

# THE AMUR TIGER

## **Acknowledgments**

Translation: Staff Ink

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## From The Authors

Many wildlife managers, as well as some local and regional government officials are pretty exasperated by all the fuss over the tiger. “What’s the problem, there’s plenty of them around - half of ‘em ought to be shot!” We hear this fairly often and almost everywhere we go. If there is any truth in what these people are saying, it is only in the fact that the tiger is not going to just suddenly disappear in the wild. So what is the problem, you might ask?

Not all that long ago, at the end of the 19th century, North American skies were filled with immense flocks of passenger pigeons. Imagine a single “flock” of birds that stretches from horizon to horizon and that proceeds to fly over for hours on end. Then bingo, the pigeons were senselessly blasted out of the air because it just didn’t occur to anyone that such an enormous number of birds could be exterminated.

Now there’s not a single passenger pigeon left on the planet. The last female died, in a zoo, in 1914. And all this took place because, as pigeon numbers declined, people didn’t recognize the critical population size beyond which begins an irreversible process where natural losses exceed growth. Once that threshold is reached, there is little that can be done to reverse the trend other than legally list the species as endangered and institute often-expensive recovery activities, such as captive breeding.

Something similar is now happening with the tiger. Its rate of decline has been so swift that there is more than enough reason for concern. This is an enormous animal - we’re not talking about a passenger pigeon. The tiger takes a long time to mature. It breeds slowly. It needs a lot of space. In addition, not many tigers are left in the wild and that raises another concern: chance, local die-offs, and if does persist in low numbers, inbreeding depression and other genetic problems.

But let’s put that aside for the moment. The tiger is besieged by other troubles. And here we would like to talk about these other troubles. Our Amur tiger crowns the food chain in the Ussuriiskii taiga forest. This animal’s fate is being observed by thousands of people around the world. The Amur tiger’s problems have long ago matured into international political importance.

Our relationship to the tiger, to an animal now registered on endangered species lists where it occurs throughout the world, is evaluated not only by how we treat the animal, but also by how we treat its habitat - both the tiger and its habitat are a treasure belonging to everyone on the planet. We will be judged by how we treat the tiger. Our relationship to the tiger itself will predict our relationship not only to other wildlife, but also to Wildlife habitat.

There is a plethora of literary and popular science writings on the tiger. Our goal in writing this booklet is to tell you about what is happening in the “tiger’s house” and what needs to be done so as to quickly and effectively reduce the threats to this animal. In the end, by protecting the tiger, we protect ourselves its forest habitat, all the resources of the forest, and eventually, ourselves.

This booklet is being published with funds from neither the Khabarovsk Wildlife Foundation nor from the Far Eastern Branch of the All-Russian Research Institute of Wildlife Management, Hunting and Farming (VNIIOZ). As it turns out, people from a foreign land share our belief in the importance of publishing this kind of material. In this case, the funds to make this information available to you have been provided by the American National Fish and Wildlife Foundation’s “Save the Tiger” fund. We express our sincere thanks to the Foundation. We consider it extremely important to expand the knowledge of those who are interested in the problems faced by the “tsar” of the taiga. If this booklet produces a few more guardians of the marvels of the Russian Far Eastern taiga, then we will consider our efforts justified.

Yury Dunishenko

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## Introduction

There is probably no other animal in the central Sikhote-Alin that has had as many legends, cock and bull stories and fairy tales made up in its image as the tiger. Native peoples long ago began to think of their forest colleague as a fellow human being; they do everything possible to ensure that their encounters with the tiger end peacefully. A first encounter with the tracks of this mighty animal inspires in the newcomer a deferential attitude toward the tiger. Many a bold taiga traveler has felt shivers run his spine, sensing a tiger's presence. There you are in the taiga with its evening ambience, and green eyes are burning holes in your spine, the eyes appraising, measuring. The air is tight with danger and it's tough to remain unperturbed! Then there are the unexpected, thunderclap-like roar, an abrupt appearance, and a soundless retreat - the animal is back in the thickets. This has rocked more than one taiga explorer back on his heels, trying to get a grip on the situation...

Only now it is the Amur tiger that is in danger. In fact, it's not just the tiger that is in danger; almost all large members of the cat family are threatened. The once numerous Asian lion has nearly been wiped out; today, only one population is left, this one in the Gir forest of western arid India. The last Asian cheetah was killed back in 1947. Only through the joint efforts of international organizations and the governments of India and Nepal has the Indian tiger, an animal numbering in the tens of thousands in the 19th century, been preserved, at least for now. Fate, however, is a difficult thing to plan. Three subspecies of tiger have disappeared in this century and others are on the brink of extinction.

The reasons for the tiger's disappearance are the same the world over - changes in habitat, decrease in prey, poaching, rash behavior, a rush to make short-term profit and a lack of adequate information and understanding of the animal's needs.

Large cats are not just a part of the environment. They are woven into the fabric of thousands of years of human culture. They are an inspiration for artists and for tellers of folk tales. They are displayed on the seals of cities and nations. They figure in the rituals of native peoples. And tigers are a vital fixture in the environmental balance of biological communities. Disruption of this balance poses an immediate danger to humans.

That is why scientists and thoughtful citizens of the world, understanding that the impoverishment of the plant and animal world has reached such a critical stage, are doing everything possible to avoid overstepping the boundary leading to the loss of the Amur tiger in the wild.

During war and devastation people spare nothing to save historical treasures and works of art. People die of starvation as they guard irreplaceable canvases by the great painters of the world. They don't trade them for a piece of bread and the good life!

Is the tiger not also a natural treasure? Are the legends no longer alive in peoples' minds? Surely the Amur tiger is seen as an indicator of wild areas and is greatly valued by other cultures and nations. The disappearance of a great artist's canvas is a tragedy. But there is always hope that some time in the future an even greater artist will appear to compensate for the loss. Nature, however, spent millions of years creating its works of art. Including humans. And we are all equal in this world of living things. Nature gave us the ability to think, and this gift is supposed to provide us with the capacity to evaluate what is going on around us and to find genuine solutions to the problems we face. But if humans don't have enough sense to read the message, then they are doomed. They are creating a dismal future for themselves. They will live in stone boxes on a naked, artificial planet surrounded by ravens, rats and cockroaches.

The tiger is not the only animal in need of protection. Hundreds of animal and plant species around the world are on the verge of extinction. Others are fading away because of human activity. These days, civilized people are spending huge sums of money on biodiversity conservation. Russia's economic and political chaos leaves the country few means of taking part in this worldwide process of species conservation.

But even if the government is unable to do anything that does not mean that we, the average Russians living in the Far East, can't do something to save the planet for future generations.

A live tiger has a huge economic significance in the southern portion of the Russian Far East. Millions of dollars have already been spent to fight forest fires, to support environmental education, to advance sustainable economics. The tiger has brought these benefits to the region. The tiger has forced us to join together to overcome the problems we face in protecting the region's biodiversity.

## CHAPTER I: A little bit about science

Don't get nervous, we're not going to talk about the tiger's "innards." All we will do is provide you some information about the tiger's way of life so as to help you better understand it. The tiger is a member of the cat family. It is a distant relative of the panther, snow leopard, lynx or even our household cat. And even though it is called a "panther tiger" (our Amur subspecies is *Pantera tigris altaica*), in fact, the lion is probably its closest relative. In any case, lion and tiger skulls and teeth are very similar.

In the 19th century, aside from the Sikhote-Alin and Malyi Khingan portions of Russia, tigers were found in southeastern Transcaucasia, in the Balkhash basin, in Iran, China and Korea. Now the Amur tiger is found only in Russia's Primorskii and southern Khabarovskii Krai. This is all that remains of an enormous tiger population that formerly numbered in the thousands and that lived mostly in China. In the spring of 1998, one of the authors of this booklet took part in an international scientific study investigating the best tiger habitat remaining in the Chinese province of Jilin. We found three to five tigers there, mostly along the Russian border. Our general impression is that there are no more than twenty or thirty Amur tigers in all of China.



