



WILDLIFE

CONSERVATION

SOCIETY

POLICY

REPORT

NUMBER 3

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# SAVING THE TIGER

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A

CONSERVATION

STRATEGY



**WILDLIFE CONSERVATION SOCIETY**  
FOUNDED IN 1895 AS THE NEW YORK ZOOLOGICAL SOCIETY

THE  
WILDLIFE  
CONSERVATION  
SOCIETY'S  
EFFORTS  
TO  
SAVE  
THE  
TIGER

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THE WILDLIFE CONSERVATION SOCIETY'S (WCS) dedication to tiger research and conservation began in the 1960s with the first scientific study of tigers in the wild, conducted by Dr. George Schaller in Kanha National Park, India. Today, in a comprehensive and multifaceted effort, WCS's Tiger Campaign has mobilized field research and conservation initiatives in most of the countries where tigers remain. It also promotes public awareness among consumers of tiger products in the major importing countries.

The Society's Tiger Campaign involves rigorous scientific research to determine the status of tigers and their prey, identify key tiger populations, assess the effects of various human activities such as hunting and habitat degradation, and implement effective conservation strategies in cooperation with national and local governments. To ensure a permanent local capacity for conservation and management, guards and senior staff in protected areas and local researchers are trained in scientific methods to monitor tiger and prey populations.

Dr. Ullas Karanth has conducted studies on tiger-prey ecology since 1986 in southern India's Nagarhole National Park. He is currently conducting a country-wide survey of tigers and their prey in key tiger habitat and developing a long-term conservation strategy for India's tigers. WCS also supports a local conservation education program for communities surrounding Nagarhole National Park. Karanth's studies have been primarily funded by the United States government's Fish and Wildlife Service and involve collaboration with the state and local governments of India as well as a number of non-governmental organizations.

In the Russian Far East, WCS has formed a partnership with the Hornocker Wildlife Research Institute. Since 1991, the Institute's biologists — both Russian

and American — have conducted in-depth field research on the Siberian tiger, trained local researchers in census methodology, and improved the existing protected area system for effective tiger protection. In Myanmar, Lao People's Democratic Republic, and Vietnam, WCS is directing surveys to assess the status and distribution of the Indochinese tiger and is conducting workshops and field training for local researchers. Dr. Alan Rabinowitz has carried out field research in Thailand since 1987. In collaboration with a national nongovernmental organization, Wildlife Fund Thailand, he has conducted a country-wide assessment of tiger and prey abundance as well as local field training and workshops.

Recently, the Society co-sponsored two Transboundary Biodiversity Conferences. The first conference, held in China, brought together officials from China, India, Lao P.D.R., Myanmar, Nepal, Thailand, and Vietnam to discuss transnational environmental cooperation, such as joint surveys on wildlife, including tigers, and monitoring of border trade. The border areas of these Asian countries contain a significant portion of the region's remaining biodiversity. Cambodia, China, Lao P.D.R., Malaysia, and Thailand attended the second conference in Thailand.

Consumers of tiger products are often not aware that they are endangering tigers in the wild. Through an extensive pro bono advertising campaign developed and implemented by Ogilvy and Mather Advertising in Asia, WCS has undertaken the challenge to educate consumers in Asia about the important role they play in the tiger's decline. The campaign will be expanded to reach consumers in Asian communities in the United States. Also in the United States, WCS helped draft the Rhino and Tiger Conservation Act of 1994 which established a \$10 million dollar fund for conservation efforts. WCS also advises the U.S. and Indochinese governments regarding trade activities

# SAVING THE TIGER

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SAVING  
THE  
TIGER

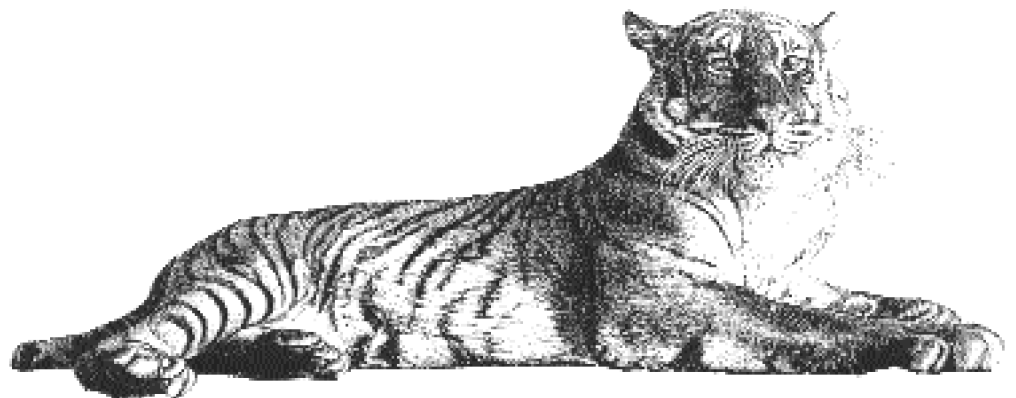
## EXECUTIVE SUMMARY

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**T**HE ABUNDANCE AND DISTRIBUTION OF TIGERS THROUGHOUT ASIA HAVE DECREASED dramatically since the last century. The tiger is now one of the most threatened of the large cats. Although international attention in the 1970s mobilized conservation efforts for the tiger, its dire status remains the same, if not worse. Efforts have mostly focused on only a few populations, neglecting the continuing decline of the species as a whole. Occasional successes and inflated estimates of tiger numbers generated the popular assumption that the tiger was secure, even though two subspecies became extinct within the last two decades. Little is known about the overall status, distribution, and ecological needs of the remaining subspecies due to a lack of scientific research on most populations. Management, legislative, and enforcement initiatives in countries that harbor tigers and in countries that import tiger parts also remain inadequate.

The future survival of tigers in the wild requires a comprehensive, multifaceted conservation strategy that not only addresses the major, common threats of habitat encroachment and prey base decline, but also the increasingly important threat of poaching for the international trade in tiger parts. High priority populations need to be identified and their decline reversed. These key populations of tigers and their prey require immediate protection from poachers and from further habitat loss and degradation. Laws protecting tigers on-the-ground and international and domestic trade laws need to be improved and enforced. At the same time, efforts must include building support for tigers among people living near them and convincing consumers not to use tiger products. The efficacy of these conservation efforts needs to be regularly evaluated by scientifically monitoring the status of key tiger populations.

The purpose of this report is to provide an historical overview of the tiger's status and past efforts to conserve the species; highlight the fac-



WE  
ARE  
LOSING  
THE  
TIGER

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THE TIGER (Panthera tigris) IS ONE OF THE MOST ENDANGERED LARGE PREDATORS IN THE world. Its distribution and numbers have shrunk dramatically since the last century. Most populations now exist in pockets of remnant forests. The presumed range of tigers at the turn of the 20th century and their present-day distribution is illustrated in Figure 1.

