

rhino  
file

## Is There a Future in the Wild for Rhinos?

by Lili Sheeline

Probably no group of animals has been as seriously affected by international trade as the family Rhinocerotidae. All five rhinoceros species are listed on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), yet illegal commercial trade continues. In recent years, rhinoceros populations in Africa and Asia have plummeted, sending governments and conservationists everywhere scrambling to protect them. This decline is rooted in the medicinal markets of Asia, where rhino horn is a popular ingredient in traditional medicines. More recently, rhino horn dagger handles have become a sign of status in North Yemen.

Prehistorically, as many as 30 genera of rhinoceros roamed the globe (Nowak and Paradiso, 1983). But only five species now exist: three in Asia and two in Africa. In 1970, the rhinoceros population was thought to total about 70,000 animals; today, only 11,000 to

11,500 are estimated to exist in the wild. Asian rhinos in particular have suffered as a result of habitat loss, but today many rhino populations on both continents exist in reserves or parks. Poaching, however, exacts a large toll and is now the primary threat to rhinos.

The Sumatran rhino (*Dicerorhinus sumatrensis*) has the longest evolutionary history of the rhinoceros family. One of the oldest mammalian genera, it has evolved very little in the past 40 million years (Macdonald, 1984). Today, fewer than 700 animals remain.

Also in Asia, the greater one-horned or Indian rhino (*Rhinoceros unicornis*), numbering some 1,700 animals, is the most numerous of the three Asian species, but it is also the victim of a recent escalation in poaching. From 1981 to 1985, 233 rhinos reportedly were killed in the state of Assam, where

*Continued on page 2*

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### Inside

Rhino Horn Trade .....	1
Macaw Rescue .....	7
Sixth CITES Meeting .....	8
Edible Snail Trade .....	9
Gardener Alert .....	11
News & Notes .....	12
Publications .....	23



Only about 1,700 Indian rhinos (*Rhinoceros unicornis*) remain in the wild. (Credit: M. Boulton/World Wildlife Fund)



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# Rhinos

Continued from page 1

TRAFFIC(U.S.A.)  
1250 Twenty-Fourth Street, NW  
Washington, DC 20037  
Telephone: (202) 293-4800  
Cable: PANDAFUND Telex: 64505

**Director:** Ginette Hemley  
**Editor and Education Coordinator:**  
Lynne C. Hardie  
**Editorial Assistant and Staff Biologist:**  
Andrea L. Gaski  
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**Trade Campaign Coordinator:**  
Lili Sheeline  
**Secretary:** Kimberly Monborne  
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TRAFFIC(Japan)

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most of the Indian rhino population remains in reserves. On a more encouraging note, the Indian rhinos of Royal Chitwan National Park in Nepal have increased enough to allow translocations to other areas.

The Javan rhino (*R. sondaicus*) is in the most precarious situation. With an estimated 55 individuals remaining in western Java, it is considered one of the rarest animals in the world. Poaching and disease remain constant threats: five rhinos (nearly 10 percent of the population) succumbed to an epidemic several years ago, and poachers take about one rhino per year (Maguire, 1986.)

In Africa the northern subspecies of the white rhino (*Ceratotherium simum cottoni*), which numbered several thousand animals in 1970 and roughly 650 in 1979 (Western and Vigne, 1984), is now nearly extinct in the wild. A tiny group of about 17 well-guarded individuals exists in Zaire. The southern white (*C. s. simum*) is a rare example of rhino recovery: careful management and protection in South Africa has allowed the population to increase to about 4,000; only a few dozen had remained around the turn of the century (Western and Vigne, 1984).

## Moving Again!

Due to the growth of World Wildlife Fund and The Conservation Foundation, the two organizations have moved again. As of 18 May 1987, our new address is:  
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The focus of large-scale poaching today, African black rhino (*Diceros bicornis*) numbers have been slashed. The current population of 4,000 to 4,500 is roughly half what it was just two years ago (Western, 1986), and only 6 percent of its 1970 level. Since 1980, this species has been largely wiped out in Angola, the Central African Republic, Chad, Ethiopia, Mozambique, Rwanda, Somalia, Sudan, Uganda, and Zaire. Its existence is threatened in every other country in its range, including Zimbabwe, where a carefully guarded population has recently faced a new series of attacks by poachers.

