THE PRESENT-DAY TRADE ROUTES AND MARKETS FOR RHINOCEROS PRODUCTS

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INTRODUCTION

African and Asian rhino products, especially the horn, have been traded for over two thousand years. From 1985 to 1990, the time period emphasized in this paper, there have been some major changes in the trade routes and markets for rhino products. In order to improve the conservation of the five species of this endangered animal, it is important to understand these changes so that those middlemen who still buy the illegal products are arrested, and the remaining retail markets are closed. From 1979 to 1987, almost a ten-year period, the wholesale prices for rhino horn remained roughly the same despite a sharp decrease in the quantity of horn put onto the markets. Thus, demand for rhino horn declined sharply over this time. However, beginning in late 1987, demand once again rose for both African and Asian horns, increasing substantially the price paid to the poachers and middlemen in the field. Therefore, it still is necessary to obtain yet better management, more resources, and skilled manpower from governments and conservation organizations in order to improve law enforcement in certain countries and to eliminate the few remaining critical markets. Furthermore, it is important to publicize the fact that a new study, carried out by three well-respected Chinese scientists, has shown that saiga antelope horn is just as effective medicinally as rhinoceros horn.

TRADE ROUTES WITHIN AND OUT OF AFRICA

From the mid-1980s to 1990, there have been two main areas, home to Africa's last large rhino populations, where considerable numbers of rhinos have been killed: eastern Africa, especially Tanzania, and Zimbabwe.

East African Horn

Accurate figures are lacking on the number of black rhinos killed in eastern Africa during this period, except for Kenya. However, in most other eastern African countries, such as Ethiopia, Rwanda, Somalia, Sudan and Uganda, there were few animals left by 1985 so those killed since then could certainly not have been numerous. In Kenya, from 1986 to 1989, there has been, in fact, three-and-a-half times more births than deaths and the population has been increasing on average by 5% per annum[1]; this trend has continued to 1990[2]. No such increase has occurred in Tanzania, however. Western and Vigne reported that in 1984 there were about 3,130 black rhinos in Tanzania[3] which now in retrospect appears to have been probably too high. Whatever the true figure, rhino poaching, especially in the Selous Game Reserve where the great majority of rhinos lived, was very serious in the middle and late 1980s. Today, perhaps only 275[4] animals remain in the whole of Tanzania.

Up to late 1987, most of the horns taken from poached rhinos in eastern Africa, over 90% originating in Tanzania, were sent to Burundi from where they were exported to Arabia, especially Dubai. From there, these horns were sent either to Sanaa in Yemen, or to eastern Asia (which will be described in a later section of this paper)[5]. According to confidential reports from businessmen in the Arabian Gulf, in 1985 and 1986, traders in Dubai were paying on average from $500 to $700 a kilo for the horn. By the time it reached Sanaa, dealers were paying about $800 to $1,000 a kilo for it.

At the sixth meeting of CITES in Canada in July 1987, Burundi was severely criticized by the member states for allowing this rhino horn trade to continue. Afterwards, the government of Burundi was attacked in some of the main newspapers and by other media both in the western world and in the third world. Finally, after a change in Burundi's government, in late 1987 the new government stopped effectively rhino horn exports. Once this major entrepot was closed down, most horn from eastern Africa was moved in the opposite direction to the coasts of Kenya, Somalia and Tanzania, to be loaded onto ships, or it was flown out from Addis Ababa and Khartoum. From these places, the great majority of it was taken to Yemen by nationals of these various African countries whose families often had originated from Yemen. By late 1990, Sanaa traders were paying the importers about $1,360 a kilo for the horn[6].

However, the amount of horn going into Yemen from 1984 to 1990 has decreased very sharply. In the early 1980s a minimum of 1,500 kilos were imported annually into the country, but by 1985 this figure had dropped probably to under 1,000 kilos and from 1986 to 1989 to less than 400 kilos per annum. By 1990, probably under 200 kilos were imported[7].

