deer *Cervus unicolor* (with Rufous Tree Pie *Dendrocitta vagabonda*).

The author of the following report visited Myanmar during the early 1980s and, in February 1988, crossed the border from Mae Sai in Thailand to Tachilek in Myanmar to investigate the wildlife for sale there. Although little was available at that time, there is recent evidence that wildlife trade in these border towns is growing at an alarming rate (Table 1) (Redford, 1994; K. Ammann, pers. comm., 1996). In December 1995, the author returned to Myanmar to follow up his investigation of the country's trade in wild fauna, and his findings, together with information on the recent history of wildlife trade in Myanmar, are presented in this report.

Item	Quantity	US\$	Kyat
Asiatic Golden Cat			
<i>Catopuma temminckii</i> skin	14	16	400
Bear gall bladder	30	18	450
Bear tooth	>42	10	250
Clouded Leopard			
<i>Neofelis nebulosa</i> skin	20	320	8000
Elephant <i>Elephas maximus</i> ivory (raw pieces)	30	100	2500
Gaur <i>Bos gaurus</i> skull	>32	300	7500
Indian Muntjac			
<i>Muntiacus muntjak</i> skull	>230	4	100
Leopard <i>Panthera pardus</i> skin	24	400	10 000
Leopard skull	30	60	1500
Leopard Cat			
<i>Prionailurus bengalensis</i> skin	many	4	100
Macaque <i>Macaca</i> spp. skull	22	2	50
Scrow <i>Nacmorhedus sumatraensis</i> skull	>200	4	100
Takin <i>Budorcas taxicolor</i> skull	9	24	600
Tiger <i>Panthera tigris</i> penis	23	150	3750
Tiger skin	8	1400	35 000
Tiger skull	20	80	2000
Tiger tooth	>16	80	2000

Table 1. Tachilek (in Myanmar) and Mae Sai (in Thailand) border trade in wild animal parts, August 1994.

Survey by Tim Redford, unpublished. Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus*

BACKGROUND

Traditionally, Myanmar has been an agricultural economy that has relied heavily on rice cultivation and timber exploitation. In addition to its forests and rivers, the country has a wealth of mineral and energy resources that remain largely untapped; these include oil, tin, copper and tungsten. The country is also a major source of illegal opium and cannabis (Anon., 1991).

Since independence from British rule in 1948, the Government has fought various armed insurgent groups, the largest of which were derived from the Kachin, Karen, Karenni and Wa ethnic groups (Anon., 1997). In 1962 the army took power and instituted a socialist state, and the economy was nationalized. The ensuing political isolation damaged the economy and resulted in the closure of many shops and businesses. Thousands of Indian and Chinese entrepreneurs (whose families had come to Myanmar in large numbers during the British colonial period, 1885 to 1948), left the country (Klein, 1994).

In September 1988, after some months of public demonstrations and unrest, General Saw Maung, leader of the armed forces assumed power and formed the State Law and Order Restoration Council (SLORC) (Anon., 1997). Martial law was again enforced. Although free elections were held in 1990 - the first for 30 years - and resulted in a majority for the National League for Democracy, the SLORC refused to transfer power to a civilian government and this Council remains in power today (Anon., 1997).

The formation of the SLORC saw certain changes in the country's economy: the establishment of private businesses was encouraged and a policy was launched to attract foreign investment. From 1989 to 1994, more than a billion dollars was brought into the country as a result and, according to the Government, contributed to a growth in the economy of just over seven per cent a year between 1992 and 1994 (Anon., 1996), boosted by an increase in tourism: 95 616 foreigners visited the country in 1994/95 compared with 7947 in 1991/92 (Anon., 1995a).

Despite some improvements, the economy remains fragile and poorly managed, however (Vatikiotis and Holloway, 1995). The population in 1994 was 44 million, with a per capita income of only US\$280 a year (compared with over US\$2000 in Thailand). A university graduate in Government service will earn about US\$13 a month, while a salesperson in the private sector might earn US\$21 a month. A Government study in 1994 in Yangon (formerly Rangoon) showed that the average household spent 67% of its monthly expenditure on food and drink (Anon., 1995b).

The Government itself is responsible for heavy exploitation of the country's natural resources, in particular of its forests, for much needed foreign exchange. Export of timber (primarily teak *Tectona grandis*) is now equal to food as the largest Government foreign exchange earner (Anon., 1995b). Since 1988, Thai companies have been given contracts to log large areas, resulting in an annual deforestation rate of 800 000 hectares to one million hectares, a reduction in forest habitat from 42.3% in 1981 to under 20% in 1989 (IUCN, 1991), and constituting one of the five highest rates of decline in forest cover in the world (Anon., 1993). The extensive removal of hardwoods has clearly been detrimental to the country's wild animals, but the effects have yet to be studied.

The Forest Department has been responsible for managing and conserving wildlife since 1856. The *Burma Forest Act* of 1902 and the *Burma Wild Life Protection Act* of 1936 provide for the establishment of sanctuaries and forest reserves within which animals are protected; protection does not cover habitats, however. As a result, valuable areas such as the Shwe-u-daung Wildlife Sanctuary have been logged and other wildlife areas have been damaged or ruined by human encroachment (IUCN, 1991; Blower, 1985).

On 8 June 1994 the Forest Department established a new law entitled *Protection of Wild Life and Wild Plants and Conservation of Natural Areas Law* which, *inter alia*, set up a committee to protect wildlife, designated the powers of the Minister to "natural areas" and zoological gardens, and enacted specific conditions for hunting. The Forest Department also announced that a fine of up to 50 000 kyat (US\$417 in late 1995) and/or imprisonment for up to seven years would be imposed for the illegal possession, sale or export of protected species, or their parts. It was followed on 26 October 1994 by Notification No. 583/94 (Anon., 1994), which published a list of animals that are completely protected

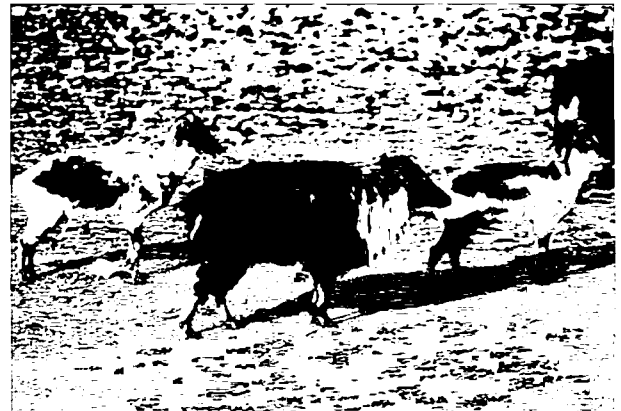
from hunting and trade, and includes 39 mammals, 50 birds and nine reptiles. Among these are the Sumatran Rhino, Musk Deer, Tiger, Leopard *Panthera pardus* and the Asian Elephant *Elephas maximus* (although trade in Government-owned ivory is permitted).