The Amur tiger is the largest cat in the world. An adult male can weigh from 320-350 kilograms (705-770 pounds) and can reach almost three meters (9.8 feet) in length. In strength, it is unrivaled in the Russian Far East. There is a story of a tiger that killed a healthy mare and dragged it almost a kilometer. In this case, the tiger was later shot and found to weigh a mere 140 kilograms (309 pounds).

The tiger inhabits coniferous broadleaf forests and specifically favors the so-called Manchurian forest type. The Manchurian forests are located in riparian areas and are particularly high in biodiversity. Judging from scientific accounts at the beginning of the century, the tiger preferred remote territories uninhabited by humans. When people began moving into its range, mostly to harvest timber, the tiger retreated to calmer locales. Now the tiger has become more tolerant of people. This is understandable -- where could the tiger go now to find a more remote location!? The tiger has also grown accustomed to the human's mechanical equipment, and it's common for a tiger to appear at logging sites. We've heard more than one story about diesel barrels being clawed and bitten through by a tiger. For some reason, the tiger has taken a fancy to diesel fuel and has been known to suck fuel right out of a tractor. Tigers have descended upon villages from remote locations; or more to the point, humans have moved in on the tiger.

A tiger won't live just anywhere. Each animal has a home range where it perpetually makes its rounds. The size of the range depends upon the abundance of prey and can vary from 200 to 500 kilometers (125-310 miles). For some males, the range is even larger.

The animal is seldom in a rush. A move of 20-30 kilometers (12.5-19 miles) in the course of a winter's night is typical. If game is present, the predator will spend several days on a kill. That is, of course, if no one bothers the tiger and if there is not an urge to move on. Tigers sometimes make kills and may not consume the entire kill.

Sometimes a tiger will move 70-100 kilometers (45-63 miles) from its home range. Tigers may patrol home ranges to mark territorial boundaries to exclude adjacent tigers, to look for a mate, or perhaps in search of a territory with better pickings. The allegation that a tiger is wasteful, that it kills more than it can eat, is extremely controversial. Scientists who have tracked tigers for years believe that the animal will always return to a kill, no matter how many days have passed. It's another thing entirely if a human comes upon a tiger's kill, stamping around out of curiosity or cutting off a piece to feed the dogs. In this situation the tiger will certainly abandon his kill, passing by at a distance, cursing to himself as he moves away from danger.

True, there are tigers that will stand up for their property. A tiger will follow a hunter and roar like mad, now from the side, now from the front, then from behind, proclaiming to the human that this is his territory, his kill. The tiger will even risk getting shot in the process. One tiger, whose skin was presented to Leonid Brezhnev during a trip by the Communist Party's General Secretary to Khabarovsk, met its end in precisely this manner. The hunter, suddenly under attack, kept his cool and his shot was right on the mark - he cut the animal almost in mid air! It would have been a shame to waste the skin, he thought...

There is another story of a hunter who bagged a wild boar that had been wounded by a tiger. The tiger returned to the scene of his kill, forcing the hunter to fire his rifle into the air. Late into the night, the rightful owner of the meat circled the hunter's cabin, pronouncing heartrending growls: "Come on out," the tiger beckoned, "and I'll tell you something about the law of the taiga!"

Only female tigers with cubs construct up dens. Even so, comfort is not a big deal. Her main concern is that nothing is dripping from above. As for bedding, some dry leaves or grass are scattered around the den in the best of cases, and most often, the litter from a wild boar's rest site does the trick. A tiger will look for a ready-made roof: under a stump. Or a hanging cliff, in a shallow cave, and as a rule, beneath a crest or on a southern slope.

The male tiger is a poor and antisocial family man. He is itinerant and is a solo wanderer. Only during the mating period, which usually occurs in January and February, are the animals a bit more gregarious. Males will often brutally fight for the heart of a woman.

The gestation period is 95-107 days. A female needs three and a half-years to reach the age when she can start supplementing the species. A male needs even longer - around four years.

Controversy surrounds the timing of the mating period, and young cubs are discovered at various times of the year. For instance, in December 1993, not far from the headquarters of the Kutuzovskii hunting society, a hunter happened upon a den set up in some downed trees; it contained two young cubs. Their eyes were hardly open, a sign that they were fewer than ten days old. Their mother was nearby, but she didn't leap to their defense. Frightened by a shot, she ran away and never returned. Both tiger cubs died of starvation and cold on the next day.

In this case, pregnancy must have occurred in August or September. Perhaps the female simply didn't get a chance to mate in the winter - a problem often faced by the younger breeding-age tigers. Possibly, this tiger's mating period just got stretched out over a long period. Perhaps the animal acquired some funny habits after living side by side with humans for too long. In general, the sex life of a tiger is less well studied than that of mice. This is understandable, for the tiger is one kind of animal in the zoo and another entirely in the wild. One does not get much of a read by just looking at tiger tracks, especially in summer.

Tigers cut their milk teeth two weeks after birth. At first their mother feeds them only milk, but when the cubs have gained a bit of strength, she takes them along to kills not far from the den; only in rare cases does she drag a red Manchurian deer or a wild boar back to the cubs. As the cubs grow, they begin to range farther and farther afield with their mother, moving from one kill to the next. Only they don't take part in the hunt. When looking for new prey, the mother tiger abandons her cubs. And as they grow older, they are left alone for increasingly longer period of time. A female tiger might leave a six-month-old cub alone for two or three days, and a yearling for up to two weeks.

The wildlife biologist Viktor Egorushin told us an interesting story about one such tiger. The tiger and her litter of four cubs unexpectedly came upon some hunters and then, in great leaps, bounded away in fear. Only the cubs couldn't keep up with their mother, and they hid in a crevice. They sat there for ten days! Concerned with their fate, the wildlife personnel from the Sobolevskii Hunting Society brought them meat and threw into the opening of the pit. But the animals emitted no signs of life. Only on the tenth day did the female tiger return! No one knows why she returned on that day - did she plan it that way, or did her conscience

suddenly bother her? How she announced her appearance to her cubs is also a mystery; she never got up close to the crevice. But the cubs came out to greet their mother and off they went together to continue their travels. True, only three of them came out of the crevice. Did they eat the fourth brother or sister? Maybe the little thing just wasn't able to survive, and starved to death.

This isn't the usual way a female tiger will teach her cubs independence. Everything depends on the abundance of prey; if there is food around, she won't abandon her cubs. She nurses them for six months and can't leave them alone for long periods of time. As the litter's food demands increase, she must worry about continuing to feed them.

The cubs gradually begin to learn the subtleties of the trade. If their mother is delayed, they hunt smaller prey such as musk deer, hares and piglets the best way they can. Tigers don't hunt in packs, the way wolves do. That is perhaps why tiger cubs are reared so long - for almost three years these overgrown, partially trained cubs, already the size of their mother, persistently follow in her tracks.

Then, the family breaks up and each member begins worrying only about itself. A tiger lives 40-50 years, but according to our estimates, generation time is 15-20 years, if not shorter, in the wild. Natural losses are great for a number of reasons: tigers die from sickness, from hunting injuries, from drownings and in cunning traps. And they become victims of poachers' bullets. They also kill one another; such cases are also documented but relatively rare and are surely not a significant cause of population decline.

In the 1997-98 winter, in the Khor River watershed alone, the bodies of cubs from three litters were discovered. All had been killed and eaten by males. The mother of two cubs had just left her six month-old cubs and the "father" followed in her tracks and caught the cubs. He had time to eat half of his easy prey before hunters spooked him. The female tiger returned in a day, and for several days afterwards her howl could be heard everywhere.

In another instance, a male killed a cub almost in view of its mother. Only there weren't any traces of a fight where the tussle took place. One might be surprised at the indifference displayed at the death of her only offspring.