Southern African Horn

The second main area in Africa supplying rhino horn was the Zambezi Valley of Zimbabwe. According to official figures, from July 1984 to November 1990, a minimum of 557 black rhinos had been illegally killed in the Zambezi Valley (see Table I). Rhino poaching gradually increased in the Valley from 107 in 1985 to a peak of 165 in 1987, then declined sharply to 74 in 1988, 41 in 1989 and ten in 1990 (up to early November). Almost all these rhinos were shot by Zambians, who, working in gangs, transported much of the horn back to Zambia. In addition to the rhinos poached in the Zambezi Valley, a minimum of 225 black and white rhinos were killed since mid-1984 in other parts of Zimbabwe, thus making a total of at least 782 rhinos known to have been poached in the entire country during this period[8].

Besides the large number of rhinos which were killed in Zimbabwe from 1985 onwards, other populations in southern Africa were also poached. Zambia had lost almost all its remaining rhinos by 1990, but precise figures do not exist. In Namibia, 29 black rhinos were poached in 1989 (23 in Etosha and six in Damaraland) and in 1990 (up until November) two black rhinos in Etosha and two white rhinos on private land were killed[9]. A few rhinos were poached in Mozambique, South Africa, Swaziland and other countries in southern Africa.

Before the Burundi entrepot had been closed down, much of the southern African horn was transported to places in Zambia, such as Lusaka and Mpulungu on Lake Tanganyika, from where it was taken to Burundi's capital, Bujumbura. But from late 1987, with the closure of Burundi for wildlife trade, this horn went in the reverse direction: from Lusaka to destinations in South Africa. Throughout 1988, considerable quantities of rhino horn were exported by Taiwanese, South Africans and some other nationals to Taiwan by ship and aeroplane. From mid-1988, the world's press began to expose this Zambian/South African/Taiwan connection, and the South Africans initiated strict plans to stop it. Most importantly, the government set up the Endangered Species Protection Unit staffed by police officers who specifically investigated the illegal trade in rhino products. Beginning in October 1988, government officials from Botswana, Namibia and especially South Africa started to produce revealing results. In October, the Botswana Customs and Excise examined a false compartment in a lorry at the Kazungula Ferry at Botswana's border with Zambia. This lorry was destined for South Africa and contained 94 rhino horns, most likely supplied by traders in Lusaka[10]. In another incident, in August 1989, a Taiwanese resident of Cape Town was arrested for illegal possession of one rhino horn[11]. Probably the largest collection of rhino horn seized at one time in South Africa occurred in September 1990 when several Taiwanese were arrested with 114 rhino horns[12]. According to Clive Walker and Peter Hitchins who examined the horns, 109 were from the black rhino and originated in Zimbabwe; there were also five white rhino horns which probably came from Swaziland[13]. Although traders attempted to export most of these horns from southern Africa to Taiwan, a

Table I. Minimum Number of Rhinos Killed Illegally in Zimbabwe from July 1984 to November 1990

In Zambezi Valley

Year	Number
July 1984 to December 1984	12
1985	107
1986	148
1987	165
1988	74
1989	41
1990 to 12 November	10
Subtotal	557

In Other Areas

Place					Number
Matusadona	most killed	1989			38
Chete	" "	1987, 1988			63
Chizarira		1987			40
Hwange		1987		8	
		1988		11	
		1989		15	
		1990	black	12	
			white	1	
			Subtotal		46
Kyle			white		1
Private Land					1
Gonarezhou		1986-1989			34
Communal land near Matusadona					1
			Subtotal		225
			Grand Total		782