Possession of products (usually in the form of souvenirs) from more commonly-occurring species classified as "protected and seasonally protected animals", is allowed under the October 1994 law. Within Myanmar, it is also permitted to consume, sell and transport drugs made from these animals.

On 13 June 1997, Myanmar acceded to CITES, effective 11 September.

METHODS

The author first visited Myanmar in January 1981; at that time a foreign visitor could only obtain a one-week visa; this was later extended to two weeks and in the mid-1990s to one month in order to increase the country's foreign exchange income. The limitations on research imposed by visits of such short duration are compounded by the fact that large parts of the country are unsafe and are therefore closed to foreigners; further, the Government has not given permission to scientists to investigate the trade in wildlife. The reluctance by some people to divulge information owing to lack of trust, also hindered data gathering.



IWWP/Eric Drugeco



IWWP/Martin Harvey

Serows *Naemorhedus sumatraensis* (top);
Sambar *Cervus unicolor* pair in water.

Ernest Martin



Ivory carving in Myanmar

In December 1995, the author returned to Myanmar. Posing as a tourist and accompanied by a guide/interpreter, he visited the main towns and cities of Myanmar where wildlife products are offered for retail sale. These are Yangon (where the author made two visits over eight days), Bago (formerly Pegu) (one visit), Mandalay (one visit over four days), Pyin Oo Lwin (formerly Maymyo) (one visit), Taunggyi (one visit over two days), Thalay (one visit), Kalaw (one visit) and Pindaya (one visit) (see map). Keen for a sale, the vendors in these locations were willing to talk about the items they were selling and also allowed photographs to be taken. At the time of the survey, the border between Thailand and Myanmar had been closed for months owing to political disagreements between the two countries, and investigations in this area were not possible.

Official Government figures held at the Forest Department were provided by a reliable contact who shall remain anonymous. The official exchange rate of the local kyat in late 1995 was fewer than six to the US dollar compared with the unofficial market rate of 120, which is used in this report.

A BACKGROUND TO THE WILDLIFE TRADE IN MYANMAR AND RESULTS OF 1995 SURVEY

ELEPHANT IVORY

Myanmar has the second-largest number of elephants in Asia, after India, with an estimated 4150 in the wild. In addition, about 5250 specimens are in captivity, of which nearly 3000 are owned by the Myanmar Timber Enterprise of the Ministry of Forestry, for the purposes of extracting timber; the remainder are privately owned (R. Sukumar, pers. comm., 1996). Although hunting of the Asian Elephant is prohibited in Myanmar, tusks derived from elephants that have died naturally, or tusks that have been confiscated, may be purchased legally from the Government. Less than 50% of Myanmar's elephants have tusks: the short tusks, or "tushes" as they are known, of the female elephants are less commonly used for the purposes of carving as they are harder and more difficult to carve and fetch less money than ivory derived from the male elephant.

The Burmese have been making ivory items for sale to foreigners for over a hundred years. Around 1900, the main ivory production centres were in Moulmein (now Mawlamyine), Pyinmana and Rangoon (now Yangon). Picture frames, paper knives, knife handles, chess pieces and Buddha statues were among the most common ivory items available. Art historians believed that the carvers exercised little originality, however, and that the industry was languishing (Kunz, 1916; Watt, 1904). The standard of ivory carving in Myanmar today is not high.



Ivory Carving Centres

Mandalay

By the time of World War II, the main ivory centre was Mandalay, which had been the country's capital from 1861 to 1885, and was home to many ivory craftsmen working for the Burmese Royal family. When the Japanese occupied Burma (1942 to 1945), they purchased large amounts of ivory, such as signature seals, chopsticks and cigarette holders. In 1942 there were about eight ivory businesses in the city employing 56 craftsmen. After the war, demand for ivory items was largely for local consumption, mainly ivory combs for women: a few resident Indian money lenders working for timber companies bought ivory jewellery, combs, hairpins, and statues, and British residents bought, in particular, cigarette holders and cigarette cases.

Demand for ivory remained the same until around 1962 when an interest for polished tusks grew, especially in neighbouring Thailand. At this time, one of the main ivory manufacturers in Mandalay started importing raw African ivory - about half a tonne a year - but was forced to stop trading in 1964 when the Government banned import licences. Official export documents from East Africa show that raw African ivory was first exported direct to Burma in reasonable quantities from 1956. Zanzibar, the main exporter, was the source of an average of 2431 kg a year between 1956 and 1962, with smaller amounts imported from Kenya and Tanganyika (present day Tanzania) (Anon., 1956-1962).

In the mid-1970s, tourist visas were extended from 24 hours to seven days duration and the Government began to encourage ivory exports. The expansion of Thailand's tourist industry also provided a growing market for ivory items made in Burma. Other large buyers in the 1970s were Japanese and Chinese diplomats visiting Mandalay from Rangoon, who bought mostly seals, chopsticks and shoe horns. By the late 1970s there were about 45 craftsmen in Mandalay using ivory and wood. According to the ivory craftsmen, the Burmese stopped buying ivory combs at this time, however, as they became too expensive; combs made of wood, such as sandalwood, and in the 1980s, plastic, were purchased instead.

By 1981 the number of ivory craftsmen had fallen to about 30, all operating from three main workshops in Mandalay, while others who had previously worked with ivory, switched to carving wood, working from their homes or next to temples to target visiting tourists. An ivory craftsman earned around 20 kyats (US\$0.55) a day, making mostly jewellery and seals. The main buyers at that time were Japanese, French, Germans and Italians. Few Burmese could afford ivory items by this time.