The remaining five subspecies of tiger face the same threats that have already driven three subspecies to extinction within the last 50 years: hunting and habitat encroachment. The tiger's prey is hunted throughout its range, leaving some forests devoid of adequate amounts of food for tigers. On another front, tigers themselves are being killed to protect livestock and to meet a lucrative demand for their skin, bones, and other body parts. Agricultural expansion, commercial logging, road-building, dams, and other developmental projects are reducing and fragmenting the tiger's habitat. That which remains is being degraded from such activities as livestock grazing, manmade forest fires, and the collection of timber, fuelwood, and non-timber forest products.

Twenty-five years after some of the first international efforts to save it, the tiger is still endangered. Funds have been raised, guards in some protected areas have made heroic efforts, and many people have dedicated their lives to saving the tiger. But these efforts have only been partially successful in a few areas.

Effective efforts to reverse the tiger's decline are crucial, not only for the tiger but also for our own ecological and cultural benefit. Tigers play a key role in the ecosystems they inhabit. When tiger populations are healthy, other biological components of their habitat are ecologically robust. Because tigers are large predators at the top of the food chain, they require adequate numbers of large prey and extensive suitable habitat. Thus, efforts to protect key populations of tigers will preserve large areas of forests, grasslands, and swamps which are also important for stabilizing soil and water regimes. Tigers also help regulate the herbivore population through predation. Furthermore, management plans to protect tigers over large areas of land will conserve other animal and plant species and valuable forest resources for people.

Besides its ecological significance, the tiger is also a cultural icon of power, grace, and beauty. It is both feared and revered throughout the world and is integral to Asian folklore; a testament to the power the tiger has on the human psyche. Because it is a significant symbol in most Asian cultures, the tiger can play an important role as an ambassador for wildlife conservation efforts.

HISTORICAL EVOLUTION, RADIATION, AND REDUCTION OF TIGERS:  
THE PLEISTOCENE TO THE TWENTIETH CENTURY

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STATUS AND CONSERVATION EFFORTS TO SAVE THE TIGER

THE TIGER ONCE INHABITED AN IMMENSE REGION AS FAR WEST AS TURKEY, AS FAR EAST AS THE COASTS OF RUSSIA AND CHINA, AS FAR NORTH AS SIBERIA, AND AS FAR SOUTH AS THE Indonesian island of Bali. From its origins in southern China about one million years ago, the tiger radiated into eight different subspecies that were adapted to the varying prey bases and different climates and habitat types across Asia.

During the 18th and 19th centuries, numerous forces emerged that would drastically reduce the distribution of tigers and their prey. Hunting became extremely efficient with the advent of modern firearms, political stability allowed agricultural expansion into the tiger's habitat, human mortality rates decreased with a concomitant increase in population, and natural resources were increasingly extracted for growing commercial markets. Whole forests were cleared for cash crops, such as tea and coffee in India and wet rice in Java and Bali. Colonialism brought greater hunting pressures and deforestation that had a devastating effect on wildlife in some regions. However, strictly protected forest reserves established under colonial rule actually protected much of the remaining tiger habitat in India, Nepal, Myanmar, and Malaysia from agricultural encroachment.

By the turn of the century, recreational hunting, systematic eradication, and habitat encroachment had brought tigers and their prey to scarce levels in many areas. This continued for much of the 20th century. Following the independence of many Asian countries, the tiger further declined. With colonial controls gone, inexpensive firearms became widely available and many countries established expansionist policies to clear land for agriculture and timber production. By the middle of the 20th century, extensive tracts of land were deforested. In addition, the eradication of malaria in previously inaccessible areas, such as Nepal's lowlands and India's Western Ghats, resulted in extensive human encroachment into remaining tiger habitat.

By the 1930s, the Siberian tiger was extremely rare, due mostly to hunting for the international trade in its skins and the use of its body parts in traditional Chinese medicine. Hundreds of Bengal tigers were killed every year for sport and for government-sponsored bounties. The Balinese tiger subspecies became extinct in the late 1930s. In 1952, with few tigers left, Russia became the first country to ban the hunting of its tigers. In 1959, the Chinese government declared the South China tiger a pest and encouraged its eradication while that same year, the government also declared the Siberian tiger of northern China a protected animal.

THE FIRST TIGER CRISIS: 1960s - 1980s

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INTERNATIONAL AWARENESS OF THE TIGER'S CRITICAL STATUS WAS GENERATED IN THE 1960s BY ground-breaking research and the publication of general books on tigers and other Asian wildlife. In the mid-1960s, George Schaller conducted the first ecological study of tigers in the wild. Prior to this, most information about tigers was primarily anecdotal, based on the observations of hunters and amateur naturalists. A few years later, in 1969, the General Assembly of the International Union for the Conservation of Nature and Natural Resources (IUCN) set forth the first resolution calling for international efforts to save the tiger. The World Wildlife Fund (WWF) soon responded in 1972 with Operation Tiger, a program to fund conservation efforts for the tiger in the Indian subcontinent, Indochina, and Indonesia.

During the early 1970s, many countries, including Indonesia, Bhutan, India, Nepal, Bangladesh, Malaysia, and Thailand, established stronger wildlife protection laws, including laws banning the hunting of tigers, and created new protected areas. For example, in addition to Project Tiger which created reserves specifically for tigers throughout the country, the Indian government passed the Wildlife Protection Act of 1972 which banned tiger hunting and created protected areas that



BUZZ BINZEN

Figure 1: Both the historical range and present-day distribution of tigers are generally based on assumption, since there is an overall lack of scientifically-based information. For the same reason, it is currently impossible to reliably determine the approximate number of tigers remaining in the wild; a popular ‘guesstimate’ tallies the world’s tigers at less than 5,000. The Bengal subspecies could comprise more than half the worldwide population of tigers. The next most numerous of the subspecies is the Indochinese tiger. Estimates based on four years of in-depth research place the Siberian tiger within the range of 200-300. The status and distribution of the Siberian tiger population in North Korea is unknown. Currently, no reliable estimates exist for the Sumatran tiger. The South China tiger has the lowest numbers and is the most vulnerable to extinction. The Balinese, Caspian and Javan tigers became extinct in the 1930s, 1970s, and 1980s, respectively.



THE PRESS ASSOCIATION

**Hunting, in addition to habitat encroachment, has played a critical role in the dramatic reduction of tigers. Hundreds, if not thousands, of tigers were annually shot for sport and as part of eradication campaigns from the 18th to the early 20th century.**



exceeded the total area of its tiger reserves. In Nepal, three tiger reserves were established and scientists from the Smithsonian Institution began ecological research which has since collected vital information about tigers. In addition to these national initiatives, in 1975 the tiger (except the Siberian subspecies which was listed in 1987) was listed on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Species listed on Appendix I cannot be commercially imported or exported. By the late 1980s, eight of the fourteen countries with tigers were party to the Convention.