Overall, the five species of rhino have suffered an 85 percent population decline since 1970. The threat of extinction has resulted in a number of cooperative efforts between governments, nongovernmental organizations, and private citizens in their vigorous attempts to stem the poaching tide. Translocations, captive-breeding programs, private reserves, and special antipoaching units have exhibited varying degrees of success, but the most important long-term approach is that of closing down the market for rhino horn. World Wildlife Fund (WWF) has spent over \$1 million in recent years on rhino rescue efforts, including investigations of the illegal trade in horn.

The demand for rhino horn springs from two sources: the traditional patented medicines of east Asia (primarily for fever reduction), and North Yemeni dagger handles, called "jambias." Dr. Esmond Bradley Martin, vice chairman of the African Elephant and Rhino Specialist Group of the International Union for Conservation of Nature and Natural Resources (IUCN), first documented these uses in 1979 when investigating the rhino horn trade for WWF and IUCN. Through continued examination of the rhino market

by Dr. Martin, Tom Milliken of TRAF-FIC(Japan), the CITES Secretariat, and others, the primary trade routes and consumer countries have been identified.

As a result of the publicity generated by these findings, legal trade in rhino horn is closing down in most international trade centers. Users of traditional medicines in China, South Korea, and Japan are beginning to accept saiga antelope (*Saiga tatarica*) and water buffalo (*Bubalus bubalis*) horn as substitutes. In addition, the appetite for rhino horn jambias in North Yemen seems to be abating.

If recent events give any cause for optimism, it is only because the picture has looked so bleak for the rhino over the past decade or so. According to Dr. Martin, from 1972 to 1979, the total amount of horn in the international market reportedly averaged 8 metric tons yearly. The amount of horn in trade between 1980 and 1984 dropped to 3 metric tons yearly. Approximately one-half of that, primarily taken from rhinos in the Central African Republic, Sudan, Tanzania, and Zambia, was shipped to North Yemen via Djibouti, the United Arab Emirates, and the Sudan for carving into dagger handles. The other half, usually shipped out of Burundi, the Central African Republic, Namibia, Portugal (to Macao), Tanzania, the United Arab Emirates, and Zambia, apparently went to east Asia for the medicinal industry. Thousands of animals have been killed each year to supply this trade: a black rhino may carry, on the average, 1.5 kilos of horn.

Quantities of Indian and Sumatran horn reported in trade from 1980 to 1985 averaged 40 and 10 kilos per year, respectively. (The latter may represent as much as 5 percent of the known Sumatran rhino population to-

day.) According to Martin, most of the Asian horn was shipped via—or ended up in—Singapore and Thailand. Despite the smaller amounts, the annual wholesale value of all Asian horn newly introduced to the market has been, at \$450,000, nearly one-quarter that of African, worth an estimated \$2 million. Dr. Martin suggests that wholesale prices have remained relatively stable: \$9,000 per kilo for Asian, \$650 per kilo for African. Martin further notes that, in the face of a drastically diminishing supply, these stable wholesale prices seem to reflect a decrease in demand.

A brief summary of the status of the rhino trade in significant consuming countries follows. Unless otherwise noted, the information is taken from Esmond Bradley Martin's recent investigation of the rhino horn trade in Asia, and his most recent trips to North Yemen on behalf of WWF.

**China:** China officially joined CITES in 1981. Despite the lack of official statistical evidence showing recent imports to China (Milliken, 1985a), Martin notes that at least one city, Guangzhou, has been receiving new supplies of horn over the past few years. In 1985, traders claimed that this horn was shipped primarily from Hong Kong, Macao, Singapore, and Thailand. In the past, rhino horn was readily available on the domestic market. Today, however, most of the horn is used for patented traditional medicines that are exported to other east Asian countries. Although the use of rhino horn in newly developed medicines has been prohibited in China since 1984, some factories reportedly still resist using substitutes. Others are working toward the eventual elimination of rhino from their products entirely. At present, older medical formulas containing minute portions of rhino continue to be exported in contravention of CITES.

**Hong Kong:** For more than 30 years the primary importer of rhino, Hong Kong—a party to CITES since 1976 under the United Kingdom's ratification—specifically banned all rhino horn imports in 1979. Existing stockpiles of horn were registered and exported legally under domestic law, although in apparent contravention of CITES, for an additional six years before all exports were banned in 1986. The remaining 75 kilos that were in inventory were allowed to circulate in local trade, where the demand appears to persist.