During the 1980s Mandalay's ivory industry expanded as more tourists were able to visit for longer periods. After the political upheavals in the country in 1988, however, tourism slumped and did not recover until 1994. Ivory items continued to be smuggled into

Thailand during this period, however. A small amount of ivory carved into Chinese designs (gods, Buddha figures and traditional fishermen) was also smuggled overland to China by the Shan people who live along the border. There is virtually no trade in Burmese worked ivory items to neighbouring Bangladesh, India and Lao PDR, as there is no significant demand for such items there.

In late 1995 the Mandalay ivory carving industry was doing well, with 50 to 60 craftsmen using mostly ivory, but working with wood if business were slack. The larger ivory workshops located in the centre of the city were selling ivory products both wholesale and retail. Some craftsmen work in their houses or flats, and sell their goods at the main tourist sites: at the eastern gate of Maha Muni Temple 102 shops were observed in December 1995, with six selling between 200 and 400 ivory objects in total, the only wildlife derivative for sale there. The main buyers were tourists from Japan, South Korea, Taiwan and Italy, although importation of these goods by those countries without documentation would have contravened CITES and/or national laws. Ivory seals and chopsticks tend to be purchased mainly by Japanese; Singaporeans favour ivory Buddha statues and chopsticks; and Europeans tend to ask for elephant "bridges" (elephant forms carved along the curve of a tusk), carvings of other animals, and jewellery (Table 2).

Item	US\$	Kyat
Earring	11	1300
Cigarette holder, 12.5 cm	21	2500
Signature seal (square), 7.5 cm	23	2800
Chopsticks, pair	27	3200
Bangle, 1.24 cm thick	33	4000
Elephant sculpture, 6 cm	42	5000
Chinese-style spoon	100	12 000
Large carved bangle	117	14 000
Chinese-style god sculpture, 25 cm	417	50 000
Elephant "bridge", 60 cm	708	85 000

Table 2. Ivory items for retail sale in Mandalay, December 1995. Survey by the author

Yangon

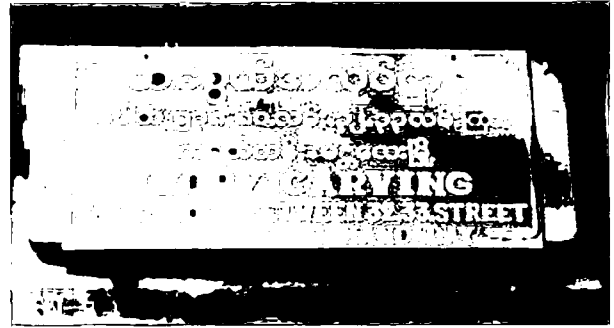
Ivory carving is carried out in Yangon, the capital, but the quality is even poorer than in Mandalay because the craftsmen have less tradition and experience in working ivory than their counterparts in Mandalay: the main raw ivory buyers, who buy most of the available tusks, are based in Mandalay. By the early 1990s, most carvers who had formerly worked ivory had switched to wood, specializing in making small astrological amulets primarily for local buyers. The Burmese often approach astrologers or spirit mediums (Anon., 1951; Klein, 1994) and, according to traditional Burmese astrology, the day of the week a person is born determines certain aspects of that person's life. A person born on a Tuesday, for example, would be encouraged by an astrologer to wear an ivory amulet in the form of a lion

(about 2 cm-wide) for luck, while amulets made from sandalwood or teak are worn by people born on the other days of the week. These take the form of a Tiger (Monday), an elephant (Wednesday), a rat (Thursday), a guinea pig (Friday), a snake (Saturday) and a garuda (mythical bird) (Sunday). Several hundred carvers in Yangon make astrological wood amulets, with only a few working full-time on ivory amulets, ivory being generally too expensive for the carvers to buy. It is often the customer who brings the craftsman a small piece of ivory which will then take up to two hours to fashion into an amulet. Raw sandalwood *Santalum* is obtained for US\$20 a kg, teak for only US\$0.08 a kg and tamarind *Tamarindus indica* for even less. A craftsman of average ability will earn between US\$1.50 and US\$3 a day. According to the author's observations, a delicate 2.5 cm wood or ivory carving might earn him 350 kyats (US\$2.92), but only 150 kyats (US\$1.25) for an ordinary piece.

The main tourist attraction at Yangon is the Shwedagon Pagoda where, in December 1995, there were about 150 craftsmen making wood carvings and, very occasionally, a small ivory item on order. Seventeen shops displayed ivory Buddha statues, carved tusks, seals, chopsticks and old combs (most of which have been made in Mandalay). These are purchased mainly by Japanese, French and German customers. Many foreigners also visit the main city market, Bogyoke, where there are over 100 shops, of which about 10 sell more expensive ivory objects, including antiques: a one-hundred-year-old statue of two women, carved in Mandalay, was on sale for US\$4000. The most valuable ivory item seen here in 1995 was a 20-cm tusk bearing many intricately carved figures, priced at US\$20 000. The hotels in Yangon do not sell ivory items.

Bago

The ivory carving industry in Bago, the former capital of southern Burma and once an important sea port, has also declined owing to the high price of tusks and the difficulty in obtaining them. The main tourist site is the Shwemawdaw Pagoda, where 20 of the city's 50 woodcarvers are located. A few of these craftsmen occasionally work in ivory as well, making mostly amulets. An elderly and experienced carver explained that there was no longer demand for big ivory pieces as they were too expensive. He made about one ivory amulet a month: a 2.5 cm piece would cost 300 kyats (US\$2.50) for the raw ivory and a further 300 kyats for several hours' labour. The retail value of an ivory amulet (US\$5) compares with 500 kyats (US\$4.17) for a sandalwood amulet requiring the same amount of labour, and 90 kyats (US\$0.75) for one made of teak and carved in one or two hours.



Esmund Martin

Mandalay has been the centre for ivory craftsmanship in Myanmar for over a hundred years.

