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ISBN 3-540-61357-9 Springer-Verlag Berlin Heidelberg New York

Library of Congress Cataloging-in-Publication Data  
Wildlife resources : a global account of economic use / Harald H.  
Roth Günter Merz (eds.).

p. cm.  
Includes bibliographical references and index  
ISBN 3-540-61357-9 (hardcover)  
I. Wildlife utilization. I. Roth, Harald H., 1926-  
II. Merz, Günter  
SF84.G.W54 1996  
333.95417-DC20 96-23063

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Cover Design: Erich Kirchner, Heidelberg;  
Cover Illustrations: I.B. Leeds, G. Thompson  
Camera ready by Pia Hofmann

SPIN 10088555 31/3137 5 4 3 2 1 0 - Printed on acid free paper -

# Wildlife Resources

## A Global Account of Economic Use

With 21 Figures, 56 Photos and 56 Tables

ESon. MARTIN 1997.



Springer

1997

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**ACKNOWLEDGEMENTS**

The editors wish to thank most sincerely all those colleagues who are not specifically mentioned as contributors but have nevertheless furnished verbal information on certain subjects of the book or have commented on parts of the manuscript. Particular thanks are due to FIONNA WILLMOT who has spent much time in reading and improving the manuscript. PADDY WILSON has kindly produced the animal silhouette drawings. The assistance of NAOMI CHUDY and PIA HOFFMANN in the processing and layout of the text and tables is also gratefully acknowledged.

... that makes up the bulk of tusks from the elephant, hippopotamus, narwhal, walrus and warthog and also the fossil tusks of the mammoths from Siberia and North America. Vegetable ivory comes from a palm nut: the hard endosperm of a seed of the South American corozo palm. Elephant ivory, however, has always far outweighed the other ivory sources in terms of a commodity for man's use and is described in this chapter.

### Production and uses

Ivory may be a **primary or secondary product**. In the first case elephants are killed for the express purpose of taking their tusks for monetary gain. The rest of the animal is either left to rot or the meat is eaten by local people. In the second instance elephants are killed for other reasons such as the prevention of damage to agriculture or silviculture, protection of humans and their houses, regulation of the numbers of elephants in protected areas such as national parks, and also in the form of recreational and trophy hunting. The utilisation of their tusks together with meat and hides then becomes a secondary aspect and is unrelated to the motive of killing the elephant. Historically, the first situation was dominant, particularly in Africa where commercial hunting for ivory developed in the course of European colonisation. This type of indiscriminate "production" of ivory reduced elephant populations significantly in South and West Africa early on during the 19th century (3, 11). After the Second World War, with the rapid development of agriculture in Africa, the official control of elephants for the above-mentioned reasons became more and more important and furnished significant amounts of ivory for commercialisation. However, the illegal killing of elephants purely for their ivory has continued all over Africa and to a lesser extent also in Asia (12) to the present day.



Remains of an elephant rotting after removal of the tusks by commercialised poachers in Ivory Coast. (Photo: H.H. ROTH)

... of the Roman Empire ...  
With the spread of Indian and Chinese cultural influences to Europe during the 18th and 19th centuries, the appeal of ivory grew in the West as well as in the Orient. The demand in Europe for ivory billiard balls, buttons, knife handles and piano keys then became great (8). It resulted in steadily increasing imports of ivory into Europe until the First World War, as described in Chapt. 2.3.8. Thereafter demand declined and remained relatively low until the early 1970s when world ivory trade increased to such an extent that the survival of the African elephant seemed to be at stake. This provoked a world-wide ban on ivory trade in 1989 which in turn has put most of the ivory carvers out of business.

The ivory of the mammoth also has been used for carving, especially in the Mediaeval period and later in the early 20th century, in Europe. It seems now to be replacing elephant ivory in some carving centres, especially in Germany.

The **main carving centres** for elephant ivory developed early in some Asian countries. From the 16th century until the end of the Moghul rule in 1858, *India* produced some of the finest ivory carvings in the world. Solid ivory furniture was made with beautiful lace-work tracery, and tables and ceilings were inlaid with ivory. Paintings on thin slices of ivory were commissioned as well as beautiful figure carvings. With the start of British rule, their greatest patrons, the Moghul rulers, were gone. Europeans brought in better tools and mass production started, much for export. Around the Second World War, India was importing 246 t of ivory annually, the world's major importer, but business declined in the 1960s when the average annual imports were only 37 t as Hong Kong and then Japan took over most of the trade. Nevertheless, there were 7,200 ivory craftsmen in 1978 and over 2,000 in 1988, the largest number of carvers in the world, in the main centres of Delhi, Jaipur, Jodhpur, Trivandrum and Bangalore (10).