In some protected areas, tigers, their prey, and habitat recovered under effective management efforts. These included hiring park guards, supplying funds and field equipment, conducting research, relocating people out of tiger reserves, suspending for estry operations, and prohibiting the grazing of livestock in core areas. These small pockets of success demonstrated that knowledge, public support, on-the-ground protection, and high level political commitment can reverse the tiger's decline. But improvements occurred in a tiny fraction of the tiger's entire range, primarily in India, Nepal, and the Russian Far East.

The recovery of tigers in these few small pockets led to the false perception that the species had recovered as a whole. However, habitat loss and destruction continued unabated, and two subspecies, the Caspian and Javan tigers, were driven to extinction in the 1970s and 1980s, respectively. Based on unsubstantiated claims that tiger numbers had risen dramatically throughout their range, in the mid-1980s many protected area managers, national governments, and international conservation organizations proclaimed that efforts to save the tiger had succeeded. Yet, scientific evaluations to assess the true effectiveness of conservation efforts were virtually absent. Scientists, including those of WCS, questioned the accuracy of estimated tiger numbers. Their warnings were largely ignored.

## THE SECOND TIGER CRISIS: THE 1990S

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COMPLACENCY ABOUT THE TIGER'S STATUS WAS SHATTERED IN THE EARLY 1990S WITH THE DISCOVERY OF

large-scale poaching and trafficking for the illegal international trade in tiger parts. A few significant events drew international attention to the role that Asian consumer countries played in the decline of tigers. Following the collapse of the Soviet Union in 1991 and subsequent breakdown in enforcement, large numbers of Siberian tigers were poached, including a scientifically monitored female whose death resulted in four orphaned cubs. Prior to this, poaching had been rare in Russia. In the summer of 1992, India's Ranthambore Tiger Reserve lost many of its tigers to poachers. In August of 1993, 400 kgs (880 lbs.) of tiger bone, accounting for as many as 40 animals, were seized from smugglers in Delhi, India.

Practically every part of the tiger, from its whiskers (for toothaches) to its penis (as an aphrodisiac) to its tail (for skin diseases) is used in traditional Chinese medicine, but the bones, primarily for such ailments as rheumatism, are the most widely used. Large manufacturing factories, mainly in China, turn the bones into pills, skin patches and wine for a mass consumer market primarily in China, Hong Kong, South Korea, Taiwan, Singapore, Japan, and the United States.

Tiger parts have been used in traditional Chinese medicine for over a thousand years, but recently the demand is having a devastating effect on tiger populations due to a number of political and economic factors. International smuggling of tigers, bears, rhinos, and other endangered wildlife has become easier due to open borders between consumer and range countries (countries with tigers). As the economies of the major consumer nations have improved, consumer demand has increased. For many people living in range countries with low per capita income, a tiger sold on the black market can exceed several years' income. Poaching activities in some areas are becoming more sophisticated. In Russia, for instance, organized crime is involved in the trade. Poorly armed and often underpaid park guards are now at extreme risk from well armed, organized poachers, and some guards have been killed.

CRITIQUE  
OF  
PAST  
CONSERVATION  
EFFORTS

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MORE THAN TWO DECADES HAVE PASSED SINCE THE FIRST INTERNATIONAL EFFORTS WERE MADE TO save the tiger, and yet most populations have not recovered or have continued to decline. A review of the successes and failures of these efforts is necessary to identify where there is a need for improvement. Overall, there are five main factors that have contributed to the failure of past conservation efforts:

- ◆ The lack of scientific research on the status, needs, and management of existing tiger populations
- ◆ Inadequate legal structures to manage on-the-ground protection of tigers
- ◆ Poor implementation of anti-hunting and protected areas laws
- ◆ Inadequate legal structures to control the illegal trade in tiger parts
- ◆ Insufficient enforcement efforts to control the illegal trade

#### LACK OF SCIENTIFIC RESEARCH

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RIGOROUS SURVEYS HAVE BEEN CONDUCTED ON ONLY A FEW TIGER POPULATIONS, IN INDIA, NEPAL, AND Russia. Adequate tiger surveys are lacking in Bhutan, Myanmar, Cambodia, Lao People's Democratic Republic, Vietnam, and North Korea; basic presence / absence surveys have been conducted in Bangladesh, Thailand, and China; and estimates of tigers in Peninsular Malaysia and Sumatra are little more than guesswork. Thus, little is known about the abundance, distribution, and overall status of most tiger populations and the integrity of their existing habitat and prey base. This information is necessary to both establish appropriate protected areas for key tiger populations and to assess the integrity of existing protected areas that harbor tigers.

To date, of the few surveys to assess and monitor tiger populations, most lack scientific rigor and rely on poor and unreliable research methods. A case in point is India's country-wide tiger estimates, which were based on the unreliable method of counting tiger footprints, or pugmarks. Seemingly precise tiger counts generated from this method in the 1980s were inappropriately assumed to be accurate, and the tiger was presumed saved when in fact it continued to decline. WCS funded research that demonstrated the weaknesses of the pugmark method and produced better alternatives.

More accurate methods based on standardized sampling techniques to estimate tiger densities have been used on key tiger populations in India, Nepal, and Russia. These include estimates of tiger abundance based on relative abundance of prey and on habitat quality assessments, as well as direct monitoring of tigers through radiotelemetry and camera-traps. Assessments of general trends in tiger abundance can be determined by sampling tiger sign, such as droppings and ground scrapings. A more accurate method for estimating tiger abundance is a census technique based on photographs of individual tigers using camera-traps, which are equipped with a triggering mechanism and placed along well used tiger paths. Since no two tigers have the same pattern of stripes, photo identification of individual tigers is a highly accurate method to estimate tiger abundance. Radiotelemetry,

whereby the animal's movements are monitored through a radio tracking device, provides in-depth information on behavioral and demographic parameters, such as territory size, hunting patterns, long-term survival rates, and habitat usage.

Long-term, in-depth, ecological studies necessary to understand the conservation needs of tigers are rare. Consequently, most management programs for wild tiger populations have not been based on scientific research data. Existing knowledge of the tiger's ecology has been derived primarily from only four long-term studies: George Schaller's research in Kanha National Park, India, from 1964 to 1965; the ongoing Smithsonian-Nepal Tiger Ecology Project, launched in 1973, in Chitwan National Park, Nepal; Ullas Karanth's decade-old research in Nagarhole National Park, India; and the Horner Institute's four-year-old Siberian Tiger Project.

#### LIMITATIONS OF EXISTING LEGAL STRUCTURES IN COUNTRIES WITH TIGERS

**D**OMESTIC LEGAL PROVISIONS TO PROTECT TIGERS AND TO IMPLEMENT INTERNATIONAL TRADE prohibitions are generally inadequate in all range countries. In addition, legal hunting of prey in key tiger habitat and the legal status of different protected areas harboring tigers have not been addressed.