In yet another instance, a female tiger acted much differently, and so fearlessly defended her two young cubs that she inflicted mortal wounds on the cannibal: the tendons on the legs were ripped and hunters found him dying. Incidents of cannibalism increase in frequency when there is little to eat in the forest but in intact native ecosystems cannibalism generally does not occur at significant rates. This is not a rarity among large mammals. For example, a bear cub's most feared enemy is a male from a different family. The same is probably the case with tigers; cannibals don't eat their own offspring! But one way or the other, this is a sad fact that does nothing to help increase tiger numbers. It is yet another reason why the taiga is not full of tigers, this despite the fact that a litter may contain as many as five kittens. True, such fertility is rare, and even the appearance of four cubs occurs only once in a while. But when it does occur, it is usual for two or three of the cubs to survive until their third birthday. Besides, a female tiger doesn't breed while raising her cubs, and this is another reason why she gives birth only once every two or three years.

A tiger hunts large animals: red Manchurian deer, wild boar, elk, red deer. They hunt these with catlike precision. A tiger won't drive an animal the way a wolf does. And it won't track an animal to a point of exhaustion the way a bear does. A tiger will rarely follow tracks. Hearing is its most acute sense; it assures the tiger's hunting success. The animal's superb hearing is an aid in stalking; it helps the tiger determine the direction of the prey's movement, making it possible to set up an ambush or to hide off to the side. A tiger can detect wind direction, and sets up his ambush so as to not be sensed by its prey.

A tiger leaps onto the victim's neck at a short distance. All it takes is several lunging leaps each spanning five to seven meters (16.5-23 feet) is all that is needed. The tiger doesn't "break the back with a blow like a cannon shot," as is sometimes reported in the literature.

All the researchers studying tiger kills point to a single cause of death: a bite through the neck vertebrae at the base of the skull. The predator can even kill bears this way. It deftly makes its approach and with a single bite, the victim is rendered motionless. Do what you will, the victim is not going to recover. The power of the jaw is unimaginable - canine teeth grow to six centimeters (2.4 inches) in length.

The tiger is quiet. We have wandered about in its habitat for 25 years, getting close to it on occasion, and in all that time, we have heard a tiger roar fewer than five times. But once is enough, for its thunder chills the blood in one's veins and leaves an impression that lasts a lifetime. One just wants to instantly teleport away to a comfortable, urban setting. Or to climb a tree and sit up there for a while.

Tigers roar when irritated. They roar during fights. When mating, females either meow or snort like a horse. Cubs that have lost their mother are the most vocal; they seem to scream all the time. The tiger trapper Vladimir Kruglov told us that those wishing to discover a tiger save much time and effort by listening at night.

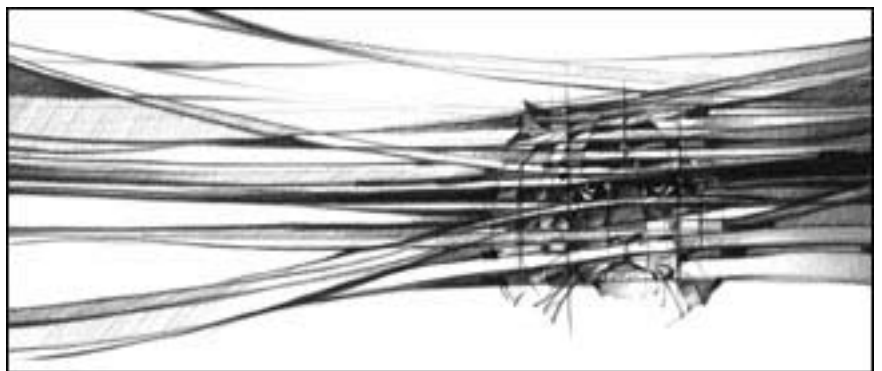
Tigers don't climb trees. An adult tiger will sometimes try to scramble up an inclined tree. Cubs are a different matter. They gladly walk along the trunks of tree that has fallen over, often in an attempt to avoid dogs and other threats.

A tiger will rarely run away from a human. Most often it will calmly move off the trail and will let its two-legged hunting opponent move on, concealing itself behind the nearest obstacle, only to emerge again and move on its way, not at all bothered by the smell left by the human. It lets cars and other vehicles pass by in the same way. Bold self-assurance is a tiger's ticket to death these days. A tiger's eyes, reflected in headlights, give it away in the dark. Shots may thunder out in its direction.

The tiger is considered a dawn-and-dusk. It is most active in the mornings and evenings. During the day, it prefers to lounge around on a cliff somewhere or to hang out on the edge of a ridge where it can get a better look around, where it can listen for what is moving around below. But when the snow is thick and the weather is overcast, tigers are active even during the day.

One should note that a tiger's vision is not among its better qualities. Even at a short distance, a tiger mistake you for a stump. It might move up close to leave its mark on what it thinks to be merely a conspicuous log. However, if the stump, dumbstruck with fear, suddenly gives some sign of life, the animal will pick up on this right away. It has a keen ability to distinguish moving objects.

Stories of tigers hypnotizing their game are a bit exaggerated or are utterly false. And although there is something to the magic of a cat's green eyes, the hypnosis is explained by how quickly it moves in for the attack. Even someone with a great deal of experience in the taiga gets spooked when sensing the presence of a tiger. Your head begins to nervously twitch.



You suddenly remember the rifle thrown over your shoulder. You stare at suspicious objects. Nothing seems to be the matter, yet still, you lose your cool: is that a wild animal staring at you from out behind that spruce?

The tiger is not afraid of deep snow and biting frosts. The animal has an excellent coat and extremely broad paws. With a sure-footed leap, a tiger can more easily rush up to its prey in deep snow. Nevertheless, heavy snow is a hindrance since it reduces the number of ungulates, decreasing by death and migration the tiger's already limited amount of prey.

Young who must follow in their mother's tracks experience certain difficulties: their stride is shorter than their mother's and so they have to occasionally jump, and this is fatiguing.

Such are the ways of the tiger. It spends its entire life moving around and resting near the prey that it kills. No joys or distractions. A tiger is a serious and elusive animal. You don't see it; you don't hear it: is it there or isn't it? The tiger is a powerful animal, but one that is defenseless in the face of modern technological progress.

We would like to comment on the tiger's "medical significance." At some point in the distant past, wise healers from the East figured out that the tiger is a walking pharmacy. All kinds of ointments and salves were prepared for bone problems; the meat and blood was used to treat exhaustion; drugs were made from the sexual organs to satiate the human's desire for endless love; and an amulet containing a tiger whisker was worn to protect one from all kinds of harm. All these "miracles" were supposed to come from a tiger. The medicines were very expensive and intricate in their makeup. Extracts from medicinal herbs were added to the mixtures and extraordinary stories were told of the results achieved.

Peter Jackson, one of our long-time colleagues and a person who knows a great deal about felines, related to us the results of some modern research done on this issue in the beginning of the 1990's. It turns out that the medicines are indeed helpful. However, they seem to work even with the "tiger filling" that, as it is thought, has a placebo effect. This is the very conclusion that many people wanted to hear, including Peter, a person who has dedicated his entire life to defending cats and who has a genuine interest in exposing such medicinal legends. We ran some of our own research. When a certain Chinese herbalist told us that even a toothache will stop aching if you dig round in it with a tiger whisker, well, we dug around in good faith and what do you think? Sure enough, the tooth stopped hurting, that is, as soon as it was yanked!

We don't want to take on the issue of Chinese-Tibetan medical traditions. It would be difficult to undermine the tradition. Eastern healers work miracles that are at times beyond the reach of modern medicine. That is why China raises tigers in pens and offers medicine in beautiful packaging. Perhaps there is some basis for the practices; perhaps it is just a form of self indulgence. In Hong Kong in 1996 there was a gathering of practitioners using traditional eastern medicine. Unfortunately for the tiger, they came to consensus that, based upon biochemical research and clinical experiments, tiger bone does in fact have a therapeutic effect.

Do what you want, it will be extremely difficult to eliminate the consumer market for animal-based medicines - the roots of the practice go back for centuries. The Chinese pledge to halt the trade in tiger parts, even though it is clear that the struggle to halt their use will be difficult.