**Japan:** Japan joined CITES in 1980, at which time a government directive was issued requiring the development of new medicines with ingredients replacing rhino horn. Although pre-Convention stocks remained legal, the government encouraged substitution with saiga antelope horn. By mid-1985, the major commercial user of rhino horn had reportedly run out of stocks and developed a new formula excluding horn (Milliken, 1985a). Japanese pharmacists experience a rigorous medical training program similar to that of the South Koreans in that they, too, learn the principles of both traditional and western medicines. These pharmacists seem to be increasingly accepting substitutes, but older medicines containing rhino reportedly are still sold locally.

**Macao:** Although currently administered by Portugal and under the sovereignty of China—both parties to CITES—Macao's wildlife trade is not officially regulated by either country. In 1984, large amounts of rhino horn began entering Macao, according to Dr. Martin, despite the territory's small human population. Macao's proximity to Hong Kong and China, where most of

*Continued on page 4*

# Rhinos

Continued from page 3

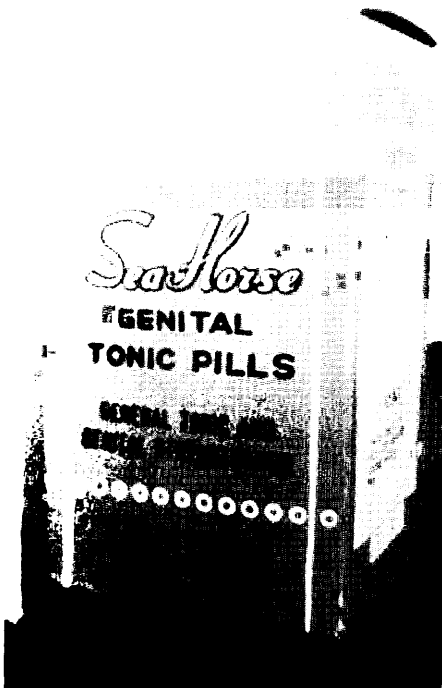
the imported horn was eventually shipped, and its lack of restriction on rhino trade have made it a convenient entrepôt. By 1986, however, the government of Macao stopped approving import licenses for rhino, and in February 1986 the full text of CITES was officially published (Anon., 1986). The government of Macao considers that CITES entered into force at that time, but the necessary implementing legislation is still being developed.

**Singapore:** It is still too early to assess the effectiveness of Singapore's recent ban on rhino trade and accession to CITES, which occurred only after heavy pressure was placed on the government of Singapore by the U.S. Departments of State and the Interior, the CITES Secretariat, and WWF [see *TRAFFIC(U.S.A.)*, vol. 7, nos. 2 & 3, 1987]. In recent years, Singapore has been the Asian lynchpin of illegal wildlife trade in general, and the largest entrepôt in the world for the Sumatran rhino. According to Dr. Martin, the sudden poaching onslaughts in India, Malaysia, and parts of Indonesia were the results of Singapore's open market policy. At least 12 Sumatran rhinos have been killed since 1982 in Sabah, Malaysia, where the population ranges from 40 to 70 individuals. Their horns, hides, and nails were probably shipped to Singapore's markets, generally via Indonesian sailors or by air. The bulk of the Indian rhino horn on the market has apparently also found its way to Singapore (there is little local demand for rhino products in India). Most of the horn has come via Calcutta or a third country.

In 1985, the CITES Secretariat commissioned a survey of Singapore shops selling rhino horn products, with substantially different results than those of Martin's 1986 survey (Anon., 1985). Martin found 39 percent of the shops

he visited selling rhino, a combination of African and Asian horn that retailed at an average of nearly \$14,500 per kilo (Table 1). In contrast, the Secretariat's survey found that only 2 of the 30 shops visited had horn in stock or currently for sale and that only 8 shops claimed to have previously dealt with horn. Perhaps the most surprising information from the CITES survey involves retail prices. The quoted top price of nearly \$8,000 per tahl (one tahl = 38 g) is roughly equivalent to the astounding price of \$209,500 per kilo!