Ivory sources

According to craftsmen and shop owners in Myanmar, raw ivory is obtained from either Government sales, or from poachers and traders. During the political struggles in Yangon in 1988, many files in the city's Forest Department which dealt with ivory sales were destroyed and figures are only available since then. From 1988 the Department has collected only male tusks because the shorter female tusks are less valuable. The latter are purchased by the craftsmen from other sources, however. In 1989/90, the Forest Department sold 575 kg of elephant tusks, the majority having come from Government-owned elephants that had died. The large tusks sold for 3300 kyats (US\$76) a kg, medium-sized ones for 2700 to 2900 kyats (US\$62 to US\$67), and small pieces for 1010 kyats (US\$23) a kg. In 1990/91, three dealers bought one lot each for a total of US\$37 571. In 1992/93 ten dealers tendered, but the entire 603 kg (209 pieces) went to one buyer for an average price of US\$141 a kg. In 1994 the Forest Department granted permission for members of the Arts and Crafts Association to buy the raw ivory so that they could carve and exhibit the items at the 50th anniversary of Resistance (Tatmadaw) Day (27 March 1995). At the end of 1994, the Government sold 337 kg of raw ivory at an average price of US\$204 a kg, mostly to craftsmen in Mandalay. There was no sale in 1995 and by January 1996 the Department had 538 kg of elephant tusks. At least another half a tonne of raw ivory has been sold annually since 1993 to craftsmen from elephants (both wild and domestic) that have died of natural causes but which are not in Government stocks, or illegal ivory that has been poached; tusk-ends are also cut from living animals. During the survey, ivory dealers in Mandalay admitted to having bought ivory originating from elephants poached mainly from around Toungoo, the Pegu-yoma Hills, and the Rakhine (formerly Arakan) Mountain Range, but also from near Pinyinana, Pyi and Myitkyina. Usually traders from these areas come to Mandalay and Yangon to sell their raw ivory.

As with ivory from Government sources, the cost of ivory from private sources rose sharply between 1981 to 1995, and varied according to size and quality. The larger, more valuable tusks from mature males sold for US\$26 a kg in 1981, rising to US\$256 a kg in 1993 and

US\$239 by December 1995. The smaller tusks, and the least valuable female tushes, fetched, respectively, US\$13.50 and US\$10 a kg in 1981, rising to US\$128 a kg (for both smaller tusks and female tushes) in 1993, and US\$128 and US\$107 a kg, respectively, at the time of the survey.

Elephant bone may sometimes be used as a cheap substitute for ivory. In 1995, raw bone cost US\$9 a kg, a beaded bone necklace retailed for US\$2.50, a 15-cm comb was just over US\$1, and a poorly carved, 15-cm sculpture, was US\$2.50. These objects are usually purchased by foreigners, mostly Europeans.

Quantity of ivory used

It is not possible to quantify the amount of ivory used by craftsmen each year, largely owing to the fact that some is illegal and therefore not recorded. Similarly, there are no reliable figures on the numbers of elephants poached annually. Even the number of craftsmen is unknown as some work away from the towns, supplying the border trade with Thailand. The author estimates, however, that at least 500 kg to 1000 kg of raw ivory are consumed each year by the craftsmen in Myanmar.

The amount of worked ivory being smuggled into Thailand, and the amount of tusks being transported out of Myanmar, is unknown. According to the traders, most tusks go to Bangkok, Chiang Mai and the border area of Tachilek/Mae Sai. In Tachilek, in September 1993, there were 30 pairs of raw ivory tusks on sale (T. Redford, pers. comm., February 1996). These were mostly small tusks and would probably be bought by Thais to decorate their houses and temples. The ivory trade to China similarly cannot be quantified, but may be significant. For instance, a craftsman in Mandalay had a confirmed order dated 9 November 1995 to make 400 sets of ivory chopsticks to be sent to China, for which he was charging a Burmese middleman 3200 kyats (US\$26.67) a set. This middleman sold the chopsticks at the border; such items usually sell for 3500 kyats (US\$29.17) a pair.

OTHER SOUVENIRS DERIVED FROM WILD ANIMAL PARTS

Although ivory items are widely available at the main tourist sites in Myanmar, souvenirs derived from other wildlife sources are less common. The tusks of Wild Pig *Sus scrofa*, antlers and horns of unidentified deer species and teeth of Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* are fashioned into jewellery by the Nagas, traditional hunters who live in the mountains of north-west Myanmar; necklaces of such items seen at Bogyoke market in Yangon in 1995 ranged in price from US\$67 to US\$100. The Nagas also use the animals' skins to make into clothes - a deer skin hat with a pair of Wild Pig tusks attached was on sale at the same market for US\$50.

Tiger products can also be bought in the tourist centres, mainly in the markets and near the temples. According to the traders, the animals are killed with guns, traps or by poison placed in cow carcasses. Although Tiger bones are used in medicines, the nails, teeth, skull and skin are usually sold as souvenirs. In Yangon's Bogyoke market in December 1995, Tiger nails were available at one shop for US\$10 each, and for an average of US\$22 each at two other shops. Whole Tiger skins are rarely seen in Myanmar as there is a much larger market for these items across the border in Thailand. However, a Tiger skin was seen in Taunggyi, along with souvenirs made from other animal parts (Table 3).

Item	US\$	Kyat
Bear ¹ jaw	4.17	500
Elephant <i>Elephas maximus</i> tail hair	0.42/hair	50
Sting ray ²	?	?
Takin <i>Budorcas taxicolor</i> horns (pair)	8.33	1000
Tiger <i>Panthera tigris</i> skin (poor condition)	42.00	5000
Wild Pig <i>Sus scrofa</i> tusk or tooth	1.67	200

Table 3. Ornaments made of animal parts for sale by a street vendor in Taunggyi, December 1995.

Survey by the author. ¹Asiatic Black Bear *Ursus thibetanus* or Sun Bear *Helarctos malayanus* ²species unknown

The Kyaik-tiyo Pagoda (popularly called the Golden Rock), reached by a strenuous five-hour walk from the town of Kyaik-tiyo in south-east Myanmar, is visited mostly by Burmese. In January 1996, a shop beside the pagoda sold products from bears, Tigers, otters, monkeys, pythons *Python* and Indian Muntjacs *Muntiacus muntjak* (Table 4). These animals had mostly come from the surrounding mountains (Anon., pers. comm., January 1996).