Source: Department of National Parks and Wildlife Management

Table II. Number of Known Rhinos Poached in Assam, India, from 1985 to 1989

Area	1985	1986	1987	1988	1989	Total
Kaziranga National Park	41	41	24	24	36	166
Near Kaziranga National Park	1	4	0	6	8	19
Laokhowa Wildlife Sanctuary	0	0	0	0	1	1
Manas Wildlife Sanctuary	2	2	7	1	6	18
Orang Game Reserve	8	3	1	4	5	21
Pobitora Wildlife Sanctuary	2	0	2	2	2	8
Other places in Assam	0	0	7	3	0	10
Total	54	50	41	40	58	243

Source: Chief Conservator of Forests, Assam

Table III. Minimum Number of Rhinos which Died in Nepal from 1973 to 1990

A. Within Chitwan National Park

Year	Poaching	Killed by Tigers	Natural Deaths
1973	5	2	4
1974	2	1	7
1975	0	0	2
1976	2	0	1
1977	0	0	5
1978	0	0	7
1979	0	0	6
1980	0	0	8
1981	0	0	3
1982	0	0	7
1983	0	1	2
1984	2	0	2
1985	0	0	2
1986	3	0	2
1987	0	1	5
1988	3	1	0
1989	1	2	6
1990	2	0	3
Subtotal	20	8	72

B. Just Outside Chitwan National Park

Year	Poaching	Killed by Tigers	Natural Deaths
1973	2	0	4
1974	2	0	4
1975	1	1	5
1976	0	1	1
1977	0	0	2
1978	0	0	4
1979	0	0	2
1980	0	1	2
1981	0	0	8
1982	0	0	6
1983	0	0	3
1984	4	0	8
1985	2	0	4
1986	0	0	4
1987	0	0	2
1988	0	0	1
1989	0	0	1
1990	3	0	5
Subtotal	15	3	69

C. Other Areas

Year	Place	Number Poached
1989	Outside Bardia National Park	1
1990	In the Central Zoo, Patan	2

D. Total Number of Rhinos Poached in Nepal

Year	Number	Year	Number
1973	7	1983	0
1974	4	1984	6
1975	1	1985	2
1976	2	1986	3
1977	0	1987	1
1978	0	1988	3
1979	0	1989	2
1980	0	1990	7
1981	0		
1982	0	TOTAL	38

Source: Chitwan National Park Headquarters, Kasara

few were smuggled into Hong Kong[14]. It was, however, becoming increasingly difficult to smuggle rhino horn from South Africa into Asian countries[15]. Therefore, in 1990, traders in Taiwan started to organize shipments directly from Zambia. In July 1990, Taiwanese customs officials confiscated nine rhino horns which probably came from Zambia. Later, in December 1990, 28 kilos of rhino horn were found by Taiwanese customs in a crate which had been also shipped from Zambia[16].

TRADE ROUTES FOR ASIAN RHINO PRODUCTS

India

From 1985 to 1989, more rhinos were poached in India's north eastern state of Assam than anywhere else in Asia: a minimum of 243 animals [17] (see Table II). The main reason for this was that the price the poachers obtained for the horn from these greater one-horned rhinos rose steadily from about $2,600 per kilo in 1986 to $6,250 in 1989[18] as there was a sharp increase in demand for Indian rhino horn in Taiwan. In Taipei in early 1990, the import price for it was over $20,000 a kilo while the wholesale price was a phenomenal $45,000 a kilo. The Taiwanese pay the highest prices in the world for Indian horn which they believe is of the best quality medicinally of all the five rhino species. Some people in Taiwan are even buying Indian horn purely as an investment[19].

Several traders in Assam, from Dhing in Nagaon district, Behali on the northern bank of the Brahmaputra River, Naozan on the border with Nagaland, and from Bokakhat, collect the rhino horns from the poachers[20]. From Assam the horns probably go south to Calcutta and then to eastern Asia. In the early 1980s, most horn went to Singapore because this city state was not a member of CITES until early 1987. However, in the late 1980s, the Taiwanese were spending more for the horn, so it was, and still is, shipped to Taiwan instead, directly or sometimes via Hong Kong. On our recent survey in Singapore, carried out in December 1990, I could identify only one medicine shop (out of ten which had horn in 1988) still selling Indian rhino horn, compared with at least five in Taipei in the same year.