After *Japan* re-opened its borders in the 18th century, the ivory carving industry became famous for its netsukes (ornate toggles for the traditional kimono). These exquisite and unique miniature carvings became very popular with foreign collectors. Demand for other items such as piano keys and signature seals, sculptures, jewellery and accessories, as well as parts for traditional Japanese musical instruments increased within Japan right up until the 1989 international ivory ban. Annual ivory imports rose from 8.3 t in the mid-1880s to 255 t in the 1970s and Japan by the early 1980s became the world's greatest ivory consumer. It was in vogue to buy ivory in this increasingly affluent country. Cylindrical signature seals, required by all adults, consumed 55% of Japan's raw ivory by the early 1980s. The left-over chips were made into jewellery which became very fashionable in Japan (6).

Up until the CITES ban, *China* had the third-largest ivory carving industry after Japan and Hong Kong, employing about 1,400 craftsmen (7). Most of the work was exported wholesale or bought by foreign tourists. Government factories, all in Eastern China, still produced specialised carvings for the tastes to which they catered hundreds of years ago. The best carvers were in Beijing while other main centres were in Guangzhou, Hangzhou, Nanjing, Shanghai and Suzhou. They carved people, buddhas, flowers, birds, animals and

auctioned in large lots and sometimes unsorted. European ivory dealers also bought African tusks to sell to Europe and Asia.

**Table 56: Imports of raw ivory by major consumers 1979-1988<sup>1</sup>**  
(according to BARBIER and coll. (1))

| Importers           | 1979<br>t  | 1980<br>t  | 1981<br>t  | 1982<br>t  | 1983<br>t    | 1984<br>t  | 1985<br>t  | 1986<br>t <sup>(2)</sup> | 1987<br>t <sup>(2)</sup> | 1988<br>t <sup>(2)</sup> |
|---------------------|------------|------------|------------|------------|--------------|------------|------------|--------------------------|--------------------------|--------------------------|
| Hong Kong           | 366        | 376        | 427        | 322        | 442          | 270        | 109        | 129                      | 150                      | 133                      |
| Japan               | 279        | 240        | 286        | 257        | 425          | 384        | 206        | 29                       | 103                      | 75                       |
| EU <sup>3</sup>     | 179        | 203        | 39         | 39         | 56           | 24         | 49         | 12                       | 13                       | 4                        |
| India               | 17         | 19         | 19         | 24         | 23           | 30         | 21         | 8                        | 6                        | 4                        |
| China               | 7          | 10         | 10         | 54         | 20           | 7          | 7          | 19                       | 39                       | 50                       |
| USA                 | 6          | 23         | 11         | 7          | 20           | 55         | 24         | 17                       | 21                       | 9                        |
| Others <sup>4</sup> | 125        | 96         | 103        | 188        | 32           | -60        | 333        | 386                      | 38                       | -122 <sup>5</sup>        |
| <b>Total</b>        | <b>979</b> | <b>967</b> | <b>895</b> | <b>891</b> | <b>1,018</b> | <b>710</b> | <b>749</b> | <b>600</b>               | <b>370</b>               | <b>153</b>               |

1) net imports based on customs trade statistics and CITES documentation through WCMC, Cambridge, compiled by the London Environmental Centre; 2) because of adoption of the CITES Quota System there may have been an incentive to evade customs and CITES systems in some countries; 3) only Germany, France, Belgium and UK; 4) difference to total net import of all countries (min. estimate), including particularly imports by Thailand, Singapore, Macao and Taiwan which were at times significant; 5) in some years some importers, like Belgium, UK and Singapore, became net exporters, most likely through destocking

Illicit dealers constantly re-routed their ivory from Africa via different entrepôts in the 1980s, Taiwan, Singapore and Macao, always a step ahead of those trying to stop the illegal trade. Finally, from 1987 to mid-1989 Dubai was the central entrepôt for ivory without proper CITES documentation, where it would be partly worked and then could be imported legally into countries in Eastern Asia as carved ivory.

In 1986, CITES tried to enforce an ivory quota system in Africa whereby each country could sell tusks proportional to its number of elephants. However, elephant poaching continued rampantly in most of Africa. In mid-1989 North America, Western Europe and Japan brought in domestic legislation banning elephant ivory imports. Finally, at the October 1989 CITES meeting, a world-wide ban was agreed by a more than two-thirds majority of representatives of 103 states, and their ruling was put into effect on 18 January 1990. All commercial, international trade in ivory was prohibited between all CITES member states with the exception of China, Zambia, Zimbabwe, Malawi, Botswana and South Africa and later Namibia who took out reservations, and Hong Kong, for whom Britain took out a reservation for six months to help the traders sell their stocks. The domestic ivory bans caused immediate changes in the world ivory trade (2). Consumer demand in the USA and in Europe declined due to the risk of buying an illegal item and because it fell out of fashion. Consequently prices for ivory generally dropped. Some traders started to sell ivory at much reduced prices but others stored it remaining optimistic about the future value of ivory. The long-term trend of the price of raw ivory will be essentially dependent on the effectiveness of the ban, the establishment of illegal trading and

the opening of new markets (1, 2). Since the ban, those governments which took out reservations to allow them controlled trade have not exported any raw ivory. Generally the ban has been more effectively upheld than expected. It has, however, largely destroyed the legal carving industries, especially in India, Hong Kong, China and Southern Africa (9).