Although most range countries have passed legislation banning tiger hunting, existing legal systems frequently make on-the-ground enforcement extremely difficult. Protected area staff are often not legally empowered to administer anti-hunting laws. They may not be able to search and confiscate, arrest, prosecute, carry arms, and/or shoot even when they are allowed to carry a gun. For example, park guards in Myanmar cannot arrest poachers, nor can they carry guns. In India, most field managers cannot obtain legal support for prosecuting poachers, and they lack jurisdiction over illegal activities occurring within the buffer areas surrounding their tiger reserves. Another hindrance to the efficacy of anti-hunting laws is the complete lack of legal controls on the possession and use of firearms in some range countries, such as Vietnam and Lao P.D.R.

Prohibitions on tiger hunting are essential but they do not address a critical, overlooked, threat: the legal hunting of prey in key tiger habitat. Tigers require adequate numbers of large prey. Yet hunting of prey species occurs unabated throughout much of the tiger's range. Legal hunting, trapping, and snaring of all wildlife in countries such as Cambodia, Lao P.D.R., Myanmar, and Vietnam have resulted in extremely low prey densities in otherwise relatively undisturbed forests.

Many existing protected areas that may harbor key populations of tigers are not legally designated with the primary purpose of protecting tigers and may permit such activities as logging, extraction of other forest products, human settlements, grazing, and agricultural development. For example, most of Peninsular Malaysia's remaining forest cover lies within 'reserve forests' which are primarily designated for production purposes and, to a lesser degree, for wildlife protection purposes. In India's protected areas that are legally designated as wildlife sanctuaries, activities such as livestock grazing and fuelwood collection are allowed, while in protected areas that are legally designated as national parks including tiger reserves, all extractive activities are prohib-

ited. Yet, tigers also exist in areas other than the national parks. Countries such as Russia, Thailand, and Myanmar, forest reserves, which are legally reserved for logging purposes, often contain tigers.

Many tiger populations exist outside protected areas, and thus their habitat is in greater danger from human encroachment. Bhutan's system of protected areas under-represents suitable tiger habitat; Bangladesh's tigers exist in the large mangrove forests of the Sundarbans where there are only three small and scattered wildlife sanctuaries; tigers occur both inside and outside the two main protected areas of the Russian Far East; and Myanmar's protected areas cover little more than 1% of the country, although approximately 45% is still forested.

#### FAILING TO CONTROL HUMAN IMPACTS ON-THE-GROUND

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**A**LL THE RANGE COUNTRIES GENERALLY FAIL TO IMPLEMENT EXISTING ANTI-HUNTING AND PROTECTION LAWS. REASONS FOR THIS INCLUDE A LACK OF POLITICAL COMMITMENT, INSUFFICIENT FINANCIAL AND TECHNICAL RESOURCES, POOR TRAINING, AND POOR MANAGEMENT SCHEMES.

Except for some places in India and Nepal with stringent anti-poaching operations, tigers and their prey are still intensively and illegally hunted throughout their range. Enforcement of anti-hunting laws by guards and other protected area staff suffers due to a lack of manpower, organization, compensation, recognition, training, motivation, camps inside protected areas, night patrols, and/or resources such as firearms, ammunition, vehicles, and communication equipment. In Myanmar, Cambodia, Lao P.D.R., and Vietnam, field personnel are few and lack adequate training, funding is scarce, and management plans are often nonexistent. This is compounded by both economic and political instabilities in the region. For example, Lao P.D.R. does not have enough funding for staff, while insurgencies in Myanmar have prevented staff from entering existing protected areas. Ill-equipped guards often face very sophisticated, well-armed poaching teams, and some have lost their lives to poachers. Furthermore, guards and other protected area staff, particularly in low ranking positions, often do not receive pay commensurate with the high-risk nature of their position and their commendable achievements.

The majority of India's tiger reserves do not have mandatory armed anti-poaching teams and basic equipment is inequitably distributed among the reserves. Russia's historically strict enforcement of protected areas disintegrated with the country's economic and political instability following the collapse of the Soviet Union. Insufficient funds, poorly paid staff, and lack of a reliable communication system have hampered protection. However, with outside funding from international conservation organizations and revenues from poaching fines, the government established Operation Amba, an anti-poaching task force in two national parks where tigers exist. As a result, poaching appears to be declining. Nepal is a good example of the power of political commitment. Although Nepal is one of the poorest countries in the world, it provides approximately US \$5,800 per square kilometer to protect and manage Royal Chitwan National Park.

Both range and consumer countries often fail to adequately prosecute poachers and other people involved in illegal trade activities. In many countries the courts are ineffective due in part to an insufficient understanding of existing



ART WOLFE



ULLAS KARANTH

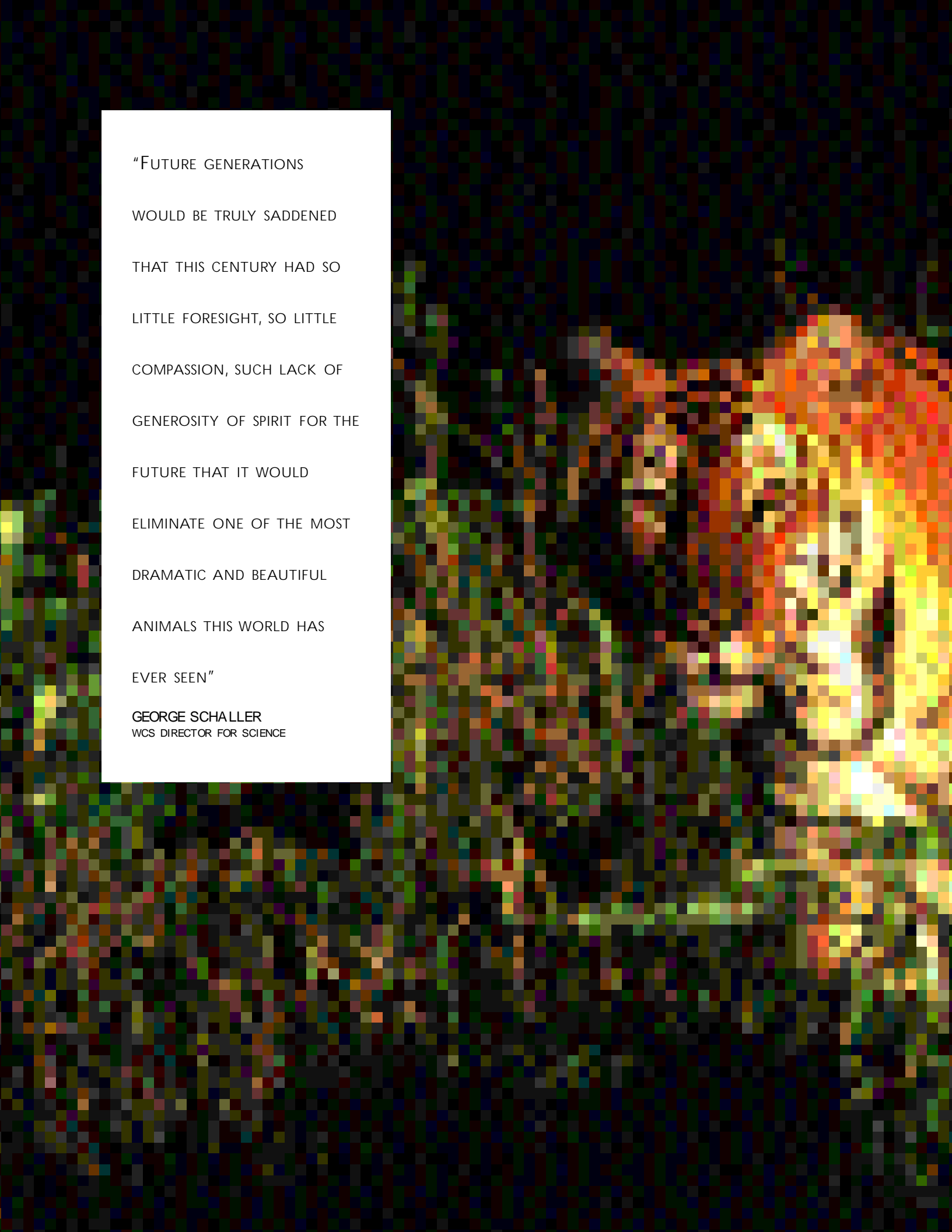
Above: With its powerful forelimbs, a tiger can take down prey weighing more than a ton, such as the gaur, *Bos gaurus*. Tigers need dense vegetative cover as camouflage, since they must stalk and ambush prey that is often many times their size. It may take a tiger an average of 20 attempts for every successful kill.