**South Korea:** South Korea has been one of the largest importers of rhino horn in Asia; from 1979 to 1983, more than 1,200 kilos of horn entered the country (Milliken, 1985a). Most shipments apparently came from Hong Kong, which was still exporting registered stocks. Also noted as sources in South Korean import statistics were Brunei, China, India, Indonesia, Japan, Kenya, Malaysia, and Thailand (Milliken, 1985a). Similar amounts of horn were probably smuggled into the country to avoid import tariffs that raised the wholesale price of horn as much as 56 percent. Much of the horn went into edible Chung Sim Hwan balls, popular for a variety of illnesses: high blood pressure, nose bleeds, paralysis, body pains, and "contaminated blood." In 1983, however, rhino horn was prohibited from use in medicines, and in 1985 imports were officially banned. Kyung Hee University, a leading South Korean research institution in traditional medicines, has tested and accepted water buffalo horn as a substitute. Licensed doctors of traditional medicine in South Korea are subjected to six years of formal training in traditional and western medicine at Kyung Hee or a similar institution. For these highly trained professionals, the matter of substitution is more complex



Some practitioners of traditional Asian medicine still use rhino horn in their ingredients. (Credit: G. Hemley/World Wildlife Fund)

than simply changing the ingredients of medical formulas. While not yet a member of CITES, the government of South Korea seems to be moving toward accession in the near future (Milliken, 1985a).

**Sultanate of Brunei:** Brunei allows the import of rhino horn, the demand for which comes from the country's Chinese residents. Under Brunei law, export of Sumatran rhino products is prohibited, but there are no such regulations regarding the other four rhino species. Brunei is not party to CITES. Dr. Martin's recent dialogue with the government of Brunei suggests the possibility of trade restrictions, but until such action takes place, Brunei bears close watching as a potential entrepôt for rhino products.

**Taiwan:** Much of the horn leaving Hong Kong between 1979 and 1984 arrived in Taiwan, not yet a CITES member, which legally imported more than 635 kilos during that period. Other sources noted in Taiwan import statistics are Indonesia, Singapore, and South Africa (Milliken, 1985a). According to local reports, large amounts of horn were also smuggled in from Hong Kong and China, generally via fishermen. The Taiwanese government prohibited rhino imports in August 1985, the result of strong pressure from WWF's international President HRH Prince Philip, the Duke of Edinburgh; TRAFFIC(Japan); and Taiwanese Minister of State Feng-shu Chang, who is also president of Taiwan's Society for Wildlife and Nature (Milliken, 1985b). Nevertheless, Martin found local demand in Taipei and Kaohsiung still high in December 1985.

**Thailand:** Although Thailand banned rhino trade in 1972 and joined CITES in 1983, it continues as a major trading center not only for rhino horn but also for hide, nails, dried blood, and other

rhino parts. Alarming, nearly all the products seen on sale in 1986 came from the Sumatran rhino, whereas in 1979 a similar survey revealed that most had come from African species. While experts consider the Sumatran rhino to be extinct in Laos, Burma, and Thailand, several traders interviewed recently by Dr. Martin claimed that their products came from animals killed in those countries in the last five years. One trader reportedly receives one or two Sumatran rhino carcasses a year, paying \$3,800 to \$7,600 apiece.

**Yemen Arab Republic (North Yemen):** North Yemen has been widely recognized as posing the single greatest trade threat to African rhinos since 1979, when Martin first publicized that rhino horn was being used to carve into jambias. As North Yemen's wealth increased due to the fantastic rise in oil prices in the 1970s, rhino dagger handles became an affordable sign of status for Yemeni men. As a result of international pressure, the government banned all rhino imports in 1982, yet rarely enforced the ban. From 1980 to 1984, an average of about 1,500 kilos, were imported annually; Dr. Martin notes that in 1985 and 1986 imports dropped to approximately 1,000 kilos and under 500 kilos, respectively.

In recent years, employment opportunities in Saudi Arabian oil fields have dropped, and Yemeni men are finding rhino horn less affordable. In addition, the devaluation of Yemeni currency has caused wholesale prices of horn to jump as much as 150 percent. Other reasons for the decline in rhino imports include: decreasing supplies of rhino horn; sliding interest among the younger Yemenis in traditional values; and increasing efforts on the part of the government to control the trade.