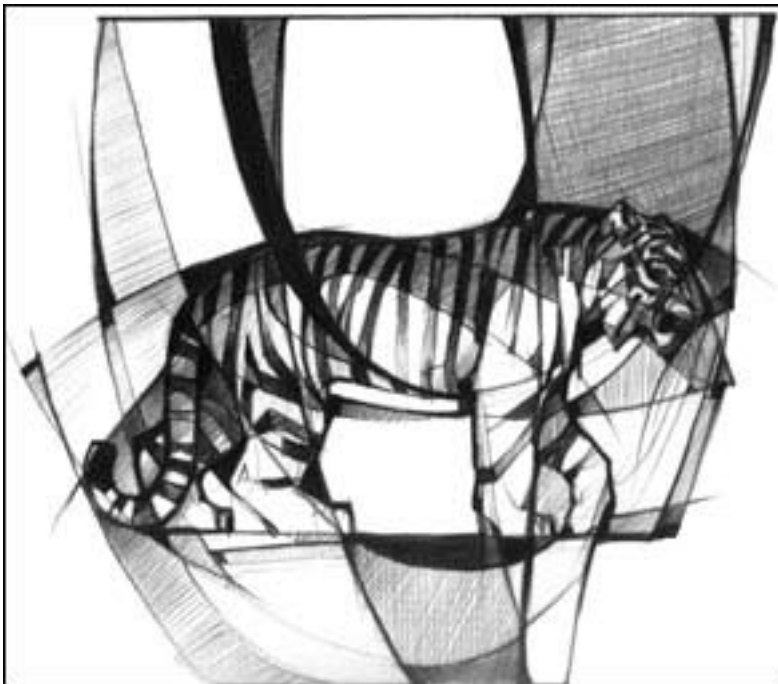
We witnessed for ourselves just how difficult it will be for the Chinese officials to stop this trade when, visiting China itself, we stepped into a pharmacy and asked for something made from a tiger. The salesperson carefully brought out from under the counter a box that vanished into thin air as soon our Chinese partners gave him a threatening glance. So to end this discussion, what we want to say is that one should not try to prepare medicines from tigers! These are mysterious concoctions, and as Chinese who know these things assure us, not just any healer, even in China, knows how to prepare them properly. These are professional secrets! Even so, the Chinese appear to be serious about tiger conservation; now the killing of a tiger in the wild is punishable the death penalty.

So as to not fan the flames, according to international agreements, tiger corpses are destroyed. That is what the international community has decided to do with them and so that is the way it is going to be. And as long as we comply with this taboo, we will continue to receive funds for tiger conservation. Failure to comply means economic sanctions can be placed upon the country that violates the conventions, something that has already happened to Taiwan.

## CHAPTER II: Now for some history

The range of biodiversity experienced by the early explorers in the Ussuriskii taiga forest is hard to imagine. Read Vladimir Arsenev and Nikolai Przhevalskii and you'll realize that the region's present-day richness is but a sad remnant of what was once found here. The fact is, that not all that long ago there was a lot more to be found in our taiga. Old-timers can still vividly recall the herds of deer, numbering in the hundreds, that migrated the lightly snow covered regions of China, the incessant moan in the taiga when red Manchurian deer were mating, the endless waves of birds, the rivers boiling with salmon.

And my lord, how many wild boar there used to be in the taiga! All winter long, the southern exposures of oak-covered hills were dug up by droves of wild pigs. Snow under the crowns of Korean pine forests was trampled to ground level as wild boar gathered pine cones throughout the winter. A symphony of squeal and moan! Mud caked wild boar racing around the taiga, rattling around in coats of frozen icicles after taking mud baths to cool passion-heated bodies. Horrible, blood caked wounds, chattering tusks, snorting, bear-like grunting, squawky squeaking, oh the life of a piglet...



This was an earlier image of the Ussuriskii taiga. Just 30 years ago a professional hunter could take 60 to 80 wild boar in a season! There was more than enough game for the tiger out there among the riotous forest "swine." Tigers strolled lazily, baron-like and important. They avoided the thick forests: why waste energy with all the boar trails around - you could roll along them sideways! It was only later on that the tigers took to following human trails...

How many tigers there used to be in the wild can only be conjectured. Southern Khabarovskii Krai is a natural edge of their habitat; at one point in history there was a substantial tiger population that spilled

over into surrounding regions. The tiger's range coincided, for the most part, with Korean pine and wild boar distribution, and the number of tigers in the Russian Far East in the last century was at least one thousand. Tigers densely settled the Malyi Khingan and the Korean pine, broad leaf deciduous forests typical of southern Amurskaya Oblast. Lone animals wandered out as far as Lake Baikal and Yakutiya.

Sergei Stroganov, in his book "The Wild Animals of Siberia. Predators." (1962), conducted a literature search and surveyed those who had carried out tiger research in the past. This book presents a picture of just how far the tiger wandered from its Primorskii homeland. The information is unique and the literature has thus far remained accessible only to some members of the Russian scientific community. We think you'll find it interesting, and we here we would like to quote an excerpt for the book. From Stroganov:

"A series of authors have written about the appearance of tigers at the limits of eastern Siberia. Nikolai Severtsov (1855) recalls that a tiger was caught in 1828 in the Balagansk region (on the Angara River, 52 degrees 30 minutes north). Gustav Radde reports a tiger being seen in the Transbaikal region (1862). According to Radde, this tiger was killed in 1844 near a factory in Nerchinsk. Rikard Maak (1859), as well as other travelers, writes that tigers were seen on the Argin and in Transbaikal, in the mountains of the Stanovyi range and even in Yakutiya. A stuffed tiger killed in November 1905 on the Aldan River, about 80 kilometers (50 miles) below Ust-Mai, is housed in a Yakutsk museum.

Tracks of a second tiger were observed in the same region. According to a report in the January 14, 1945 edition of the newspaper "Konsomolskaya Pravda," two tigers were bagged in Chitinskaya Oblast in the same year.

We suspect that the tigers seen in Chitinskaya and Irkutskaya Oblasts came in from China, while those in Yakutiya came from Priamure. However it happened that tigers appeared in those regions, even this modest bit of data from the scientific community of the time confirms that the population of this now rare predator was large and thriving.

The tiger has always been hunted. The animal was practically outside the law and by the 1930s, fewer than thirty individuals of the Amur subspecies were left in the wild.

World War II saved the tiger from total annihilation. People went to fight in that war and most of them never returned. For a while, few humans were in the taiga. Then the borders were closed down and the one time lively trade in contraband bones and skins ground to a halt. A total ban on hunting was put in place in 1947.

According to the data of Lev Kaplanov who studied tiger distribution in the 1940's, during the times of his research, there were no tigers left in the Bikin and Khor river watersheds and in the entire Russian Far East there were less than 20-30 individuals.

Later, in 1952-55, the famous naturalists Vsevolod Sysoev and Gordei Bromlei pointed out that in Khabarovskii Krai, the tiger was population was limited to the Mukhen, Nelma and Sutary river basins.

Relatively regular census data have been gathered since 1957. The earliest of these recorded at least 23 tigers in Khabarovskii Krai: eight in the Bidzhan River watershed in the Jewish Autonomous Region, 12 in Imeni Lazo Raion and one each in Vyazemskii, Nanaiskii and Komsomolskii Raions. Bromlei's data for Primore -- 35 tigers - brings the total to 60 individuals.

The situation in China at that time is at best a guess. But it is clear that intensive hunting and forest harvesting and habitat conversion continued in China and that by the 1960s, all that remained were isolated, small pockets of tigers.

Recent census data for Khabarovskii Krai indicates tiger numbers for certain years:

1970 - 20

1978 - 34

1985 - 68-69

1986 - 91

1993 - 54-56

1994 - 57-58

One may believe or disbelieve this data, but one thing is certain: we believe and trust these data and the information does offer some orientation on the state of the tiger in the Krai over the century.