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Apart from the above-discussed commodities, wild animals produce a great variety of other useful raw materials. Of particular importance are all those substances to which medicinal properties are attributed. Many of these were also formerly used in Europe, but have by now been replaced by synthetic medicines. In other continents, however, a wide range of wildlife products are still in great demand for medical purposes. Amongst these are the horns of the *rhinoceros* and *Saiga antelope*, the velvet and bone of *deer* antlers, the fat of a number of species, such as *Spiny-tailed lizards*, *dugongs*, certain *rodents* and *carnivores*, the venom of *snakes*, the bile of *bears* and also snakes, the milk of *eland* and *moose*, the bones, blood, specific organs and even droppings of *some animals*. Likewise, substances which have a strong scent have been used since early times as perfumes. Certain glandular secretions of penetrating odour from *crocodiles*, *beavers*, *muskrats*, *Civet cats* and *Musk deer* are still widely used in the perfume industry.

Some of these products have already been mentioned in previous chapters and others are only of non-commercial interest. A few, however, are of outstanding economic importance because of their particularly high commercial value, and have significant implications for conservation; only these will be discussed below.

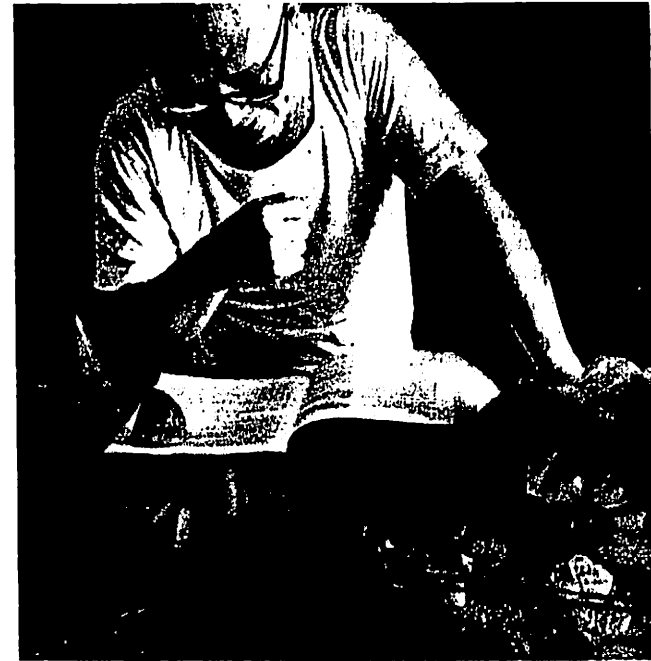
## RHINOCEROS HORN

In contrast to the bovid ungulates, rhinos grow horns which consist of fibrous keratin with no supporting bone structure. It has a unique consistency of great beauty when carved, and is considered to be a superior fever-reducing remedy in traditional Chinese medicine.

### Production and uses

Rhinos in Asia and Africa have been killed for thousands of years for their horn and other products. In the 1970s, with the surge of automatic weapons, marauding soldiers and corrupt government officials, the African rhinoceros species produced large supplies of horn and became the major source for the trade in rhino horn. Poaching became the most important cause for a dramatic decline of the African species, as described in Chapt. 2.3.9.

The Chinese started using rhino horn as a medicine over a thousand years ago, and traditional Chinese doctors all over Eastern Asia, as well as certain other Asians, still believe it to be very efficacious. Chinese throughout Eastern Asia prefer *Asian rhino* horn, because, being much smaller than African horn, its healing powers are considered to be more concentrated. The misunderstanding in the West that the horn was used by the Chinese as an aphrodisiac probably arose from Gujarati traders in Zanzibar meeting European travellers. In the state of Gujarat and parts of Rajasthan in Western India, rhino horn was believed by a few to be an aphrodisiac, but nowhere else.



The pharmacist in an Oriental medicine clinic in Seoul examines a Korean medicine book in order to prescribe African rhino horn to a customer. (Photo: E. MARTIN)

During the last ten years, the main consumers of Asian rhino horn have been residents of Hong Kong, Macao, Singapore, Thailand and Taiwan. Pharmacists take shavings from a complete horn on the counter, then sometimes mix them with other ingredients, usually as a remedy for high fever, especially in children. The patient then infuses the substance in hot water and drinks it like a tea.