The government of North Yemen now appears to be tackling its rhino

trade with new vigor. Recent discussions between Yemeni officials, Dr. Martin, and the ambassadors from the United Kingdom and the United States have resulted in a six-point action plan, including the elimination of import duties on water buffalo horn, thus encouraging its use as a substitute for rhino; the prohibition of rhino horn exports—a crucial point, as shavings are collected and exported to east Asian countries for about \$200 per kilo; and the withdrawal of licenses from merchants who continue to sell rhino jambias. By the end of January 1987, rhino exports were officially prohibited, and all other points of the plan are expected to be implemented by July 1987.

The markets of Sanaa, Yemen's capital city, already reflect diminishing supplies of rhino jambias. In December 1986, Dr. Martin found that only 1 in 20 dagger handles was made of rhino horn. The rest were primarily derived from water buffalo horn, although some were wood and, more recently, plastic. If these trends continue, and the plan of action agreed to by North Yemen is fully implemented, a major market for rhino dealers could be eliminated.



\* \* \*

While some cause for optimism exists, the future of Asian and African rhinos remains precarious. The demand for horn remains great, and the price is so exorbitant that poachers and traders will continue to take enormous risks. Whether this incentive comes from the status-minded in North Yemen or consumers of traditional medicines in east Asia, it must be eliminated for the rhino to survive.

Rhino trade bans are not adequately enforced by some key countries—for example, Thailand and, more notably,

*Text continued on page 24*

# Rhinos

Continued from page 5

**Table 1: Average Retail Prices of Rhinoceros Horn  
in Some Major Cities of Eastern Asia,  
Between 1979 and 1986**

Country/ City	Year CITES Accession	Year of Survey	No. Clinics/ Pharmacies Visited	Percent Selling Horn	Type of Horn	Average Price/kg (US\$)
<b>South Korea</b>						
Seoul	not party	1980	30	63	African	\$ 1,436
		1982	76	62	African	1,797
		1986	108	51	African	1,771
<b>Hong Kong</b>	1979	1979	15	73	African*	\$11,103
		1982	50	46	African*	15,700
		1985	80	41	African*	14,282
<b>Macao</b>	1986 ±	1979	9	78	African*	\$ 4,127
		1982	14	64	African*	7,797
		1986	20	80	African*	8,644
<b>Taiwan</b>						
Taipei	not party	1979	9	100	African	\$ 1,596
		1985	34	76	African	17,090
Kaohsiung		1985	20	90	African	\$ 1,532
					Asian	23,929
Tainan		1985	4	100	African	\$ 2,077
					Asian	21,365
<b>Singapore</b>	1987	1979	15	53	African*	\$ 1,772
		1983	46	35	African*	29,910
		1986		39	Asian/African	\$ 11,615
<b>Thailand</b>	1983	1979	23	52	African*	\$11,804
		1986	44	34	Asian +	14,464
<b>Japan</b>						
Tokyo	1980	1980	18	44	African	\$ 3,654
		1986	29	17	African	11,629
Osaka		1980	10	90	African	\$ 1,620
		1982	5	60	African	3,417
		1986	41	76	African	\$ 2,230
<b>Brunei</b>						
Bandar Seri Begawan	not party	1982	5	40	African*	\$ 6,895
		1986	7	14	Unknown	3,797
<b>Indonesia</b>						
Djakarta	1979	1980	26	27	Asian + (Sumatran)	\$12,634
		1986	34	6	Asian (Sumatran, Old Javan)	\$ 9,448
<b>Malaysia</b>						
Kota Kinabalu	1978	1986	18	11	Asian (Sumatran)	\$14,697
Kuala Lumpur		1981	26	58	African*	\$19,801
		1983	29	21	Asian/African	17,280
		1986	41	10	Asian/African	11,636

\* Mostly African

+ Mostly Asian

± The government of Macao considers CITES as having entered into force in February 1986, but this is not yet recognized by the CITES Secretariat. See discussion of Macao for further detail.

Table extracted from Table III in Martin, 1986.

**Note:** Dr. Martin conducted a sample survey of rhinoceros products in 591 pharmacies, clinics, and medicine shops in eastern Asia in late 1985 and early 1986. He found 39 percent of the establishments selling rhino horn, 15 percent selling rhino hide, and 3 percent selling rhino nails. Only rhino products that could be examined for their authenticity are included in this survey (with the exception of those in Osaka). So-called "rhino" powders and shavings were not included because it was impossible to ascertain whether or not they were genuine (Martin, 1986, Table VI).