Sumatra

The other main area in Asia where rhinos are being poached extensively is Sumatra. There are approximately 600 Sumatran rhinos on the island[21]. Raleigh Blouch, who carried out fieldwork there in the early and middle 1980s, estimated that a minimum of 10 to 20 rhinos were killed each year during this period[22]. Other experts, such as Francesco Nardelli, believe that the true figure is substantially higher[23]. Most of this horn was being sent to Singapore which is still the world's main market for Sumatran horn. In December 1990, of the ten medicine shops found selling rhino horn in the city, six of these sold Sumatran horn. In a previous study, in 1986, of the 13 medicine shops found selling rhino products, eight offered Sumatran horn. Singapore is also the main end market for nails and hide from the Sumatran rhino. In December 1990, at least four of the six medicine shops with hide sold that from the Sumatran species, while at least four of seven pharmacies with nails sold those from this very rare animal[24].

Nepal

Regrettably, in 1990, poaching started up in another part of Asia where rhinos had not been seriously threatened since 1973. This was Nepal. From 1974 to 1989, less than two greater one-horned rhinos on average were illegally killed each year (see Table III), but in 1990, seven were poached out of a total population in Nepal of about 400 animals[25]. It started on 27 January when the Central Zoo authorities near Kathmandu discovered that their 15-year-old female and six-year old male, held in separate cages, had both been administered a poison containing zinc phosphide. Only the tiny horn of the young male had been cut off, in a gruesome manner, and taken[26]. From May to July, five more rhinos were either speared,

shot or poisoned in and around Chitwan National Park solely for the horns. Two of them were poisoned, the first such cases ever in the wild in Nepal. The poison, a pesticide, was put into green maize cobs and pumpkins growing just outside the Park. The rhinos ate these and died, one having first staggered back into the Park. A reason for this increase in poaching is that the intelligence network set up by the National Parks has unfortunately collapsed. Government officers believe that all the horns taken by poachers were moved south into India. This is probably correct as there is little demand for horns in Nepal, and traders know they can earn more by exporting them. I have never found large pieces of rhino horn for retail sale in Nepal (but I have seen antiques such as bowls carved from rhino horn for sale in the Kathmandu Valley).

THE MAIN MARKETS FOR RHINO PRODUCTS

Yemen

From the early 1970s until 1984, Yemen was the major consuming country in the world for rhino horn. Almost all this horn was used to make dagger handles and the waste was sent to China and South Korea to be made into medicines. As a result of pressure from the international conservation community, in the mid-1980s, the Yemen government began to bring in new laws and enforce old ones against this trade. Craftsmen found that in local currency, rhino horn was becoming more and more expensive so they turned to carving cheaper substitutes. Most dagger handles today are made from an amber-coloured plastic and very few are still carved from rhino horn. Small, old rhino horn-handled daggers can be bought for a minimum of $300. In 1990, less than 200 kilos of rhino horn were used to make these handles, despite the fact that more craftsmen in Sanaa are producing daggers than in 1986. Yemen is thus no longer a great problem concerning the rhino horn trade[27].

China

Unfortunately, one cannot state the same for China where pharmaceutical factories are manufacturing more medicines containing rhino horn than in any other country. At the end of 1989, the first official stock-take of rhino horn in China was carried out. Not all factories and import/export corporations took part, and individual medicine shops were not even asked, but nevertheless, a staggering 9,875 kilos were counted[28]. The factories admitted using on average about 650 kilos of rhino horn a year, including some from pulverizing valuable and rare rhino horn antiques[29], to incorporate in medicines. These medicines are for sale legally in China, but not allowed to be officially exported by the factories or corporations. Although some is sold to those local Chinese who can afford it, the great majority is bought by overseas Chinese visiting the country who simply take the medicines out with them. Luggage is rarely inspected for medicines at China's exit points. Many of these medicines, such as "Niu Huang Ching Hsin Wan" made by the Beijing Tongren Tang Factory and "Laryingitis Pills" manufactured by the Chengdu Traditional Chinese Pharmaceutical Factory, have their labels written in English so that Chinese people from Singapore, Malaysia and elsewhere can read the instructions.