*African rhino* horns, being one-tenth the import price of Asian, were more commonly imported into China and South Korea to be made into packaged medicines. Government factories in China would produce millions of tablets and medicinal balls each year, containing many ingredients including rhino horn, for export all over Eastern Asia. In South Korea, one specific medicine with 30 ingredients, including rhino horn, was commonly manufactured: the "chung sim hwan" ball. This was locally prescribed to cure high blood pressure and nose bleeds, rather than exported. Although medicines with rhino horn had also been made in Japan in the past, the country stopped using the horn soon after joining the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1980, and little horn has been smuggled in since then.

The Chinese had another use for rhino horn. During the Ming and Chin dynasties, artisans carved exquisite cups and ornaments out of rhino horn for the Imperial Court. On a smaller scale rhino horn was carved into a variety of items in many other parts of the world including Europe, before it became rare. It was initially the demand for rhino horn in North Yemen that caused massive poaching of rhinos in East and Central Africa after 1970. Traditional daggers, called jambiyyas, were worn daily by many Yemeni men, and those with rhino horn handles were, and still are, considered to be the most beautiful and prestigious. When the country overthrew the ruling Imams and escaped from its feudal system in the late 1960s, many workers went to Saudi Arabia during the oil boom in the early 1970s and sent home large amounts of money (3). More and more people could afford jambiyyas with rhino horn handles as opposed to the ubiquitous Water buffalo horn handles. Yemeni traders wanted large African horns as more handles could be made out of these. The jambiyya industry grew, especially in Sanaa, and craftsmen in their small workshops cut, filed and polished pieces of rhino horn into dagger handles, usually adding gold coin-like decoration, in a manner unchanged for generations. The left-over scraps and shavings would be collected and sold to China and South Korea to be made into medicines.

### Marketing and trade

Due to the great economic growth in both Eastern Asia and Yemen the demand for rhino horn increased in the 1970s, prices rose and the supply out of Africa steadily grew through that decade.

Yemen imported no less than 3,000 kg of rhino horn a year, 40% of all the horn on the world market, but from 1985 to 1990 imports fell to about 300 kg a year (4). This was not only because rhinos had become so scarce, but also because craftsmen were producing more handles from Water buffalo horn and a new substitute, plastic. Furthermore, the import price for rhino horn had greatly increased, from US\$ 37 in 1974 to over US\$ 1,000 per kg in the mid-1980s when affluent Taiwan became its main importer via corrupt Taiwanese businessmen in South Africa. In 1990, African horn was selling retail in Taipei for US\$ 4,221 a kg in the medicine shops while Asian horn was an astronomical US\$ 54,040 per kg (2). Some traders were also buying it as an investment in Taiwan, realising the species could become extinct.

By 1977 international trade in products of all five rhino species was completely banned in terms of CITES. Nevertheless rhinos continued to be illegally killed. The number of *Black rhino*, for example, fell from an estimated 14,785 in 1980 (5) to 3,452 in 1991 (1). The majority of these have been poached for illegal trade of their horns, which must have realised millions of dollars. Gradually, however, consumer countries started to introduce internal trade bans. The domestic markets are now essentially closed in Brunei, Hong Kong, India, Indonesia, Japan, Malaysia, Nepal and the Phillipines. By 1992, China, South Korea, Taiwan and Yemen remained the main consumers, but these countries in mid-1993 made a significant effort to enforce new legislation to stop the internal trade.

Musk of Musk deer is usually marketed in a granular or powdered form in bottles. As adulteration is frequent, marketing of musk for medical purposes in China is controlled by the State Pharmaceutical Corporation (19). The trade in musk pods from Siberia to Eastern Asian countries has a long tradition and reached a peak of 18,200 pods in 1855. Early in the 20th century hunting of Musk deer in Russia was fortunately banned (15). It was resumed in a controlled manner in the 1950s and Russia is again the most important producer, followed by China, Nepal and India. Musk from farmed animals is commercially produced in only very limited quantities in China (23). The greatest importer is Japan having annually purchased between 109 and 727 kg from 1960 to 1983. Imports even rose in 1988 to an astounding 810 kg and this was seen as stockpiling by Japanese dealers in anticipation of Japan dropping its CITES Reservation against musk import (14). Japan is followed by Korea, which imported between 56 and 132 kg/annum and Taiwan which imported between 2 and 34 kg/annum during 1980-85 (11). Japan's import represents well over 50% of the internationally traded musk, but is only a fraction of what used to be exported by China and the Indian continent at the turn of this century (23).

Musk is by far the most valuable wildlife product fetching prices of up to US\$ 24,000/kg, and even US\$ 45,000/kg for the granular product, in Japan in 1978 (22).

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