Sambar Deer antlers and Gaur horns are also exported to Thailand. Based in the outskirts of Pyin Oo Lwin is a well-known trader who deals specifically in the skulls of these two species, and the only person in that town known to be selling these trophies. He regularly travels 250 km to the forested areas and to the town of Namkhan next to the Chinese border to obtain the



Parts of protected animals, such as the skins of Tiger, Leopard and Clouded Leopard, on sale at the border town of Tachilek in 1993.

Karl Ammann

Item	Quantity	US\$	Kyat
Bear ¹ gall bladder (dried)	2	42	5000
Bear ¹ skin	2	17	2000
Bear ¹ paws (pair)	4	17	2000
Indian Muntjac <i>Muntiacus muntjak</i> skin	2	?	?
Monkey ² skull	1	?	?
Otter ² penis	2	25	3000
Otter ² skin	1	6	720
Python <i>Python</i> skin	3	6	720
Tiger <i>Panthera tigris</i> paws (pair)	2	17	2000
Tiger skull	3	15	1800

Table 4. Wild animal products for sale at the Kyaik-tiyo Pagoda, January 1996. Survey by a Burmese national on behalf of the author.

¹Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* ²species unknown

skulls, with antlers and horns attached, which he then cleans and polishes at his home. In December 1995, skulls of 16 Sambar Deer and 10 Gaurs were displayed on his walls for potential buyers: a high-quality Sambar Deer skull with antlers attached would sell for the equivalent of US\$77 and a similar quality Gaur skull with horns, US\$146. Normally, however, this trader organizes for their transport to the border towns of Tachilek, and Mae Sai, in Thailand, to sell wholesale to Thai traders who, in turn, would obtain 10 000 baht (US\$400) retail for a Gaur trophy in Mae Sai.

A large quantity of wildlife products, mainly souvenirs, is for sale on the Myanmar/Thai border, including parts from endangered species, and a large amount is smuggled across the border to Mae Sai and Mae Sot. In 1994, skins of 20 Clouded Leopards *Neofelis nebulosa* and 24 Leopards *Panthera pardus*, skulls of 30 Leopards, 20 Tigers and 32 Gaurs, 30 bear gall bladders and 23 Tiger penises were recorded on the Tachilek/Mae Sai border (Table 1) (Redford, unpublished). Most of the wildlife items are bought wholesale by Thai traders who can sell them profitably in their country.

WILDLIFE AS MEDICINE

Traditional Burmese medicine is based on the Ayurvedic system of medicine practised in India, but encompasses some of the metaphysical teachings of Buddhism. Up until the 1920s, over 90% of the rural population depended upon this form of medicine (Anon., 1951), but modern medicine has become increasingly important. Unlike traditional Chinese medicine (TCM), animal products have seldom been used in the traditional medicine of Myanmar. There are some exceptions such as python gall bladders (which are consumed by the Pa Oh tribe in the Shan State), bear gall bladders, Tiger teeth and Tiger bones (Table 6)

There were many more TCM shops in Myanmar prior to the military coup in 1962, when many Chinese left the country. Most wildlife products used as medicinals are now collected for export to China and Thailand where they fetch higher prices. In the Chinese district of Yangon, in and around Bandoola Street, there were



This medicine shop in Yangon sold rhino products in 1981, but is no longer able to obtain such items owing to the near extinction of the Sumatran Rhino in Myanmar.

nine shops selling TCM medicines in late 1995, mostly to local Chinese: seven of these outlets sold herbs and packaged medicines from China, while two larger shops also sold raw animal products: Tiger bones, bear gall bladders, pangolin *Manis* scales, tortoise shells, and python gall bladders (Table 5). Since the early 1990s, business has picked up for the two larger shops because more Asians coming to the country, both as tourists and to visit relatives, seek raw animal products to bring home with them. According to the shopkeepers, Japanese nationals want to buy bear gall bladders, in particular; Singaporeans ask for swiftlet birds' nests; Thais typically look for dried bear gall bladders, swiftlet birds' nests and Tiger bones; and South Koreans favour antlers. Taiwanese visitors are said to ask for Tiger penises but TCM shop owners are unable to obtain them. Chinese nationals purchase the largest selection of animal parts: pangolin scales, otter skins, deer antlers, Tiger bones, swiftlet birds' nests and tortoise shells. These products come mostly from hunters in the Pegu-yoma Hills, the Shan State, and the Chin Hills.



Item	Use/cure	US\$	Kyat
Bear ¹ gall bladder (dried)	<i>angina pectoris</i>	85	10 000
Pangolin <i>Manis</i> scale	boils	46/kg	5500
Python <i>Python</i> gall bladder (large, dried)	to restore speech following a stroke	33	4000
Tiger <i>Panthera tigris</i> bone	rheumatism	51/kg	6100
Tiger tooth	to make children brave	?	?
Tortoise ² shell (piece)	to improve kidney function	?	?

Table 5. Wild animal products for retail sale in traditional Chinese medicine shops in Yangon, December 1995. Survey by the author. ¹Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* ²species unknown

The horn, skin and blood of rhinos were for sale in Yangon's TCM shops at least until the early 1980s (Martin, 1983), but have not been available for some years.

The two TCM shops operating in Mandalay, both owned and managed by Chinese doctors, were selling a few pangolin scales, bear gall bladders, antlers, tortoise shells, python gall bladders, a sting ray (for alleviating muscle strains/cramps), oyster shells (for curing boils) and a species of beetle (taken to improve circulation).

Taunggyi, south-east of Mandalay and the administrative capital of the Shan State, is a large trading centre comprising Chinese, Burmese, Shan, Indian and Gurkha traders. Foreigners cannot travel east of this town owing to the danger posed by the presence of Shan warlords and smugglers of drugs, gemstones and wildlife. Many smugglers operate their trading networks from Taunggyi to Thailand in the east and China in the north. Opium and gemstones (such as jade) are sent to Thailand, and wildlife products are sent through the infamous golden triangle (an opium-producing area of Southeast Asia comprising parts of Myanmar, Lao PDR and Thailand) to Tachilek and Mae Sai, while in return come consumer goods which are for sale in Taunggyi's main market. Animal products are not available in this market. However, an open-air stall in the town, on the corner of General Aung San Street opposite the main market, displayed the largest variety of animal products seen by the author in Myanmar (Table 6). This is the only outlet for the sale of animal products in this town.