Top: Tigers need high densities of large prey such as wild cattle, pigs, and deer, like the spotted deer, *Axis axis*. Hunting, trapping, and snaring of the tiger's prey is a serious threat to the tiger throughout its range. The abundance of tigers is directly linked to the abundance of prey. As prey densities decrease, tigers must increase their range in search of food, sometimes bringing them into direct conflict with people.

Right: Aside from habitat fragmentation, the concomitant road building that results from logging activities is an important threat to tigers. Roads open otherwise remote areas to human settlements and to poachers, including the workers themselves, who can earn additional income from selling wildlife.



ALAN RABINOWITZ



"FUTURE GENERATIONS  
WOULD BE TRULY SADDENED  
THAT THIS CENTURY HAD SO  
LITTLE FORESIGHT, SO LITTLE  
COMPASSION, SUCH LACK OF  
GENEROSITY OF SPIRIT FOR THE  
FUTURE THAT IT WOULD  
ELIMINATE ONE OF THE MOST  
DRAMATIC AND BEAUTIFUL  
ANIMALS THIS WORLD HAS  
EVER SEEN"

GEORGE SCHALLER  
WCS DIRECTOR FOR SCIENCE



PHOTOGRAPH: ULLAS KARANTH



ROB TIMMINS

Tigers are poached for their skins, valued as a status symbol, and for their bones and other parts which are used in traditional Chinese medicine and other folk remedies. The increasing demand for tiger products in China, Taiwan, and elsewhere, along with the easing of controls along national borders throughout Asia, has resulted in the rapid increase in poaching of tigers. A rural villager can make several years' income from one tiger's skeleton.



ALAN RABINOWITZ

From its whiskers to its tail, practically every part of the tiger has some curative, preventive, or aphrodisiac value. Here, a vendor is selling tiger penises, which are fake, as an aphrodisiac. A bowl of tiger penis soup can cost US \$300 in specialty restaurants.



BILL BLEISCH

Vast amounts of factory manufactured medicinal products are made in China, such as these advertised pills supposedly made of tiger bone. From 1990-1992, China reportedly exported over 27 million tiger products to 26 countries and territories. These inexpensive products have little, or in many cases no, tiger ingredients.



wildlife laws among legal advisors and a general perception among judges that wildlife violations are not serious crimes. Furthermore, penalties are often too low to act as a deterrent.

In addition to the problems in controlling the hunting of tigers and prey, protected areas are often poorly managed, if at all. Many, like some in Indochina, Peninsular Malaysia, and India, have been subject to agricultural development, grazing, logging, mining, wildlife poaching, and/or human settlements. In Thailand, poor or non-existent mapping of protected area boundaries makes patrolling and law enforcement difficult. Both Thailand and Sumatra have large human settlements inside some protected areas that harbor tigers. These areas continue to be cleared for agriculture. Furthermore, confrontations between local people and protected area staff, in places such as India and Thailand, have hampered enforcement and frequently result in fatal assaults on protected area guards. Conflicts have arisen partly because people were not included in management schemes and guards were perceived as adversaries.

In a few protected areas, primarily in India and Nepal, governments have controlled habitat degradation by local people. Regular patrolling, including night patrols, and barriers such as trenches and walls are effective. Properly administered physical relocations of human settlements out of protected areas has proven to be very effective in countering illegal hunting and habitat destruction, and in reducing conflicts. Successful relocations occurred in many of India's Project Tiger reserves when people were included in the relocation process and were adequately informed of the benefits to living outside the reserve. Alternative agricultural lands, housing, water sources, and other amenities were provided at the new settlement site. When implemented properly, relocations often result in a rapid recovery of the tiger's habitat and its prey. But, when poorly executed, relocations have resulted in backlashes on the protected areas themselves.

Although vital tiger habitat may receive legal protection, on the landscape level management is sometimes disjointed. For example, some large forest areas in Thailand comprise a matrix of contiguous protected areas that have different legal definitions, and are therefore managed by separate departments and divisions. Similarly, tigers often move across international borders which are managed under separate governments. Cooperative conservation initiatives have been discussed among neighboring range countries through such forums as the Transboundary Biodiversity Conferences and the Global Tiger Forum.

#### LIMITATIONS OF EXISTING LEGAL STRUCTURES IN CONSUMER COUNTRIES

JUST AS LEGISLATION IN RANGE COUNTRIES OFTEN FAILS TO PROTECT TIGERS, SO DO EXISTING TRADE control laws in consumer countries, making international smuggling and domestic sale of tiger products almost impossible to control. Until recently, the international community largely ignored the failure of some governments to legally uphold international trade prohibitions of tigers. A recent CITES review of some consumer countries has found that while non-Asian countries that are key importers of tiger products have adequate legislation to implement international wildlife trade prohibitions, the key Asian consumer countries reviewed (China, Japan, Singapore, and Hong Kong) need better domestic laws to uphold CITES prohibitions. Aside from their ability to control imports and exports, national laws also need to be evaluated for their effectiveness in controlling internal trade.

Due to recognition of the crisis, many key consumer countries have just recently passed domestic laws such as prohibitions on the sale, possession, use, and/ or manufacture of tiger parts and products. China, Hong Kong, Singapore, South Korea, and Taiwan passed domestic trade control laws only within the past two to three years. Since these laws are recent, their effectiveness is still uncertain.

Some national trade control laws are more comprehensive than others. For example, Japan continues to allow the domestic sale and possession of tiger products, while Hong Kong's laws even prohibit the sale and possession of fake tiger products, commonly sold along with authentic products. Other wise comprehensive wildlife laws in the United States fail to address the sale of fake tiger derivatives. Therefore, to prosecute under existing wildlife law, U.S. law enforcement officers must first prove the product's authenticity.