The census conducted in 1995-1996 is worth a special note. Around 140 people in Khabarovskii Krai worked on the census; an enormous volume of information was gathered. Processing the data without a computer was challenging. Forty-eight to fifty-three adults and sub-adults and 16-18 were found for a total of 64-71 individuals. Thus more tigers were counted in 1995-96 than had been counted in 1993 and 1994. In our opinion, this does not indicate a general growth in the tiger population. Most likely the increase in the tiger count is caused by two factors: the wandering in of tigers from neighboring Primorskii Krai; and the fact that the census work was carried out more thoroughly. And of course, one has to remember that wild tigers cannot just be counted in an enclosed pen!

The goals of the census were to take an inventory and to identify any significant trends: is there an increase or a decrease in the number of tigers? The results were not uniform: tiger numbers in the best habitat are almost stable, but on the edges of their habitat, there are indications of a steady decline in numbers. Depending upon conditions and the detail of the work, various mistakes can be made during a census, so in looking for trends, we do not focus upon absolute indicators. We look at indirect factors that most completely reflect the situation in terms of population growth dynamics. A female tiger with cubs is easily tracked and so we make every attempt to locate her and to observe her ways. Here is our conclusion: when tiger numbers were increasing (during the 1980s), a female gave birth to an average of 2.3 cubs. During our most recent census, the figure was 1.3. At the same time, the number of tiger cubs has annually decreased by 8.8%. The number of ungulates dropped by approximately the same ration. Everything is interconnected.

Judging from observations taken in 1997-98, the process, for the time being, has reversed, and now female tigers average 1.6 cubs, up from 1995-96. We foresaw this reversal. At the same time, we warned people that a slight increase does not mean a stable trend. This is most likely the temporary result of an increase in the number of wild boar numbers and in the stabilization of red Manchurian deer numbers, the s-called prey base for tigers.

Simply stated, there is little reason to be optimistic. The tiger population may enjoy a temporary increase, but then it is likely to suffer a new decline in keeping with the general downward trend. All that we can say is that the "bumps" on the graph will be much finer than earlier recorded.

The last tiger in the Malyi Khingan disappeared in the early 1970s. At least ten animals were present there in the 1950's. The disappearance of this population is a targeted warning to those who would suggest that there are adequate numbers of tigers in the wild. The reason the tigers disappeared from the Malyi Khingan is simple - the perimeter was enclosed with a thick barrier of barbed wire and the animals were left in total isolation. Exchanges of genetic material and breeding individuals with Chinese populations ceased, growth could not keep pace with natural death, and no one has seen any sign of a tiger in the reserve for more than 20 years now.

We now have a basis for suggesting that the tiger has also disappeared in China. We recently had a chance to discuss the issue in more depth with our neighbors and our understandings are no longer based upon rumors alone. In the spring of 1998 an international inspection group in which we participated was given the opportunity to do research in Jilin Province.

Our general impression was that China's Jilin Province has wonderful, carefully cared for forests. Everywhere, vigilant fire spotters keep watch over the land from high observation towers. Gates are locked when there is no snow; the forest is entered only with special permission and a clear objective - even a cash bribe will not gain on entrance. At times of forest fire danger, smoking is prohibited not only in forests, but also on village streets. A smoker's punishment is to be fired from the job, which, in China, is like a death sentence. Timber is intensively harvested, but without the use of tractor skidders that stamp out anything alive that gets in its path. Trees are skidded along trails with oxen; there are almost no tracks are left behind. The timber-felling units and the forest management agencies have been combined into one structure, but they aren't biting the hand that feeds them: harvest sites are being replanted with larch, oak, ash. In a word, things are grand; if only it was like that in Russia!

But that is only one side of the coin. The other side is that these grand forest landscapes are almost lifeless! Everything has been caught in snares and cagey traps and then eaten by the locals. You will find neither grayling nor taimen in Jilin's magnificent mountain streams; these waterways have been rendered into deserts. Small fish are caught with electrodes, and mollusks and frogs are wrestled out from under rocks with crowbars; all of the rocks along the stream bottoms have been turned over many times. Where spotted deer, musk deer and wild boar still exist, all animal trails are laden with snares. In general, Jilin's wild animals are an order of magnitude less than what one finds in Russia; they are being replaced by cattle that wander the forest year-round on unrestricted pasture.

Cows, like elk, break and eat rose willow, and like red Manchurian deer, trample down horsetail and gather acorns. It is almost not even worth posing the question: where did the Amur tiger - more numerous in China one hundred years ago than in its northern habitat in Russia, -- disappear in China?

We found tracks of three to five tigers, all of them along the Russian border within China. Given these circumstances, one has to sadly admit that the even partially viable populations of Amur tigers are going to be found in the wild only in Russia.

To those who would accuse the tiger of gluttony, who would blame it for the reduction in wild animal numbers in the taiga - we suggest that you take a stroll along the ridges of the Khingan mountain range where tigers once lived. You won't find an abundance of wild animals here! Elk and wild boar density is only a bit higher than that found in the Sikhote-Alin, where there are still some tigers. The wolf problem in the Jewish Autonomous Region is more problematic than anywhere else, and outbreaks of swine plague have caused colossal damage to both wild and domestic animal populations. There have been numerous cases of infection and death from rabies brought in from the forests by wild animals that infect dogs, who then infect people. So consider what we will gain and what we will lose as a result of the tiger's disappearance. And if you are still having doubts, then take a walk on the Vandan. There were never any tigers there, and yet everyone recalls the abundance of wild boar and musk deer. Who ate these formerly abundant animals, where did they go? Could it be that the two-legged predator is to blame for this scarcity? And yet you are always pointing your finger at the tiger...

The modern and probably the last population peak for the Amur tiger in the wild took place at the end of the 1980's. Since that time, their numbers have declined dramatically, mostly because of a general decline in prey numbers. A string of winters with heavy snow and shortages of food inflicted heavy damage on the wild boar population. Deer and elk numbers have also declined. Deprived of the opportunity to move along boar trails, tigers hit the road. This occurred at a time when hunting and poaching hit a peak.

At the same time, high revenues from sable trapping, growth in the leisure industry, and improved access to the taiga resulted in a massive influx of people into the taiga. Encounters between tigers and humans became more commonplace, and conflicts increased. Hungry, wandering tigers wound up in villages and this also exacerbated the situation. Complaints were registered with government officials and bureaucrats busy with entirely different issues, who began to gripe about having to deal with the tiger. Even before these new problems emerged, tigers were already being shot on the sly, burned, dropped into icy river, fed to weasels and crows. And as the bureaucrats grumbled, the press took up the issue and newspapers printed sensationalist stories. And then another problem made its way onto the stage: a market for tiger parts.

A modest article, written by a wildlife manager in Vyazemskii Raion and entitled "How Much is a Tiger Worth?" was published in the newspaper Tikhookeanskaya Zvezda. The author calls for a massive tiger hunt. The article cites fantastic prices, all in "bucks," and asserts that the tiger's sexual organs are worth their weight in gold. We have an inkling that this in fact is useless "gold" still sits around in freezers somewhere in abundant quantity, awaiting the purported buyers. Such is the consequence of an irresponsible, mongering newspaper article and the embarrassing, "professional" bacchanalia of a local author and wildlife manager.

In any case, the hunt for the tiger took on a new intensity. Snares, traps and poison were employed. Patrols were set up along forest roads. And for quite a while, contraband dealers from China were indeed buying up the product. But judging by the fact that none of the hunters got very rich from their efforts, the prices hardly seem worth the risk.

Along with the contraband, information on what was happening with the tiger made its way to the West. International organizations researched Chinese markets and a report was published containing documents, photographs and other indisputable evidence. A huge scandal broke; the Chinese government was forced to crack down on customs control and enforcement officials. Economic sanctions were introduced against Taiwan. Markets for tiger parts almost disappeared.