Most are used as medicines. The owner, a Burmese, had been selling his goods there for 40 years, preferring to remain safely with his family than to risk encounters with armed insurgents on the journey to the Thai border. He obtains his wildlife goods from forests, 20 km to 70 km east of Taunggyi. The hunters there are mostly Shans and Karens who kill Tigers, bears, Takins, Wild Pigs and smaller animals with the use of guns and wire snares. The vendor's main customers are Burmese, Shans, Pa Ohs and Chinese, mostly from the Taunggyi area, and not foreign tourists. Popular items include elephant skin, and various horns and antlers and altogether he claims to gross 4000 kyats to 6000 kyats (US\$33 to US\$50) a day.

A Chinese doctor who runs a small clinic in Taunggyi buys all his medicines ready-packaged from China's Yunnan Province. He is occasionally offered bear gall bladders and Tiger bones, but they are too expensive for him to purchase.

Since 1980, there has been demand in Myanmar for rhino urine to reduce chest congestion. This use arose following the gift of two Greater One-horned Rhinos *Rhinoceros unicornis* to the Burmese Government from the King of Nepal. The animals were sent to Rangoon Zoo and cared for by a Nepalese veterinarian who informed the zoo keepers that the Nepalese and Indians drink rhino urine to treat chest congestion and asthma. When the author first visited the zoo in January 1981, the zoo keepers were accepting small payments from Burmese and Indians for urine taken from the rhinos (Martin, 1983). This continued regularly until the animals died in June 1993. Since then, the keepers have collected urine from two tame White Rhinos - about once every two weeks - for sale to the public. The zoo provides no other animal products to visitors, although Tiger whiskers are occasionally requested.

Item	Use/cure	US\$	Kyat
Bear ¹ claw	strength	4.17	500
Bear gall bladder (dried)	asthma, malaria	100	12 000
Bear oil	prevents baldness	2.50/50 ml bottle	300
Elephant <i>Elephas maximus</i> skin	skin diseases	10.21/kg	1225
Gaur <i>Bos gaurus</i> horn	eye infections	?	?
Otter ² penis	aphrodisiac	5	600
Pangolin <i>Manis</i> scale	children's tonic	0.33	40
Peafowl <i>Pavo cristatus</i> leg and claw	?	?	?
Porcupine ³ quill	nose bleeds	0.08	10
Python <i>Python</i> gall bladder (dried)	stroke	2.50	300
Python <i>Python</i> skin	rashes, ringworm, warts	?	?
Tiger <i>Panthera tigris</i> bone	to give courage/strength to children	51/kg	6100
Tortoise ² shell (whole)	kidney	0.80	100
Wild Pig <i>Sus scrofa</i> tusk	smallpox	1.67	200

Table 6. Medicinal products from wild animals, mostly for use in traditional Burmese medicine, for retail sale by a street vendor in Taunggyi, December 1995. Survey by the author. ¹Asiatic Black Bear *Ursus thibetanus* and/or Sun Bear *Helarctos malayanus* ²species unknown ³*Atherurus macrourus* and/or *Hystrix hodgsoni*



WWF/E. Htantabin/Net

WILDLIFE AS FOOD

The quantity of wild animal meat sold in meat markets and restaurants in Myanmar's cities appears to be significantly less than that which is available in some cities in other parts



Mouse Deer *Tragulus nigricans*

of Southeast Asia (such as Ho Chi Minh City, Vientiane and Phnom Penh). However, around the small towns and villages, in areas with many deer, Wild Pigs, bears and wild cattle, such as in the Shan State, Kachin State, and in the Tanintharyi Division (formerly Tenasserim), there is much hunting for meat. A TRAFFIC Southeast Asia survey of wildlife trade in Mergui Tavoy District in south-east Myanmar in 1993 showed that wildlife was hunted both for local consumption and for trade, and included gibbons *Hylobates*, Spectacled Langurs *Presbytis obscura*, mouse deer *Tragulus*, Indian Muntjacs, Serows *Naemorhedus sumatraensis*, Common Palm Civets *Paradoxurus hermaphroditus* and terapins (Hill, 1993). The survey suggested that hunting in this area was not organized systematically but, rather, was opportunistic (Hill, 1993).

A significant number of wild animals - deer, Wild Pigs, pangolins, tortoises and snakes, for example - are transported, both dead and alive, to China for food. The Karens in the Mergui Tavoy District often sell their animal kills to Thai middlemen, who sometimes transport their purchases across the border in lorries owned by Thai logging companies. In 1993, meat was sold in this region for about US\$1.20 a kg in the villages and for US\$2.40 to Thai middlemen. Thai Government officials and villagers sometimes cross the border into Myanmar to hunt wild animals for meat, and then illegally take the carcasses back to Thailand to sell (Hill, 1993).

WILDLIFE AS PETS

The small flats and houses of Myanmar's large cities are unsuited to housing pets and, with the exception of birds and fish, wild animals are rarely sold for this purpose. Even the bird markets are small compared with elsewhere in Southeast Asia, demand for birds having been greater in Myanmar 30 years ago when more Chinese and Indians were resident in the country.

The main shops selling birds in Yangon are along Lanmadaw Street in the Chinese district: in December 1995 there were four small pet shops, three of which sold birds in cages, placed mostly out on the pavement, and one which sold only fish. Except for 37 Budgerigars *Melopsittacus undulatus*, reported to have been imported from Australia, all birds seen were indigenous species and included 88 pigeons which had been caught in and around Yangon, 74 parakeets

Psittacula from central Myanmar, 19 wildfowl from the delta region south-west of Yangon, 10 Hill Mynas *Gracula religiosa* from just north of Yangon and two Common Kestrels *Falco tinnunculus* from around the town of Pyi. Owing to lack of demand, the prices were low: US\$12.50 for each kestrel, the Hill Mynas and wildfowl were US\$4 each, the parakeets (the most popular birds) were US\$1 each, while the pigeons (which are also sold as food) were US\$0.42 each.