Taiwan is an example of the swift effectiveness that international pressure can have on violators of international trade prohibitions. Since the United States imposed trade prohibitions on it for decreasing the effectiveness of CITES, Taiwan has prohibited the possession of tiger products, amended its Wildlife Conservation Law to strengthen enforcement activities, and raised penalties for illegal trading in tiger derivatives. Subsequently, the United States lifted trade prohibitions in June of 1995 but will continue to monitor Taiwan's progress, as both it and China remain "certified" under the Pelly Amendment.

#### FAILING TO CONTROL THE TRADE

**A**S WITH ON- THE- GROUND IMPLEMENTATION, THE ENFORCEMENT OF TRADE CONTROL LAWS IN consumer countries is often inadequate or non- existent. This is basically due to a lack of political commitment from governments to establish and support enforcement.

RECOMMENDED

SCOPE AND OBJECTIVES

ACTIONS

TO

SAVE

TIGERS

IN

THE

WILD

THE OBJECTIVE OF THE FOLLOWING ACTION PLAN IS TO REVERSE THE CURRENT DECLINE OF TIGER POPULATIONS, stabilize tiger populations, and ensure their long-term existence. This requires expanding and prioritizing conservation initiatives to address the immediate threats to tigers. The approach must be multifaceted, involving scientifically based research and monitoring, improving on-the-ground protection and management of tigers and their prey, halting the international trade in tigers, and mobilizing public support among both people living near tigers and consumers of tiger parts.

At the heart of a strategy to save tigers is the identification of high priority tiger populations on which immediate conservation efforts should be focused. Relatively rapid scientific surveys can locate such populations, based primarily on whether the existing prey base and habitat meets the long-term ecological requirements of tigers. Ecological studies have shown that tigers need large blocks of suitable habitat with high densities of large herbivore prey, such as deer, pigs, and wild cattle. Suitable habitat implies adequate water sources and sufficient vegetative cover for hunting. Generally, optimal tiger habitat must include a core area of at least 1,000 square kilometers that is designated as inviolate, free from most human activities. Smaller areas may contain tigers but they would likely have a more limited prey base. Thus, the future stability of such populations is questionable.

Once key tiger populations are identified, their habitats need to be managed for the purpose of protecting the tigers. This requires isolating tiger populations from adverse human activities by controlling poaching and reducing human demand on these areas. To do this, critical tiger habitat must be inviolate, and the landscape surrounding these core areas must be managed in ways that meet the needs of local people. In addition, there must be strong efforts to stop hunting and enforce protected area laws, monitor tiger populations, and educate people living near tigers about conservation.

Essential to on-the-ground protection of tigers is halting the trade in their parts. This entails prohibiting the trade, enforcing trade control laws, training enforcement officers in trade-related issues, and reducing consumer demand. Since the demand is the driving force behind the trade, efforts to promote public awareness and changes in traditional Chinese medicine practices are key.

Zoos can play an important role in tiger conservation efforts. Captive-bred tigers are a valuable means to educate people about the status of tigers in the wild and to rally public support for conservation efforts. Although it does not address the immediate

SAVING  
THE  
TIGER

threats of hunting and habitat encroachment, captive breeding is important for maintaining a reservoir of genetic material as insurance against such long-term threats as genetic deterioration that small tiger populations may face in the future.

All the components of the following action plan are important to ensure the tiger's survival. Ultimately, the success of these efforts depends on political commitment, local support, and a reduction in the demand for tiger parts.

## SPECIFIC ACTIONS

### ◆ CONDUCT STATUS SURVEYS, MONITOR POPULATIONS, AND CARRY OUT IN-DEPTH ECOLOGICAL STUDIES ON TIGERS

ASSESS THE STATUS OF TIGERS AND THEIR CONSERVATION NEEDS IN ORDER TO PRIORITIZE IMMEDIATE CONSERVATION EFFORTS. High priority tiger populations need to be identified through short-term field surveys that can assess the status of existing populations of tigers and their prey base. Surveys must employ standardized, objective methodologies for determining the presence and relative abundance of tigers and their prey. These sampling methods, such as measuring encounter rates with tiger and prey sign and estimates derived from prey counts, can be simple, efficient, and relatively inexpensive.

EVALUATE EXISTING CONSERVATION EFFORTS FOR KEY TIGER POPULATIONS BY RIGOROUSLY AND ROUTINELY MONITORING THEIR STATUS. Monitoring key tiger populations using rigorous scientific methodology is a long-term commitment that is necessary for evaluating management efforts, such as controlling hunting and habitat destruction, over time. Prey density estimation techniques such as those derived from line transect surveys of prey and estimates of tiger abundance based on camera trap data can be used. At the very least, managers should use simple sampling techniques based on encounter rates with tiger and prey sign which will indicate whether tigers are increasing or decreasing, though these techniques will not provide actual numbers or density estimates.

CARRY OUT LONG-TERM, COMPREHENSIVE ECOLOGICAL STUDIES ON TIGERS IN THE WILD. In select, representative sites, gather vital information on predation patterns, densities, social organization, population dynamics, use of habitat, and other ecological parameters. This is accomplished using advanced techniques including radiotelemetry and camera traps.



