

The Siberian Tiger Project: Saving Endangered Species Through International Cooperation

by Howard Quigley and Maurice Hornocker

A few years ago, people in a number of countries were surveyed on their general knowledge about wildlife. The survey crossed cultural, political, and economic boundaries. Of the six or eight species with the highest index of recognition, almost half were endangered species. The giant panda, the rhinoceros, and the tiger were on that list, and although all three are the focus of major international efforts to save them from extinction, they continue to decline. It is in Russia where we hope to reverse this trend for at least one of the subspecies of tigers, the Siberian tiger (*Panthera tigris altaica*).

Over the past 5 years, through the Hornocker Wildlife Research Institute at the University of Idaho, we have mounted a major research and conservation effort to save this great cat, known also as the Manchurian or Amur tiger. Five years ago, the estimated number of Siberian tigers in Russia was approximately 500, and very little was known in the West about the subspecies. Around a campfire in a central Idaho wilderness area with members of the then-Soviet Academy of Sciences, we proposed a research project to examine the ecology of this cat in depth. The response was, "Ngét problem." Over the next 2 years we organized the field project.

The goal of the project from the beginning has been to describe the ecology of the tiger in detail and apply those findings to the conservation of the cat and its native habitat. Russian biologists had been studying the tiger for several years and had accumulated impressive banks of information. But the data were limited by one fact: tigers could not be followed consistently when there was no snow on the ground for tracking. Thus, the picture of the Siberian tiger's behavior was quite good from about the end of Oc-



A species that is the focus of an international effort to save it from extinction, this Siberian tiger cub is also a poignant representation of an immediate problem. Poachers orphaned the cub by shooting his mother who "probably wound up on a pharmacy shelf."

The Siberian Tiger Project at the Hornocker Wildlife Research Institute, University of Idaho, has been working with several Russian agencies to study the ecology of the species and to develop a conservation plan. Now, to complement the habitat preservation initiative, the emphasis is on anti-poaching efforts through acquiring "boots, bullets, and vehicles for park guards in Russia," says Project Co-Director Howard Quigley. Adds Dr. Quigley, "We will have a conservation plan in place, but if we don't halt poaching, there won't be any tigers to save. We could lose the largest cat in the world in the next few years."

In 1992, the Siberian Tiger Project rescued four cubs similarly orphaned. Today, the two surviving cubs, a male and a female, are doing well. Named Khuntami, for a landmark in the Sikhote-Alin Biosphere Reserve of Russia, the male cub is at the Omaha Zoo and now weighs more than 250 pounds. The female Nadezhda, whose name in Russian means "hope," is at the Indianapolis Zoo and weighs almost 200 pounds.

tober to the end of March. But outside of those months, only spotty information existed. To understand the cat, and to find answers to help in its conservation, the entire picture had to be put together. In 1989, we proposed to fill those gaps and formed a field team of Russians and Americans to do just that. The initial problem was funding; although the Russian scientific community was supportive and eager to be involved, it could not supply monetary support.

With borrowed money, we made two organizational trips to Russia. In the meantime, two organizations — the National Geographic Society and

the National Fish and Wildlife Foundation — came forward with matching funds to start the project. Field operations began in January 1992. Subsequently, additional funding from the Exxon Corporation, the National Wildlife Federation, and private contributors have kept project activities moving.

There are eight recognized subspecies of tigers, three of which are believed to be extinct. The main feature distinguishing the Siberian tiger from its cousins is its great size. With males reaching recorded weights over 700 pounds in the wild, this subspecies is the largest of all felids. To secure the

(continued on next page)



photo by Siberian Tiger Project Field Coordinator Dale Miquelle

Co-Director of the Siberian Tiger Project at the University of Idaho's Hornocker Wildlife Research Institute, Dr. Howard Quigley checks the radio collar on Tiger #1, nicknamed Olga, in February 1992. Olga was the first Siberian tiger captured by Russian and U.S. researchers, utilizing combined expertise—Russian tracking experience and U.S. telemetry and tranquilizing capabilities.