Throughout Myanmar, birds - mostly sparrows *Passer* spp. - are sold outside temples. These are bought mainly so that they can be released into the wild, an act considered by Buddhists to be a good deed. However, small numbers may be bought as inexpensive pets. One of the main wholesalers of sparrows supplies most of his sparrows to itinerant sellers at the temples in the Yangon area. He works from a flat in the Kanaawlay ward in the city and is supplied by about 10 to 15 traders. The birds are caught in the delta region southwest of Yangon, and transported to the city on schooners, a journey taking two days. The wholesaler also goes to the delta himself to buy sparrows. He claimed that about 20% of all the birds die on the return journey, while a further 20% die awaiting sale. In 1994, this dealer bought an average of 25 500 birds a month, but in 1995 he could only buy a total of about 15 000 a month, presumably, according to the trader, owing to their reduced numbers in the wild. In that year, he received 1000 birds every other day and, depending on the season, paid US\$0.10 to US\$0.125 per sparrow. He sold them for US\$0.13 to US\$0.21 each to 10 or 20 regular customers who, in turn added a few kyats mark-up. If an itinerant trader managed to sell a hundred birds a day (a good return for a day's work), he earned about US\$25 gross, while his net earning was about US\$6.

There is no formal bird market in Mandalay but, as in Yangon, specimens may be purchased outside the main temples for the purposes of release, and as pets. For example, at the Mahamuni Temple, baskets of Spotted Doves *Streptopelia chinensis* and sparrows were being sold, respectively, for US\$1.25 and US\$0.17 each.



Common Kestrel *Falco tinnunculus*

GOVERNMENT EXPORTS OF WILDLIFE

The Myanmar Forest Department has been exporting live animals and wildlife products for years in order to earn hard currency for the Government. For example, elephant ivory was a major export commodity from 1970 to about the late 1980s. However, as most of the relevant Forest Department documents were destroyed

in 1988, few records for that period survive. Official statistics from Thailand, however, show that from 1982 to 1986, an annual average of 115 kg of ivory was officially imported to Thailand from Myanmar (Parker, 1989). In addition, Hong Kong Customs statistics recorded the importation of 91 kg of raw ivory from Burma in 1979, and Macao Customs recorded 100 kg in 1984 (Parker, 1989). According to the Forest Department statistics, 133 kg of ivory were exported in 1988 at an average price of US\$86.64 a kg, while in 1989 two tusks were sold to a Singaporean company for US\$595; no weight was given. These ivory imports apparently contravened CITES.

The Forest Department also sold live elephants to foreign traders. In the fiscal year 1987/88, three elephants were exported to a dealer in the Netherlands for US\$13 000 each, and two to a dealer in Japan for US\$13 500 each. In the following fiscal year, a further nine elephants were exported to the same dealer in the Netherlands, again for US\$13 000 each, followed by another 14 in 1989/90, for US\$16 000 each. These sales of CITES Appendix I-listed species caused a stir in the international press and reports of assurances from Myanmar that the animals had been bred in timber camps could not be proved (Broad, 1990). As a result, the CITES Secretariat issued a statement in that year recommending that import licences for elephants from Myanmar should not be granted by Parties unless reliable evidence were given that the elephants had been captive-bred (Broad, 1990). The Dutch trader, however, continued to buy elephants from the Myanmar Forest Department and to export them: 14 in 1990/91 for US\$17 000 each, and two in 1993/94 for US\$18 000 each. In Europe, a female Asian Elephant with correct documentation was worth at least US\$35 000 in 1995 (H. Demmer, pers. comm., 1996).

The Forest Department also earned hard currency by exporting other live animals. Figures from the Forest Department are again incomplete, but there are comprehensive records for 1988/89 for the export of Hill Mynas, parakeets and Rhesus Monkeys *Macaca mulatta*. In that year the Department tried to export about 5000 Hill Mynas, but sold only 2450, earning the country US\$34 875, or an average of US\$14.23 per bird. The Department planned to export 1000 parakeets, but only 583 were sent abroad, fetching US\$3452, or US\$5.92 each. The export projection for Rhesus Monkeys was 200 but only 64 were sent out of the country in that year for US\$12 800, or an average of US\$200 per monkey.

WILDLIFE DECLINE IN MYANMAR

In late 1995 there were reports of a continuing decline in the numbers and ranges of many wildlife species from the effects of hunting and diminishing habitat. A Catholic priest who has lived in Kalaw since the 1930s stated that most of the larger species in the area had disappeared over recent years as a result of heavy hunting by the Karen and the army (A. de Meiro, pers. comm., December 1995). Medicine shop owners say they are no longer offered rhino products (except

urine from zoo specimens) as the animals have been poached virtually to extinction in Myanmar. A survey in 1994 to find rhinos in Tamanthi Wildlife Sanctuary in north-west Myanmar (the most likely area for any remaining Sumatran Rhinos), was unable to locate any, although it is believed that one or two might be left in this sanctuary (Rabinowitz *et al.*, 1995). There may also be some specimens left in Tamanthi, Kahilu Wildlife Sanctuary and in Putao District (Uga, 1993).

The sharp increase in ivory prices since the late 1980s can be attributed to the growing demand for a dwindling resource, and would seem to indicate that the elephant population in Myanmar is shrinking (R. Sukumar, pers. comm., 1996).

Tiger parts are also becoming more difficult to obtain. A major souvenir trader in Pyin Oo Lwin stated he is only offered a Tiger carcass every three to four years compared with more frequently in the past. He last purchased a Tiger carcass in 1995. The animal was 1.5 m in length and cost US\$167; the trader later sold the specimen for US\$317 to a Chinese doctor in the area. Another trader confirmed that Tigers in the Shan State are becoming rarer owing to over-exploitation.