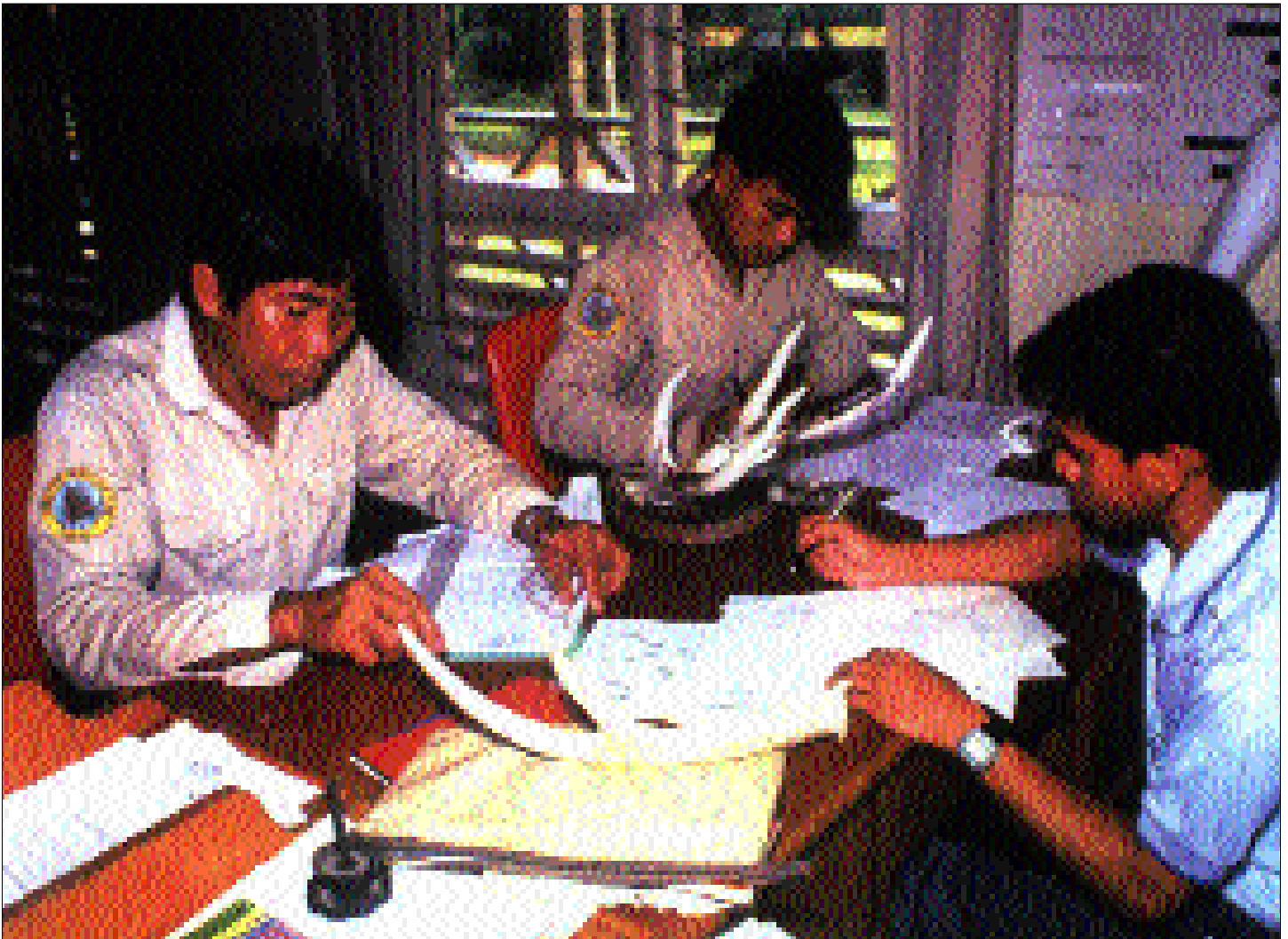
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**Top:** Relatively inexpensive and reliable standardized sampling techniques can indicate whether tigers are increasing, decreasing, or remaining stable. Here, the densities of various signs of tiger's prey is used to estimate the prey species' relative abundance. An estimate of the density of tigers is then derived from that of its prey. Researchers and protected area personnel trained in such sampling methods are important for reliably monitoring key tiger populations.

**Left:** Tigers and their prey require immediate protection from poachers. Adequate numbers of foot patrols are needed day and night in protected areas with key populations of tigers. Currently, enforcement of anti-hunting laws by guards and other protected area staff generally suffers from a lack of manpower, organization, training, motivation, camps inside protected areas, night patrols, and/or basic law enforcement equipment from vehicles to firearms.




ALAN RABINOWITZ


**Top:** Adequately trained protected area staff, including guards and managers, is crucial to effective management efforts. Park guards participating in this WCS training workshop in Malaysia are learning reliable observational skills and basic monitoring techniques. With these skills, protected area staff can monitor the general trends in tiger and prey abundance.

**Right:** It is essential to reduce the demand for tiger products that is driving the poaching of tigers. Thus, in early 1995, WCS began a pro bono print and television advertising campaign, "Help us destroy the myth, not the tiger," designed by Ogilvy & Mather Advertising in Asia. The intent is to inform consumers in Asia that purchasing tiger products is endangering tigers in the wild. The accompanying text to this particular ad refers to studies that indicate that other traditional Chinese medicines may have some effect on impotence, but not tiger penis. This ad, out of almost 9,000 entries around the world, won the 1995 Gold Medal Award for Best Public Service Print Advertising on environmental issues at the New York Art Directors Festival.

EATING THE PARTS  
OF A TIGER  
IS SAID TO GIVE YOU  
ITS LEGENDARY  
SEXUAL PROWESS.



YOU TOO CAN MAKE  
LOVE FOR A FULL  
FIFTEEN SECONDS.



WILDLIFE CONSERVATION SOCIETY

◆ CREATE NEW LEGAL AND POLICY INITIATIVES FOR PROTECTING TIGERS ON-THE GROUND

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LEGALLY EMPOWER WILDLIFE LAW ENFORCERS. Allow protected area staff to search and seize property, arrest, and use firearms.

INCREASE THE PENALTIES AGAINST POACHERS SO THAT THEY ACT AS AN EFFECTIVE DETERRENT. Consider, for instance, instituting mandatory prison sentences and fines that are equivalent to or exceed the retail value of the poached animal.

LEGALLY CONTROL THE SALE AND POSSESSION OF FIREARMS AND AMMUNITION TO LOCAL PEOPLE IN AND AROUND TIGER POPULATIONS. For example, firearms could be registered and hunting allowed on a permit or licensing basis.

PROHIBIT THE HUNTING OF PREY SPECIES IN CRITICAL TIGER HABITAT.

EVALUATE THE CURRENT LEGAL AND ADMINISTRATIVE STRUCTURE OF THE PROTECTED AREA SYSTEM. The legal status of those areas, including new reserves, corridors, and extensions, that are critical to tiger populations should be adjusted or upgraded. Contiguous tiger habitat that is administered by different government divisions should be managed as a whole.

RANGE COUNTRIES THAT SHARE COMMON BORDERS AND/ OR COMMON POPULATIONS OF TIGERS NEED TO COOPERATE AND COORDINATE THEIR EFFORTS TO PROTECT TIGERS. As a start, they can participate in international forums such as the Global Tiger Forum and the Transboundary Biodiversity Conferences.

◆ IMPLEMENT ANTI-HUNTING AND PROTECTED AREA LAWS

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DEPLOY MORE MANPOWER IN THE FIELD TO ENFORCE LAWS. Financial resources and political commitment should be directed towards increasing anti-poaching teams in key tiger habitat and increasing protected area staff. Priority should be given to local and indigenous people when hiring field staff.

IMPROVE THE ORGANIZATION OF ANTI-POACHING PATROLS, PARTICULARLY FOOT PATROLS. For example, night patrols and camps inside protected areas can be essential to effective anti-poaching efforts.

TRAIN PROTECTED AREA STAFF IN ENFORCEMENT SKILLS such as patrolling techniques, the use of firearms and other equipment, and law enforcement procedures.

PROVIDE BETTER SALARIES, REWARDS, AND OTHER INCENTIVES to improve the morale and productivity of protected area staff.

INCREASE INFRASTRUCTURAL SUPPORT FOR ANTI-POACHING ACTIVITIES. Such support includes vehicles, arms, ammunition, wireless communications, binoculars, night vision devices, and other necessary equipment.