Siberian Tiger Project

(continued from previous page)

future of this cat in the wild was imperative, but it had to be done in Russia; only 10 to 30 were estimated at the time to roam their native home in China, although the historic range of the subspecies extended from Lake Baikal to Beijing.

The Siberian tiger occurs in a region of Russia about which few people in the West have much information. This area basically is bordered by the mouth of the Amur River on the north, and the Chinese and North Korean borders on the south (Miquelle et al., in press), and is known as the Russian Far East. It is roughly equivalent in size and topography to the coast range from San Francisco to Seattle on the west coast of the United States. This part of greater Siberia contains the largest block of contiguous forest in the world, the taiga forest. Although we are focusing on the tiger, the region has great biological diversity.

While Russia generally experiences cold temperatures, the Far East region is a combination of continental and milder maritime climates, strongly in-

fluenced by the Sea of Japan and the Pacific Ocean. In contrast to much of the continental climate, the Far East region of Russia obtains most of its precipitation in the spring and early summer from moist southeastern monsoon winds, which can bring more than 6 inches of rain in one day.

This combination of climates promotes a diversity of plants and animals from the northern boreal, Asian, and temperate coniferous life zones. More than 150 species of trees and shrubs exist in Primorye Province (or Krai; Berg, 1950), as well as strange combinations of northern and southern species, such as moose and sika deer, or marten and leopards. Thus, there is more at stake than just tigers.

The tiger, however, can be an effective symbol and tool for the conservation of biological diversity in the Russian Far East. With our team of Russian and American biologists, we continue to gather the information necessary for developing a conservation plan to secure the future of the Siberian tiger. Given the ecological and space requirements of the tiger, the conservation plan will likely secure the future of many other organisms as

well. This is the so-called "umbrella effect," which is so often cited when large carnivores are proposed as conservation tools.

But the Siberian Tiger Project is more than ecology, biology, and science. It has been an odyssey of experiences that neither we nor our Russian colleagues dreamed of when we began. The initial months of development, prior to field work, were filled with long negotiating sessions. Like arms negotiators, we were spurred on by some larger vision of moral imperative, although at times we questioned our judgment about taking on this task. When the negotiations stopped, however, and the field work finally got under way, we found the most gratifying and encouraging part of the project: bonding of people for a common cause breaks down the walls of politics and culture.

Since 1992, our American field coordinator, Dale Miquelle, and American assistant, Bart Schleyer, have become part of the community in which they live. They work side-by-side with Russian tiger expert Evgeny Smirnov (see sidebar) and several Russian assistants. We have all been willing to learn about the traditions of each other's worlds. For instance, we had to trust that it really was good for the pores and skin to be whipped by willow branches in a hot sauna, or that a certain tea from native plants would break a fever. And the Russians had to trust that our drugs would keep a tiger asleep while we worked on it, and that it would walk away healthy after we gathered our data and attached a radio-collar.

We are welcomed into the lives, homes, and communities of these people who were once considered our enemies. It is only through this type of integration that a true understanding can be generated. And from understanding and cooperation, we can build an effective conservation plan for the Siberian tiger from the ground level.

(continued on page 6)

Siberian Tiger Project

(continued from previous page)

To date, as we begin our third summer of field research, we have captured nine tigers and released them with radio-collars that allow us to follow their movements and activities. We have also caught nine bears, both brown bears (*Ursus arctos*) and Asiatic black bears (*Ursus thibetanus*), and two Amur leopards (*Panthera pardus orientalis*). The data from these animals accumulate daily and, with the data, our chances of understanding this ecosystem, as well as ensuring that these animals exist a century from now.

Two threats to tigers are apparent at this point: poaching and loss of habitat. In the past few years, poaching of tigers for the Asian traditional medicinal market has been responsible for the deaths of dozens of Siberian tigers, including one of our adult females. She crossed the road one night at the wrong time and was shot by someone in a passing vehicle. Only her radio collar was found, along with four orphaned cubs (Quigley, 1993).