# Publications Available

## ***Conservation and Commerce of Cacti and Other Succulents***

Edited by Douglas Fuller and Sarah Fitzgerald.

This new TRAFFIC(U.S.A.) report provides the first in-depth treatment of the cactus and succulent trade from a conservation perspective. Its eight contributors discuss the history of this trade worldwide, analyze the politics of international plant conservation, and investigate the United States, Japanese, and Mexican cactus markets using recent CITES data. They also review European Economic Community (EEC) regulations and the effectiveness of national laws to control trade. This May 1987, 264-page report is a useful reference for biologists, horticulturalists, collectors, nursery owners, and naturalists in general. It is available from TRAFFIC(U.S.A.) for \$15.

## ***Annotated CITES Appendices and Reservations***

IUCN Conservation Monitoring Centre. 1986.

This November 1986 edition is divided into two parts. Part 1 is the complete list of both the scientific and common names of all taxa listed on the three CITES appendices from 1973 to November 1986. Annotations include downlistings, uplistings, deletions, appendix changes within a taxonomic group, and new listings. Part 2 is a list of all reservations entered and withdrawn by the parties to CITES since the treaty came into effect. Annotations indicate whether a reservation is still entered and whether it is more or less inclusive than when first entered.

This 50-page report is available for US \$5 from: Wildlife Trade Monitoring Unit, 219c Huntingdon Road, Cambridge CB3 0DL, United Kingdom.

## **House Plant Brochure**

The 1987 edition of "Your House Plants Are Part of the Plant Trade" is now available from TRAFFIC(U.S.A.) or the Plant Conservation Project, Natural Resources Defense Council, 1350 New York Avenue, N.W., Washington, D.C. 20005.

## ***Vida Silvestre Neotropical***

World Wildlife Fund

The first issue of a new semi-annual journal on neotropical wildlife, *Vida Silvestre Neotropical*, has been published by World Wildlife Fund (WWF). The journal focuses on the conservation of endangered and threatened plant and animal species, their habitats, sustainable use management, control of pest species, maintenance of biological diversity, indigenous use of wildlife, and methods for designing protected area systems, among other subjects. *Vida Silvestre Neotropical* features articles, notes, and announcements in the language in which they were submitted: English, Spanish, or Portuguese.

The first two issues are free to interested institutions and individuals, although quantities are limited. Volume 2 will be available to subscribers in developing countries in the Americas for US \$6 (U.S. accounts only) and in the United States and elsewhere for US \$12.

For information on volume 1 and annual subscriptions write: *Vida Silvestre Neotropical* Subscriptions, World

*Continued on page 24*

## Publications

Continued from page 23

Wildlife Fund, 1250 Twenty-Fourth Street, N.W., Washington, D.C. 20037 USA. Requests for the guidelines for submission of articles should be addressed to *Vida Silvestre Neotropical* co-editor, Curtis Freese.

### Factsheets Available

The 1987 editions of TRAF-FIC(U.S.A.)'s wildlife trade factsheets on the following subjects are now

available: "CITES," "CITES Parties," "Elephant Ivory," "Primates," "Psittacines," "Rhinos," "TRAFFIC Network," "U.S. Imports of Wildlife," and "World Trade of Wildlife." Other fact-sheets also available are "Watch Out for Wildlife Products—The Caribbean," and "Watch Out for Wildlife Products—Mexico."

Up to five copies per factsheet are free from TRAFFIC(U.S.A.) upon request. ■

## Rhinos

Continued from page 5

the United Arab Emirates, which recently announced its precedent-setting withdrawal from CITES (see box). Others, like Macao, North Yemen, and Singapore, have only recently strengthened their regulations; the effects of these policies on world rhino horn trade are yet to be seen. In addition, China, the major producer and exporter of patented medicines containing rhino, should extend its ban to old medical formulas as well as new. Dialogue with medicinal societies of the primary consumer countries appears promising and must be continued.

CITES provides little protection for the rhino unless member states follow through with the proper implementing legislation and effective enforcement. Only unrelenting pressure on the rhino horn market, combined with on-the-ground efforts taking place in the producer countries, will allow the five

species to survive, let alone recover, in the wild. ■

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