In January 1991, I visited Shenzhen on the border of Hong Kong. It is the first Special Economic Zone in China to have been set up by the government. Many tens of thousands of people from Hong Kong come each year to Shenzhen for business, shopping and entertainment. Some only spend a day while others stay in the many hotels and resorts. Scores of traditional Chinese medicine shops are located all over Shenzhen, especially in tourist areas such as the station, shopping complexes and hotels. The Hong Kong Chinese, and other overseas Chinese who visit, buy large quantities of medicines to bring home. Some of them contain products from endangered species such as rhino horn which are not available for retail sale in places such as Hong Kong and Macao, as they are banned. I carried out a survey of 25 retail pharmacies in Shenzhen and at least nine sold medicines containing rhino horn. The most common were the previously mentioned "Niu Huang Ching Hsin Wan" which were $9 a box, "Laryngitis Pills" and "An Gong Niu Huang Wan" made in Beijing which cost $25 for a large box. Many medicines are newly manufactured.

For example, most of the boxes of "Niu Huang Ching Hsin Wan" were dated 1990. By allowing this trade to continue, the Chinese authorities are going against CITES Resolution 6.10 which urges all party states to ban internal trade in rhino products and derivatives. As these rhino horn-based medicines are easily available to buy in places such as Shenzhen, their continued sales are encouraging rhino poaching to provide more horn for this market.

South Korea

Another country which allows rhino horn to be sold internally is South Korea. In late 1988, Tom Milliken and Cecilia Song from TRAFFIC Japan carried out a survey of 59 Oriental medicine clinics in Seoul. They found that rhino horn, including derivatives, were offered for retail sale in 86% of them. The retail prices for rhino horn had gone up, compared with 1986, by more than double to $4,410 a kilo, showing that demand had significantly increased over those two years[30]. It is not clear whether large new supplies of rhino horn are now entering the country (which would be illegal) or if the Oriental medicine clinics are using up their old stocks. Tom Milliken and Cecilia Song had meetings with various government officials in South Korea in 1990 in order to close down this trade, but so far, the government has been unwilling to commit itself either to joining CITES in the near future or to prohibiting the internal trade in rhino products[31].

Taiwan

On the other hand, Taiwan, which was the largest importer of rhino horn in the late 1980s, is now moving ahead with a government plan to shut down the internal sales of rhino products. In June 1989, new legislation was introduced which made it compulsory to register all protected species and their parts. The registration period was extended to the end of November 1990 for rhino horn, but it is not yet complete. Nevertheless, preliminary information shows that a minimum of 1,415 kilos of horn and powdered horn have been registered on the island. As expected, over half of Taiwan's rhino horn stocks were registered in three places: Taipei (99 individuals or companies who registered 439 kilos), Taipei County (83 registrants with 126 kilos) and Kaohsiung (16 registrants possessing 195 kilos of horn). The government plan is to allow those companies or individuals who officially recorded their rhino horn stocks to continue to sell them for about three years following registration[32].

Thailand

The government of Thailand has not yet agreed to carry out a stock-take of rhino products nor has it agreed to initiate a ban on internal trade in all rhino products. The government has done very little at all to alleviate the problem. Rhino horn and skin continue to be brought into the country from both Africa and elsewhere in Asia. The government very rarely intercepts any of it. Recently, rhino horn has come onto the Thai market in a major way from neighbouring Laos. In February 1990, I saw eight horns for sale in Vientiane's jewellery and antique shops. I was told that most horns come from Laotian animals and that some pieces were quite old. The average retail price per kilo was $16,594. Almost all the buyers of rhino products in Vientiane are Thai businessmen who bring the horns and nails back home with them to sell. No government authority attempts to stop them from illegally importing these rhino products.