Russia also clamped down on the tiger trade, introducing a ban on tiger hunting in Russia in 1947 and adding the Amur tiger to official Endangered Species on both the Russian federal level and the Khabarovskii Krai regional level. But even so, many hunters continue to go after the tiger as a trophy. That's too bad! For although the tiger has been seen as a source of promised riches, in fact, the truth is just the opposite.

Legally sanctioned tiger hunts have taken place in cases when individual animals pose a threat to human life. Tiger trapping, mainly of cubs, gave birth to a specialized industry, and a galaxy of tiger trappers became famous the world over: Bogachevy, Tekytevy and the Kruglov brigade.

Not just anyone can brave this line of work. Endurance, knowledge of the animal's habits, personal bravery and courage set these people apart from regular hunters. There is no sense put yourself to the test on a tiger trail if you don't have quick reactions and a strong back. The hunter's weapons are a forked tiger pole and a rope. You carry a rifle to scare off the mother. After a long and exhaustive surveillance of the cubs, you finally overtake them, press their paws and neck to the ground and then tie them up. This is not a simple thing to do! Even a six-month-old has tremendous strength and resists any way it can. And maybe that is not so bad. And the work does not end here. The weighty prize then has to be carried to the nearest road through heavy snow and taiga drifts and fallen logs. Sometimes this can take several days. Every precaution must be taken to assure that the cub doesn't catch cold and is not injured.

Has the capture of tiger cubs brought harm to the tigers? In the past, when there was an optimal number of tigers, capturing young tigers had a negligible impact on the population; a female tiger that loses her cubs soon resumes her hunting and gives birth to new cubs. Thanks to Russian tiger trappers, the parks of the world now house more tigers than are left in the wild in the Ussuriiskii taiga. At one point in the past, four pairs of Amur tigers were removed to zoos. Their blood is periodically "freshened up" and they have provided the pedigrees for a captive stock that now exceeds 700 tigers. Animals raised in captivity reproduce well, and the Dresden zoo can practically supply the total demand for cubs for all of the zoos of the world.

So it would seem that the problem of preserving the tiger, at least in captivity, has been solved. In the short-term, that is in fact the case - if something were to happen to all the tigers in the wild, the subspecies would survive in captivity for some time to come. But they would exist only in pens and cages. An animal born in captivity has no road back to the wild. It has not developed the skills to hunt independently. It has lost its fear of people and this will inevitably lead to problems when it has to fight for its piece of the pie in the wild.

But that is only the beginning of the tiger's problems. We have already mentioned inbreeding, or the degradation of living organisms as a result of repeated breeding among close relatives. The offspring of such relatives are not, as a rule, biologically viable. Inbreeding problems are widely understood even outside scientific circles. A hunter, when looking for a dog, will look at the parents' pedigree to exclude the possibility of ending up with bad puppies. The smaller the population, the fewer the sources of genetic material and the greater the chance that close relatives will breed. More and more often these offspring do not survive and inbreeding depression gradually leads to extinction of the species. So no matter how many Amur tigers there are in zoos, their well being, in the long term, is doubtful if new blood cannot be introduced. And a major source of this "new" blood is a wild population.

Scientists agree that the tiger has a chance for long term survival in the wild if the numbers do not fall below 200 - 250 breeding pairs. True, a more conservative, optimal number is 500 pairs, but such a figure, given the conditions that we face in the Russian Far East, is not a possibility.

It is abundantly clear that where tiger numbers have either increased or decreased, it is the human factor that has determined the animal's fate. We understand and have compassion for the guy whose dog is killed by a tiger. The same is true for the guy who has to think about ways to deliver wild game to the state and who does not have time to worry about the fate of the tiger in the wild. We have to be concerned for the farmer whose cow is mauled by a tiger. But there is no way that we can condone the actions of a government that continues to put the skids on a plan to compensate these people.

They should be compensated for their losses, for this is one way to preserve this unique cat in the wild.

There are other areas of concern, like when a hunting society invests money and labor to increase the number of wild boar and red Manchurian deer. As soon as those populations begin to increase, tigers come from far and wide to madly devour the fruit of these peoples' labor. You don't get very far by trying to calm hunters down with a talk about just how rare this striped animal is in the wild. And the conflict will continue until the government takes it upon itself to conduct similar kinds of game enhancement programs in special wildlife refuges and reserves. We don't have a choice. If we eat at the same table with the tiger and consume what is by right theirs, then we have to make an effort to augment what is out there.

We humans are to blame for much of the problem. Tigers live near villages because our waste management on their outskirts leaves much to be desired; all the trash winds up on the edge of town. This is easy pickings for the sick, for the old, for young tigers who are left without a mother. Unguarded dogs wander the dumps. This attracts predators that gradually lose all fear of people.

Hunters had best forget about using dogs in tiger habitat. They're not all that much help anyway in the cluttered and hilly parts of the taiga. Trapping without dogs is more successful, and in any case, why tempt fate - a cat never makes peace with a dog. A dog is dangerous in tiger country. A tiger will jump a dog and the mutt will rush to its owner in search of protection. These situations never end peacefully; one of the three of them is a goner.

### CHAPTER III: How many wild animals are there in the forest?

In flying from Vladivostok as far as Irkutsk, or from Khabarovsk to Okhotsk, the endless chain of mountains and an unending network of rivers, streams and valleys might impress a person as an enormous territory with no people. But if the same person were to repeat the route at a lower altitude, say in a helicopter, he would recognize that the seeming “lack of people” is only relative. Even hundreds of kilometers away from major cities, there is evidence of humans: hundreds of forest roads from which emanate even more trails and snowmobile tracks; forest huts spun out like a spider web; ski trails twisting in all directions. And if the idea were to pop into your head to settle a forest valley, well, you would quickly find out that these days, hardly any “free” territory is left in the taiga at all.

The taiga is bristling with life. Tens of thousands of taiga hunters pursue the wildlife that is their bread and butter. The taiga is also home to large predators: wolves, bears, lynx and wolverines. There are also smaller animals: fox, sable, weasel and ermine. Each animal eats some other kind of animal as part of an intricate, interdependent food chain. And all of them are, to one degree or another, being drawn into the economic life of humans.

And because they are a part of the economic reality of the region, these wild animals have to be counted in the wild. A census isn't a simple matter and the effort takes a lot of planning. But then again, this makes sense. Farmers and cattle ranchers cannot operate without knowing the condition of their stock: how many bulls, how many pregnant cows, how many young and old are in their herds. One has to obtain reliable information on population growth rates, on herd structure, to make an economic go of raising cattle. If you don't have data on your herd, you'll go bust!

The theory is much the same in the taiga, except that the factors affecting wildlife in the taiga are much complex: there are losses from heavy snowfall and other weather phenomena; there are changes in the environment caused by humans, including timber harvest, forest fires, and unaccounted for losses through poaching. There are also the activities of other predators, population mechanics, and socio-economic factors. One needs to know the number of resources so as to draw down only “a percent of the total capital” and to avoid permanent declines.

There are many bitter incidents, more than one would like to admit, when such dangers to tiger or other wildlife populations have not been taken into consideration. There are long lists of animal species that were once abundant but that have now vanished from the face of the earth.

Here is a rough sketch of how animals are counted in the wild. First, a map of hunting territory types for a selected area is prepared. The aim of the census is to study a wild animal's range. A reforestation map and information on forest quality for a given area provide the basic data for drawing such a map.



The map, however, is not just a copy of a forest management plan; forest managers view the forest from the perspective of how much timber can be removed. Wildlife managers, however, look at the forest as range for wild animals.

If Korean pine forests are indicated on our map in densities from 30 to 100, this information is significant for a wildlife manager as an indicator of where one might find certain densities of wild animals. Squirrels are going to be found, for instance, where there is more Korean pine.

Mapmakers refer to taxonomic descriptions to categorize an area according to various forest types. A finished map might have as many as 12 colors indicating forest types: Korean pine forests, Korean pine and spruce forests, Korean pine and broadleaf deciduous forests,

broadleaf deciduous forests, fir and spruce taiga, etc.