In Russia, the killing of tigers for money is a relatively new enterprise. Now, there is a heavy price on the tiger's head, the borders are open, and the economic situation is unstable and worsening for most people. The tiger is a tempting target, especially in winter when the animal can be tracked in snow.

For relatively small amounts of money (by Western standards), we feel that effective anti-poaching teams can be put in the field. More than a year ago, we delivered the first donation from the West to help in the anti-poaching effort, and now more support has been coming. The proper organization of these efforts in the coming months will be important to ensure their effectiveness, but we are optimistic.

The second problem is more complex, and requires more time, organization, and energy. Habitat alteration and loss due to overcutting of the forest are a major threat to the fu-

ture of the Siberian tiger. But the adjustment in the current system of harvesting needed to conserve tiger habitat is simply one of sustainability. The taiga is a tremendous resource for the Russian people. For years, it was harvested at a rate that easily met the internal needs of the country and made little impact on the forest as a whole. But wood has become a precious international commodity that the Russians can sell for foreign currency, which is so important at this time. The big question in Russia is not whether or not to harvest wood, but *how* to harvest it.

We know from our Western experience, for instance, that we can maintain healthy populations of elk (*Cervus elaphus*) and mountain lions (*Felis concolor*) under moderate forest harvesting schemes. However, the type of forestry currently practiced in tiger habitat is hard on tigers and their prey. Timber is either harvested through very large clearcuts, or through intensive selective harvesting. The trees selected are usually important food sources for tiger prey.

We are currently encouraging the maintenance of a controlled harvest area with the construction of a model mill to demonstrate sustainable forestry practices. By doing so, we feel that methods new to Asia can be introduced, and that people will see the value in their implementation. It is a fact that the Russian forests will be harvested. Almost 60 percent of the world's softwood inventory is found in Siberia and the Russian Far East. Economics dictates that this resource will be used. But economics must be tempered with the technology of sustainable use, or a unique Russian heritage — the biological diversity of the Far East — will be lost.

An additional component of our conservation plan will be to assess the current reserve system and its potential for protecting tigers. Our research is showing that the Siberian tiger uses very large blocks of land, several times the size of territories used by the Ben-

gal tiger in Nepal. Although we feel the tiger can tolerate disturbance, fully protected areas will also be as important to tiger conservation as wilderness or protected areas have been for the maintenance of black bear (*U. americanus*) populations in the southeastern United States or mountain lion populations in the West. During the next few years, we will be assessing the reserve system of the Russian Far East through a large-scale, landscape approach, looking at each reserve, the types of nearby land use, and the connectivity between reserves.

Again, all of these activities are conducted through cooperation and teamwork between Americans and Russians. We now employ almost 30 Russians, and they have been integrated into every activity of the Siberian Tiger Project. Training in such activities as the use of radio-telemetry, animal capture and immobilization, and the use of our Geographic Information System is taking place.

Development of a truly comprehensive conservation plan is not an easy task, and when we started this project, many people said it simply could not be done. But after nearly 5 years of preparation, we and our Russian colleagues are ready to move forward to make a future for the Siberian tiger in the wild.

Dr. Maurice Hornocker has conducted and directed research on carnivores for more than 30 years, including original work on mountain lions, bears, and bobcats in North America, and leopards in Africa. He is the former Leader of the FWS Cooperative Wildlife Research Unit at the University of Idaho, and currently is director of the Hornocker Wildlife Research Institute at the University of Idaho.

Dr. Howard Quigley has conducted and directed research on wildlife for 20 years, including mountain lions and black bears in North America, giant pandas in China, jaguars in Brazil, and a number of vertebrates in Guatemala. He currently is president of the Hornocker Wildlife Research Institute. Drs. Hornocker and Quigley are co-directors of the Siberian Tiger Project.