ESTABLISH INTELLIGENCE-GATHERING NETWORKS AND UNDERCOVER INVESTI-

GATIONS to detect and prevent illegal hunting activities.

EDUCATE LEGAL ADVISORS IN WILDLIFE LAWS FOR EFFECTIVE PROSECUTION OF P O A C H I N G ACTIVITIES. Lawyers and judges should be aware of the seriousness of wildlife crimes. Judges should issue appropriate penalties commensurate with the severity of the crime.

◆ REDUCE HUMAN IMPACTS ON CRITICAL TIGER HABITATS

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REDUCE HUMAN AND LIVESTOCK PRESSURES IN CRITICAL TIGER HABITAT THROUGH WELL PLANNED RELOCATIONS OF PEOPLE LIVING INSIDE SUCH AREAS. Relocation programs need to be conducted in consultation with the affected people. Governments and private sources should provide compensation for loss of land. Private and governmental funding institutions that are concerned with maintaining biodiversity in Asia should direct funding to well planned relocation schemes.

INCREASE LAND PRODUCTIVITY OUTSIDE KEY TIGER HABITAT. In order to meet the needs of people living near critical tiger habitat, regional policies and integrated community development programs should re-orient the extraction of natural resources from inside tiger habitat to areas lying outside.

PHYSICALLY SEPARATE PEOPLE AND LIVESTOCK FROM CRITICAL TIGER HABITAT. This can be accomplished with barriers such as fences, walls, and trenches to control illegal land encroachment, livestock grazing, and entry of motorized and non-motorized vehicles.

FORESTRY EXPLOITATION, FROM COMMERCIAL OPERATIONS TO LOCAL EXTRACTION OF TIMBER, FUELWOOD, FODDER, AND NON-TIMBER FOREST PRODUCTS, MUST BE PROHIBITED IN CRITICAL TIGER HABITATS

STOP LARGE DEVELOPMENTAL PROJECTS SUCH AS DAMS, MINING, AND ROAD-BUILDING IN CRITICAL TIGER HABITAT.

INVESTIGATE THE VIABILITY OF LOW-IMPACT ECOTOURISM IN TIGER HABITAT. Revenue generated from tiger-based tourism should be channeled into conservation and community development.

MULTIPLE-USE AREAS SURROUNDING TIGER HABITAT SHOULD BE MANAGED FOR LAND USE AND CROP PRODUCTION PRACTICES THAT ENHANCE THE CONNECTIVE CORRIDORS BETWEEN TIGER POPULATIONS.

CONTIGUOUS FORESTED AREAS WITH KEY TIGER POPULATIONS SHOULD BE MANAGED AS ONE LEGAL UNIT, under the jurisdiction of one implementing agency or under negotiated agreements between various authorized agencies.



◆ CREATE NEW LEGAL AND POLICY INITIATIVES FOR REDUCING AND CONTROLLING THE TRADE IN TIGER PARTS AND PRODUCTS

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BAN THE SALE, POSSESSION, AND USE OF TIGER PARTS AND PRODUCTS, INCLUDING PRODUCTS FALSELY CLAIMING TO CONTAIN TIGER INGREDIENTS. Domestic trade control laws are an important complement to on-the-ground protection of tigers, particularly since international enforcement in the marketplace in some areas may be relatively easier than in the field. Since many tiger products do not actually contain tiger ingredients, prohibitions must apply whether or not products actually contain tiger ingredients so that law enforcement is not hindered by the process of having to prove a product's authenticity.

ALL TIGER RANGE STATES AND CONSUMER COUNTRIES NEED TO EVALUATE THEIR EXISTING DOMESTIC LAWS TO BETTER IMPLEMENT CITES. Domestic laws need to be improved so that they can be enforced, particularly in a way that facilitates undercover investigations.

NON-PARTY COUNTRIES THAT HAVE TIGERS SHOULD ACCEDE TO CITES. The range countries that are not party to the Convention are Bhutan, Cambodia, Lao P.D.R., Myanmar, and North Korea. Parties to the Convention benefit from CITES membership because they can participate in global discussions (through CITES conferences) on international trade controls and receive training and assistance in law enforcement.

INCREASE PENALTIES AGAINST TRADE VIOLATIONS SO THAT THEY ACT AS AN EFFECTIVE DETERRENT. Consider, for instance, instituting mandatory prison sentences and fines that are equivalent to or exceed the retail value of the poached animal or seized products.

BAN TIGER FARMS. Commercial exploitation of body parts from farm-raised tigers can be detrimental to tigers in the wild. Past experience with other endangered species shows that legally marketed animals and their derivatives serve as a cover for illegally acquired animals, particularly when existing controls on illegal trade are poor and when the proposed legal trade of captive animals cannot be adequately regulated.

◆ IMPLEMENT TRADE CONTROL LAWS

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DESIGNATE LAW ENFORCEMENT UNITS WITH THE SOLE MANDATE OF ENFORCING TRADE CONTROL LAWS. Such units would conduct illegal wildlife trade investigations. The unit should coordinate both information and activities with other units of enforcement agencies, such as customs controls, within the country and with other countries.

CONSOLIDATE JURISDICTION OVER TRADE CONTROL AMONG THE VARIOUS IMPLEMENTING AGENCIES. The authority of existing agencies over illegal trade

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## WILDLIFE CONSERVATION SOCIETY

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THE WILDLIFE CONSERVATION SOCIETY (WCS), FOUNDED 100 YEARS AGO AS THE NEW YORK Zoological Society, is dedicated to preserving the Earth's wildlife and ecosystems. Unique among conservation organizations, the Society combines international scientific-based conservation efforts in the field with the captive propagation of endangered species, wildlife management and health services, and environmental education for local, national, and international audiences.

WCS currently oversees more than 270 conservation projects in over 50 countries in Asia, Africa, and Latin America. Our field staff, the largest of any international conservation organization in the United States, is helping to save habitats as diverse as the Tanzanian savannahs, the coastal ecosystems of Patagonia, and coral reefs in Belize. By training local wildlife staff and students in research methods, WCS ensures that there is a permanent local capacity for conservation and management. The Society also promotes local public awareness of endangered species and habitat loss.

WCS works in cooperation with local and national governments and conservation organizations by providing information based on its long-term field studies to decision-makers involved in conservation policy and action. As a result of these initiatives, we have helped establish more than 100 wildlife parks and reserves across the world, including the Arctic National Wildlife Refuge in Alaska, Amboseli National Park in Kenya, and one of the world's largest, the Chang Tang Reserve, in Tibet. Within the past five years alone, the Society has helped protect more than 90 million acres of land.

The Society operates the nation's largest system of urban wildlife parks, which, in addition to the world-renowned Bronx Zoo, includes the Aquarium for Wildlife Conservation, and the Central Park, Queens, and Prospect Park Wildlife Centers. With more than 13,000 animals, many of which are endangered, under its care, WCS conducts pioneering research on wildlife nutrition, behavior, and genetics. At our 14,000 acre St. Catherines Wildlife Survival Center, rare and endangered

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