After the first snowfall of the season, wildlife managers go into the field. Dozens of census plots, in sizes ranging from 500-600 hectares (1,235-1,480 acres) to 3,000-4,000 hectares (7,410-9,900 acres), are set up along the region's major river basins. These plots are fixed in various habitat types. The plots are studied by repeatedly walking the routes connecting them and carefully observing animal signs to determine which species are present. Given some experience, a person spending 7-10 days in the field can come to know "by name" the animals on a given plot. He also knows the territory that they occupy and from this he may determine the animal's population density per 1,000 hectares (2,471 acres). An area of ten square kilometers (3.86 m<sup>2</sup>) is employed to make calculations easier. The result of this field survey is a collection of data for each habitat type, gathered from the census plots. Animal density usually varies only slightly between census plots; in one and the same forest, the stand type, feeding and protection conditions tend to be the same. The data is weighted to determine the average density per 1,000 hectares (2,471 acres).

The final step is to estimate animal density for the entire habitat, by Extrapolating from the census plot data. Thus the animal densities for the Census plots are multiplied to cover the overall habitats they represent. In This way, the total census figure for the animal is established.

This census work takes place in Korean pine forests, in spruce stands and in all other forests types. Non-forested territory is also surveyed. The end result is a total number of animals living in all habitat types characteristic for a given area.

This is generally the way surveys are done here. In fact there are many different scientific methods for conducting surveys, each with its own subtleties and its own nuances. Data quality is improved when mapping information is supplied by hunters. This makes sense: hunters work their territory day in and day out, all winter long, and know their animals almost personally. Their data can be fixed on maps as census plots; dozens of plots, based upon habitat type, can provide highly reliable averaged population figures that are highly reliable.

As a next step, areas to one degree or another impacted by humans are noted; distribution and impact of snow cover and other factors are analyzed. Errors are corrected. And you get a total population figure. Naturally, the count will never be exact. Squirrel or hazel grouse, species that have large population numbers and that extend over vast territories, can number in the thousands. For large predators, the numbers might be in the hundreds. And for small areas, the figure might be in the tens or registered as single digits.

A skeptic might ask: how is it that you know that the roe deer population is precisely 3,220? And this is a reasonable question. One needs to understand that our figure of 3,200 is merely an estimate, the true value might be 3,150 or 3,290.

And if a census is conducted annually, using the same methodology, then an annual comparison of results will show even more definitively what is taking place in the wild.

Additionally, information is annually collected on the sex and age distribution for the populations of various species. Changes in wildlife numbers are analyzed; hunting seasons and quotas for each game species are adjusted accordingly. Wildlife managers consider it acceptable if the sample represents at least 10% of the population. For a species that demonstrates annual fluctuations in numbers and that is hunted in large volumes, - sable, for example, which in Khabarovskii Krai is trapped at a rate of around 40,000 a year - other methods are used to determine sex and population structure. In the case of the sable, very small ovary slices of their corpses are made and the follicles are counted to determine future sable numbers. The age of the animal is determined by the width of the canine canal. In the end, a prediction of species potential growth for the species is made. Although it is a lot of work to study hundreds of corpses!

Additional survey methodologies must be used for ungulates, for whom assembling a large sample is much more difficult. Most ungulates have a habit of evacuating their bladder while lying down. That may be their way of marking their territory and passing on information about themselves to others of their species. Or maybe they do it because they are lazy. In any case, wherever yellow spots are found on the snow, the sex organs also leave their mark in the snow. This makes it possible to tell if the animal in question was a bull or cow, if it was young or an adult. Very simple, very exact, and there is ample field material to be studied.

Tigers are counted in a different way. But we went into some detail about other wild animal censuses in order to make a point to our hunters. These days more and more hunters are leasing hunting territories for private use. We would like to point out that the success of their hunting ventures necessarily depends, in large part, on the soundness of their economic management of their land. Every hunter is obliged to regularly report to management agencies the numbers of animals on the territory; if not, he could be punished by the law. Wild animals, just as the forest, water and air, are treasures belonging to everyone on the planet and they must be sustainably used. And regular, accurate data is a key to making rational resource use decisions.

Running a tiger census is a different and very specific kind of task. A high level of accuracy is necessary and that requires working as a team. The animals freely range, cross dozens of hunting areas and shift from region to region. So merely counting tracks or copying information from hunters would result in drastic overestimates of tiger numbers. For some reason, hunters are inclined to believe that signs of a tiger's movement through their hunting plot imply that the tiger lives on that plot alone. This leads to the mistaken impression that tigers are "abundant," that they fill the entire taiga.

There are tigers that do indeed cause themselves trouble by wandering through huge territories. There is a real, genuine hunger out there, and the tiger's prey, wild boar, red Manchurian deer and roe deer, are becoming fewer and fewer in number. There are now more roads, more hunters, more accurate weapons. And most significantly, human demand for wild game meat is rising. Our political and economic process known as "Perestroika" has progressed like an undeclared war on the taiga. In this war, the tiger's only armor is its canines and claws. So there is no point in blaming our striped friend for everything that is going wrong in the taiga. Why don't we be more productive, starting with a census of this hapless forest dweller? The tiger may be nature's tsar, but in our country, it is no less vulnerable than the ill-fated Russian tsars of the Romanov dynasty.

The methodology for a tiger census is simple enough. But it requires many people and a lot of time. The fact is that to get a count of these animals, you need to be prepared to count all of them or else there is no sense in carrying out the work in the first place. Among the daunting tasks required for a tiger census is supplying each hunter in tiger territory with a map and a log to record information on the tiger: where and when the hunter travels; what was killed and where; what were the size of the tracks. Naturally, all this is done in the snow, when even such a secretive animal as a tiger is unable to hide its tracks. Tiger tracks vary greatly. If the tracker is a real Dersu Uzala, he will notice variation in size as well as in movement.

For the skeptics and for those who will later collate the data, the diary has a graph on which to enter the width of the animal's front paw pad. This measurement is not an easy one to take. You need to find a place where the tiger has walked along a road, along crusty ice, along a ledge or on some other sufficiently hard spot, and where it hasn't placed its rear paw into the print of the front paw, rendering the measurements meaningless. When the measurement is taken, the substrate in which the track was left is noted as well as the freshness of the track. A track spreads with time, often by several centimeters depending upon the depth of the imprint in the snow; this can lead to confusion when interpreting sex and size.

Determining the sex of the animal is very important. Most hunters are convinced that they can unerringly sex an animal on sight alone. This is too bad. There is always a degree of doubt; it is tricky to tell a tiger's sex, even when it leaves its calling card by peeing in the snow. If the animal has dug into the snow and left a mark on top, it is probably a male. If the spot is larger than 10.5 cm (4.1 inches), it's definitely a male. Animals with pads smaller than 9.5 - 10 cm (3.7-3.9 inches) are more difficult to sex.

It could be an adult female, a cub or a young male. So you have to move along the tracks for some distance before you can say who is who.

Young tigers don't grow proportionally and their paw sizes, especially for males, can be larger than their mother's tracks. A certain logic operates here: a child will fall through the snow less often, and it will save its strength so as not to fall behind when moving long distances with its mother. The observant tracker takes into account this subtle detail to get an accurate read of the animal. The stride of a cub is shorter and the cub does not stick in the snow quite the same way as an adult animal does.

Tigers are big lazybones. Or maybe it's just that tigers are a better judge of the important things in life. They don't wear themselves out with long migrations. They lay down to rest fairly often. That makes it possible to measure the size of the animal's imprint, and if the length is more than two meters (6.5 feet), certainly a male. Aside from all this, males mark their territory very actively. They mark anything prominent - burnt stumps, stones sticking out of the snow and even clumps of hay that have fallen to the side of a path. This is a way of communicating with one's cohorts in the taiga, who are sure to check any prominent objects for signs. They will approach the object and take a "read" of everything that they need to know. An animal's urine has a strong pre-anal gland scent that contains an abundance of useful information that humans can't smell. But it is something that a dog can smell.