Thailand's traditional medicine shops contain many rare and endangered wildlife products, but these shops are almost never inspected due to the general apathy of government officers. The official reason for this was explained to me by senior members of the Royal Forestry Department (which has the jurisdiction for wildlife and the trade in their products): they do not have the expertise to identify Thailand's endangered species nor do them seem willing to learn. Thus, if they brought a pharmacist to court for trading in Sumatran rhino horn, the officials claim they could not prove the authenticity of the horn. On the other hand, for exotic wildlife products such as rhino horn from Africa, there is no law prohibiting the possession and domestic sale of these products. As Thailand is a member of CITES, it must

comply with the CITES regulation prohibiting rhino imports, but once it is in the country, all this horn from the black, white and greater one-horned rhino can be legally owned and sold. For the last few years, a new wildlife law has been drafted to prohibit possession and sale of endangered exotic species, but it awaits the approval of the Thai parliament before it can be implemented.

In a survey of the Chinese medicine shops in Bangkok in 1990, Lucy Vigne and I found rhino horn (half African and half Asian) in 24% of the pharmacies we visited, and rhino hide in 46% of them. There is a greater variety of rhino products for retail sale in Bangkok than in any other city: horn ($21,354 a kilo for Asian and $10,286 for African), hide ($1,717 a kilo for Sumatran and $220 for African skin), and from the Sumatran rhino: nails (about $2,000 a kilo), penises ($700 each), dried blood ($160 a kilo) and dung ($32 a kilo).

WHAT NEEDS TO BE DONE TO CLOSE DOWN THE TRADE

It is imperative that the price of rhino horn does not rise significantly in the next few years, as this would give poachers a greater economic incentive to kill more rhinos. Thus, demand for rhino products must not be allowed to increase. One way of reducing demand is to eliminate the main markets left for rhino products: those in China, South Korea, Taiwan and Thailand. If rhino products were not available for retail sale, then pharmacists and doctors would not prescribe them and demand would fall. External pressure through the world's press, criticizing these four governments and encouraging them to close down the internal trade in rhino products, is probably the best way to accomplish this conservation goal.

Another strategy for lowering demand is to encourage further the use of substitutes such as saiga antelope horn. An new study, carried out by three scientists from the Department of Biology and the Chinese Medicinal Material Research Centre of the Chinese University of Hong Kong, shows that both rhino horn and saiga antelope horn equally cause "a significant drop in fever" when given in large doses to rats. The study also shows that water buffalo horn and cattle horn can lower fever as well[33]. This research paper was only published in the latter half of 1990 and should now be translated into the Chinese and Korean languages and widely distributed to doctors, pharmacists, and government officials involved in stopping the rhino horn trade. From the conservation point of view, the most important conclusion of this scientific study, which needs to be emphasized, is not that rhino horn has been proved to reduce fever, but that saiga antelope horn, already widely used for medicine in Asia, is just as effective as rhino horn, and, being far cheaper and far more common, it should be used instead of rhino horn. There is thus no longer any rational reason why rhino horn should be sold as an anti-pyretic.

REFERENCES

1. R.A. Brett, "The Black Rhino Sanctuaries of Kenya", Pachyderm, No 13 (1990), p.31.
2. R. A. Brett, personal communication, Nairobi, February 1991.
3. David Western and Lucy Vigne, "The deteriorating status of Africa's rhinos", Oryx, Vol XIX (October 1985), p.216.
4. D.H.M. Cumming, R.F. du Toit and S.N. Stuart, African Elephants and Rhinos, Status Survey and Conservation Action Plan, IUCN, Gland, Switzerland (1990), p.10.
5. Esmond Bradley Martin, "The Yemeni Rhino Horn Trade", Pachyderm, No 8 (April 1987) p.14.
6. Information given to Esmond Martin by rhino horn traders in Yemen and elsewhere in various years.
7. Information supplied to Esmond Martin by rhino horn traders in Yemen in various years.
8. Statistics supplied by the Department of National Parks and Wildlife Management, Harare, Zimbabwe, November 1990.
9. Interview with Eugene Jourbet, Head, Nature Conservation Research, Ministry of Wildlife, Conservation and Tourism (Namibia), Perth, Australia, 29 November 1990.