(continued on page 11)



The Endangered humpback whale (*Megaptera novaeangliae*) is a perfect example of a species that will benefit from a coordinated, multi-nation conservation effort. This humpback is shown enjoying the Stellwagen Bank National Marine Sanctuary in the Gulf of Maine, three miles off the northern end of Cape Cod, Massachusetts.

The NFWF goes International

(continued from page 10)

national boundaries. Similarly, North America's stocks of Atlantic salmon (*Salmo salar*), petitioned for listing in the United States, cannot be restored without the cooperation of the Greenland fishermen who catch 235 tons of the salmon each year. In the Gulf of California, efforts to conserve the Gulf of California harbor porpoise (*Phocoena sinus*) and a fish, the totoaba (*Cynoscion macdonaldi*), depend on the cooperation of Mexican conservation interests.

The NFWF strategy in these instances is to work cooperatively with multi-national partners to develop the best possible management solution. To address the pressures facing the humpback whale, NFWF is supporting a three-year research project guided by the Center for Coastal Studies in which scientists from seven nations

will pool data gathered at sea, thereby creating a solid scientific foundation for future understanding and management of this species. In the case of the Atlantic salmon, the result was a two-year buyout of the West Greenland commercial salmon quota, enabling large percentages of these fish (more than 120,000 annually) to return to their native North American rivers and spawning grounds.

With a population roughly four times that of the United States in an area one-third the size, India's natural resources are under enormous pressure. Any conservation initiative in India, therefore, is that much more difficult to undertake. The first NFWF venture in that region comes through a fund established in partnership with the U.S. Fish and Wildlife Service to support conservation activities in the Near East and South Asia regions. Through our partnership with the Wildlife Institute of India and other conservation organizations in the area, NFWF will reap the benefits of their experience with recovery efforts for such endangered species as the tiger (*Panthera tigris*), snow leopard (*Panthera uncia*), and Indian wolf (*Canis lupus pallipes*) in a climate of intense population pressure.

Similarly, NFWF's support of Siberian tiger (*Panthera tigris altaica*) research in the former Soviet Union has proven to be a rare chance for a US/Russia team to study and develop a conservation plan for the world's largest cat. These cooperative efforts represent an enormous opportunity for nations to exchange scientific data and management techniques, and may prove to be of value in directing our conservation efforts on the domestic front.

The NFWF has also offered support for international wildlife law enforcement efforts, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the World Wildlife Fund's "Buyer Beware" programs. NFWF has provided three grants in support of CITES, including training

for Chinese scientists on implementation of CITES programs. The "Buyer Beware" campaign promotes awareness of priority international wildlife trade issues through public service announcements, publications, brochures, and other projects.

Unfortunately, the need for the protection of endangered species on an international level continues to grow. This fall, the biennial CITES conference will be held in the United States for the first time in 20 years, presenting a tremendous opportunity for U.S. involvement in these conservation and enforcement efforts to increase. Through this conference, and through support of international endangered species work, NFWF will continue to encourage the exchange of scientific data management techniques and approaches. With this exchange, individual countries and communities can begin to implement increasingly effective endangered species programs, and shift gears from reactive to proactive species management.

For more information, write to the NFWF at 1120 Connecticut Avenue, N.W., Suite 900, Washington D.C. 20036, or call (202) 857-0166.

Darv Johnson recently joined the National Fish and Wildlife Foundation, where he works on the development and marketing staff. His article is the first the Bulletin has received via Internet.

Siberian Tiger Project

(continued from page 6)

Literature Cited

Berg, L.S. 1950. Natural Regions of the USSR. MacMillan Co., NY, 259 pp.

Miquelle, D., H. Quigley, M. Hornocker, E. Smirnov, I. Nickalaev, D. Pikunov, and K. Quigley. In press. Present Status of the Siberian Tiger, and Some Threats to its Conservation. Proc. XXI Congress of International Union of Game Biol., Halifax, Nova Scotia, Aug. 1993.

Quigley, H.B. 1993. Saving Siberia's Tigers. National Geographic 184:38-47.