ENFORCEMENT

Myanmar's illegal wildlife trade continues to flourish largely because of a lack of commitment to protecting wildlife, resulting in poor law enforcement. The lucrative income derived from wildlife encourages the poachers and smugglers in Myanmar to continue in the business, either until the animals cannot be found or until Myanmar and neighbouring countries more rigorously enforce their wildlife laws. However, the Forest Department does not have sufficient manpower and equipment to patrol and manage the wildlife areas adequately. This is particularly true in certain parts of the country taken over by insurgent groups: the Mergui Tavoy District in the Karen State of Kawthoolei, for instance, is unofficially administered by the Karen National Union which allows the sale of live elephants to Thailand - at least 42 were exported in 1992 alone. The Karen National Union does, however, prohibit the killing of elephants, rhinos, Malayan Tapirs *Tapirus indicus*, gibbons *Hylobates*, hornbills Bucerotidae and Green Peafowl *Pavo muticus*, and outlaws the transport of wild animals (except elephants) and their products out of the region, but again these laws are often ineffective owing to lack of control and commitment (Hill, 1993). A further problem is that the work of the Forest Department focuses more on forest utilization than on wildlife conservation (Uga, 1993; IUCN, 1991; Blower, 1985; Rabinowitz *et al.*, 1995). There are few arrests of wildlife traders. For example, the main wildlife trader in Taunggyi displays Tiger bones and skins on the pavement of the busiest street in the city.

Although Myanmar has recently joined CITES, it is not party to any of the other major international wildlife treaties such as the World Heritage Convention or the Ramsar Convention.

CONCLUSIONS AND RECOMMENDATIONS

There exists a sizeable, largely illegal, trade in wildlife in Myanmar for tourist souvenirs, and to a lesser extent for medicine and food. The main product used is ivory, about half of which is illegal. There is clearly a considerable illegal export trade in wildlife commodities, predominantly to China and Thailand. Of the areas visited, by far the largest quantity of wildlife products offered for sale in a single location was at the border town of Tachilek, and just across the Thai border in Mae Sai. In addition, there have been officially sanctioned exports of natural resources including live animals. Although scientific study of wildlife populations of Myanmar has yet to be carried out, and knowledge obtained from wildlife traders and market surveys is limited, there is enough circumstantial evidence to suggest the decline of certain species. It is imperative that Myanmar's wildlife areas be surveyed soon and regularly, and that Tachilek, one of the country's main wildlife trading centres and a location easy to visit and to monitor, be studied frequently in order to learn about quantities and turnover of animal products.

The Myanmar Government has hitherto not demonstrated sufficient commitment to stopping the illegal killing and trade in wild animals and greater efforts must be taken to enforce the country's laws in this regard. Further, a thriving underground economy in illegal exports of opium, timber, gemstones and wildlife, which is often controlled by people of influence to those in authority, has served to inhibit action by the Government to provide for greater protection of endangered species in the country. Perhaps following Myanmar's recent accession to CITES, some officials may become more committed to implementing wildlife trade controls. But a great deal of effort and resources will be needed to put in place the proper enforcement measures.

REFERENCES

- Anon. (1956-1962). *Annual Trade Report of Kenya, Uganda, and Tanganyika*. East African Customs and Excise, Mombasa, Kenya.
- Anon. (1951). *Report of the Committee of Enquiry into the Indigenous System of Medicine*. The Government of Burma. Government Printing and Stationery, Rangoon, Burma.
- Anon. (1991). *The 1992 Information Please Environmental Almanac*. Compiled by World Resources Institute. Houghton Mifflin Company, Boston, USA.
- Anon. (1993). *Southeast Asia Rainforests: A Resource Guide and Directory*. Rainforest Action Network, San Francisco, USA.
- Anon. (1994). Ministry of Forestry, Forest Department. Notification No. 583/94, 26 October. The Government of the Union of Myanmar. Unpublished.
- Anon. (1995a). *Selected Monthly Economic Statistical Indicators*. Paper No. 3. Central Statistical Organization, Yangon, the Government of the Union of Myanmar.
- Anon. (1995b). *Statistical Abstract 1994*. Central Statistical Organization, Yangon, the Government of the Union of Myanmar.
- Anon. (1996). *The Economist*. 6 April. Pp.65-66.
- Anon. (1997). *Whitaker's Almanack*. J. Whitaker & Sons Ltd., UK.
- Blower, J. (1982). Species Conservation Priorities in Burma. In: Mittermeier, Russell and Konstant, William (eds). *Species Conservation Priorities in the Tropical Forests of Southeast Asia*. Occasional papers of the IUCN Species Survival Commission (SSC), No.1, IUCN, Gland, Switzerland.
- Blower, J. (1985). Conservation priorities in Burma. *Oryx* 19:79-85.
- Broad, S. (1990). Controversy over Asian Elephants. *TRAFFIC Bulletin* 11(4):49.
- Hill, G. (1993). Wildlife trade in Mergui Tavoy District, Kawthoolei, December 1991-April 1993. A TRAFFIC Southeast Asia Field Report. Unpublished.
- IUCN (1991). *Protected Areas of the World. A review of national systems*. Vol. 1: Indomalaya, Oceania, Australia and Antarctic. Gland, Switzerland.
- Klein, W. (1994). *Insight Guides. Myanmar, Burma*. APA Publications (H.K.), Singapore.
- Kunz, G.F. (1916). *Ivory and the Elephant in Art, in Archaeology, and in Science*. Doubleday, Page and Co., Garden City, New York, USA.
- Martin, E.B. (1983). *Rhino Exploitation: The Trade in Rhino Products in India, Indonesia, Malaysia, Burma, Japan and South Korea*. WWF-Hong Kong.
- Milton, O. and Estes, R. (1963). *Burma Wildlife Survey, 1959-1960*. Special Publication No.15, American Committee for International Wild Life Protection, New York, USA.
- Parker, I.S.C. (1989). The raw ivory trade 1979-1987. A consultancy report for Parties to CITES through the Secretary General. Unpublished.
- Rabinowitz, A., Schaller, G.B., and Uga, U. (1995). A survey to assess the status of Sumatran rhinoceros and other large mammal species in Tamanthi Wildlife Sanctuary, Myanmar. *Oryx* 29(2):123-128.
- Redford, T. (1994). An investigation of wild animal trade on the Thai/Burmese border at Mae Sai. Unpublished.
- Uga, U. (1993). Conservation of wild populations of rhinoceros: country conservation action plan Myanmar. Report submitted to the UNEP Conference between the rhinoceros range states, consumer states and donors on financing the conservation of the rhinoceros. Unpublished.
- Vatikiotis, M. and Holloway, N. (1995). Almost back in favour: international donors flirt with Burma's generals. *Far Eastern Economic Review* 23 November. P. 80.
- Watt, G. (1904). *Indian Art at Delhi 1903*. John Murray, London, UK.

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