10. Lucy Vigne and Esmond Bradley Martin, "Taiwan: The Greatest Threat to the Survival of Africa's Rhinos", Pachyderm, No 11 (1989), p.24.
11. The Times, London, 14 August 1989.
12. Sunday Times, South Africa, 30 September 1990 and 20 January 1991; and letter from Peter Hitchins to Esmond Martin, 11 March 1991.
13. Letter from Clive Walker to Esmond Martin, 20 December 1990; Sunday Times, South Africa, 30 September 1990; and letter from Peter Hitchins, 11 March 1991.
14. For example, in February 1989, 18 black rhino horns were sent from South Africa to Hong Kong and were seized by government authorities (unpublished data from the Department of Agriculture and Fisheries, Hong Kong).
15. Personal communications with rhino horn traders in Taipei and Kaohsiung in April 1990.
16. Tom Milliken, Esmond Bradley Martin and Kristin Nowell, "Rhino Horn Trade Controls in East Asia", Traffic Bulletin, 1991, in press.
17. Figures from the Assam Forest Department, Guwahati.
18. Lucy Vigne and Esmond Bradley Martin, "Assam's Rhinos Face New Poaching Threats", forthcoming.
19. Chryssee Bradley Martin and Esmond Bradley Martin, "Profligate spending exploits wildlife in Taiwan, Oryx, Vol 25 No 1 (January 1991) p.19.
20. Vigne and Martin, "Assam's Rhinos. . .".
21. Mohd. Khan bin Momin Khan (compiler), Asian Rhinos: Action Plan for their Conservation, IUCN, Gland, Switzerland (1989, p.5.
22. Interview with Raleigh Blouch, Ottawa, Canada, 13 July 1987.
23. Interview with Francesco Nardelli, Singapore, 1 January 1988.
24. Surveys taken by the author in Singapore in December 1990.
25. Statistics from the Department of National Parks and Wildlife Conservation, Nepal.
26. S.R. Bhandary, B.S. Tuladhar, B.R. Thapa and J.S. Jha, "Malicious Poisoning in Rhinoceroses - A Case Report, Bulletin Veterinarian Science and Animal Husbandry, Kathmandu, Vols 17 and 18 (1989/90), pp. 19-23.
27. Lucy Vigne and Esmond Bradley Martin, "Yemen Stops Being a Major Buyer of Rhino Horn", Pachyderm, No 14 (1991), in press.
28. Esmond Bradley Martin, "Medicines from Chinese Treasures", Pachyderm, No 13 (1990), p.12.
29. E. Martin, "Medicines", p.12 and Esmond Bradley Martin, "Rhino Horn in China: A Problem for Conservation... and the World of Art", Wildlife Conservation, Vol 94, No 1 (January/February 1991), pp.24-25.
30. Cecilia Song and Tom Milliken, "The Rhino Horn Trade in South Korea: Still Cause for Concern", Pachyderm, No 13 (1990), pp.5-11.
31. Interview with Tom Milliken in Perth, Australia, December 1990.
32. Milliken, Martin and Nowell, "Rhino Horn Trade Controls", and letter from Kristin Nowell to Esmond Martin, 22 February 1991.
33. Paul Pui-Hay But, Lai-Ching Lung and Yan-Kit Tam, "Ethnopharmacology of Rhinoceros Horn I: Antipyretic Effects of Rhinoceros Horn and other Animal Horns", Journal of Ethnopharmacology, 30 (1990), pp.157-168.