Galina Salkina at the Lazovskii Zapovednik has developed a tracking method that uses dogs. She collects tiger excrement in packets, gives them to a dog to smell, and then commands the dog to find the owner of the excrement from among dozen of packets gathered earlier. And no matter how the packets get mixed up, the dog can always flawlessly identify the correct one. Using dogs in this way makes it possible to collect data on all the tigers in the Lazo region, to track their movements and to keep tabs on their fate. This method is yet another way to find out where tigers are living and to get an indication of whether they are alive or whether they have been killed. Even so, the data has to be checked on foot. If hunters responsibly filled out their diaries, all that a wildlife manager would have to do would be process the data and plot the times and locations of the sightings. The result would be not only a complete inventory of the animals but also a depiction of individual territories, the frequency with which the tigers cover their ranges and prey and population dynamics.

Unfortunately, hunters are not always reliable and so diaries provide only ancillary information to that which is gathered by the scientists. After conducting interviews with local people, with hunters and local wildlife managers, the scientists go out to check tiger trails in the most dense tiger habitat areas, where collecting data on tiger numbers is most problematic.

The most reliable information is derived from a simultaneous census. To do this, you need a large number of mobile tracking groups. Hunters are brought to specific, prearranged locations. On one or two designated days, each person covers a specific route to ensure that all tiger tracks are spotted. The data is gathered and analyzed, and a map is drawn to note the number and locations of tiger signs. For an area like Primorskii Krai, where most of the tigers are located, census work is far from simple.

Much effort goes into tracking females who might leave their cubs for several days at a time. The number of litters and their sizes are very important indicators for projecting population figures. The location of a single female is checked very carefully. Census takers or the merely curious should attempt to follow the tracks of a female with cubs. Following their trail, you may discover that the tracks of one cub may actually turn out to be the tracks of two or three. The cubs will often step into each other's tracks, as a way of conserving energy. In fact, all animals do that, and people too.

Estimating the number of tigers is not the only task of a census. As we pointed out earlier, it is very important to obtain as exact an impression of the population structure as is reasonably possible. If this kind of census is carried out once every two or three years, some very interesting data can be obtained. Cubs grow into adults, although not all of them live to reach maturity. Comparative data on the number of cubs with the number that live to sexual maturity reveal natural selection trends.

Few tigers die from old age. Crafty traps and bullets, sickness, and fights with brown bears tend to cut short the lives of both young and adult tigers. All of these dynamics are revealed through monitoring, the regular collection of data at specific sites, and it is based upon a single methodology. Census results then serve as a basis for improving conservation and protection measures.

The censuses conducted in 1993 and 1994 show that of 34 reported births, after two years, 18 cubs had died, or 16.4% per year. This means that barely 30% of the cubs reach sexual maturity. Calculating from a base number of 54-55 tigers in Khabarovskii Krai in 1993, in 1994 the population should have reached 70-72 individuals. But it turns out that we are “short” 13-15 animals, mostly adults.

Unfortunately, tiger censuses are held only episodically. First of all, not many people are concerned with the fate of this animal. Secondly, there is a shortage of funds to conduct censuses. We have already seen one of the consequences of this lack of attention: all of a sudden claims emerge that the tiger is in fact “numerous,” claims which lead to serious problems, including problems for the tiger itself. Now, in reality, we are observing a second tendency: tiger numbers are again declining, and at an alarming rate.

In a word, you need to count the animal and then you need to make plans for what to do next. We are no longer shut off from the world behind an “iron curtain”; the whole world is watching us.

Where does the tiger live and how many tigers are there? There is plenty of talk about this. Some say there are “a lot” of tigers, some say “a few.” Both notions are laughably relative. For one hunter, two or three tigers permanent on his territory might seem to be very few. Another hunter, whose territory is criss-crossed dozens of times by a single tiger might have the notion that tigers are taking over the place.

One of our acquaintances, a wildlife manager who over the years has had all his dogs killed by tigers, suddenly discovered last year that the animal had disappeared altogether from his territory.

“You know, I don’t feel right, it’s as if I’d been robbed. It’s the same taiga, but then, it’s not. A gem has disappeared. Not too long ago, a tiger just sort of wandered onto my land. I covered the tracks with a piece of plywood so that they wouldn’t fill up with snow. I thought, could it really be that I won’t see a live tiger again? At least now I can show the kids its tracks...”

Khabarovskii Krai covers 78 million hectares (192 million acres). Tigers now live on 3.3 million hectares (8.1 million acres) of which only two million hectares (4.9 million acres) is typical tiger habitat. Prime habitat is Korean pine, broadleaf deciduous forests, Korean pine and spruce forests, and Korean pine and broad leaf deciduous forests that cover portions of Bikinskii, Vyazemskii, Imeni Lazo and Nanaiskii Raions. Lone tigers are encountered in Komsomolskii, Sovgavanskii, and Vaninskoi Raions. That’s the full extent of the tiger’s home in Khabarovskii Krai. In truth, the latter three Raions are no longer the tiger’s primary habitat, just its outer range. The same can be said for Khabarovskii Raion, where there is very little habitat that is suitable for tigers.

The recent sighting of two tigers in the Khekhtsir was a big sensation, as it marked the tiger’s first appearance here since 1937. But in reality, it is already too late for tigers to return to the Khekhtsir for good. The creeping of the suburbs from the large city has brought too many people here, and conflict with the tigers is inevitable.

Tigers are no longer encountered on the left bank of the Amur River. The last tiger tracks on the Minor Khingan were spotted in 1975. And the situation in the Sikhote-Alin is not much better. The foothills and the lower areas of the mountains are slowly, but irreversibly, being transformed by humans, and higher up there is nowhere to spend the winter. The snow pack is heavier and there is less prey. A heavy snow pack will shrink tiger habitat dramatically and will crowd the animals into the areas with less snow. But these areas overlap with heavily populated foothills. The result is panic! And how is there panic! There what panic there is! Tiger tracks seem to be everywhere! Although, in reality, there no more tracks than there used to be.

In 1996, there were between 64 and 71 tigers in Khabarovskii Krai. Is that a lot or a few? We believe, given the situation at hand, that this question is a little out of place. People might say that there are “a lot” of tigers only because they happen to think there is insufficient game for the hunters. But then the real solution is to reduce the amount of poaching of tiger prey, not the number of tigers. There is also a need to reduce the number of wolves, brown bear, lynx and wolverines, since in the foreseeable future, these animals are not endangered. As for the tiger, in the 1980’s it might have made sense to hold the numbers to between 40 and 50, but it is definitely too late to do that now. At least twelve adults were lost annually in the early 1990s and still today we are losing no fewer than eight to ten annually. All this when the total population is around fifty.

Tiger habitat in Khabarovskii Krai has 4,800 wild boar, 10,800 deer, 7,300 roe deer, 8,500 elk and 13,600 musk deer. In addition, bears, badgers, raccoon dogs, hares and other forest animals are also becoming the tiger’s prey. We know very little about the tiger’s summer feeding habits, but there are reasons to suggest that it preys on not just large mammals. The tiger supplements its diet, as it can, with small things from the forest and has even been known to go after frogs.

Side by side with the tiger are 740-780 brown bears and 1,800-2,000 Himalayan bears, around 100 wolves and approximately 130-140 lynxes and wolverines.

To a certain extent, these animals also “live at the expense” of the ungulate populations. For example, wolves annually kill from six to ten percent of the musk deer, 5.5-11 percent of the wild boar, 2.5-10.7 percent of the red Manchurian deer and 2.5-6 percent of the roe deer and elk. A tiger is a large animal, and to say the least, it has a hearty appetite. It takes from 20-30 percent of the wild boar, 8.5-12.0 percent of the red Manchurian deer, 3.5-5.1 percent of the musk deer and 1.5-2.0 percent of the roe deer and elk.

In absolute terms, this means that every year a tiger will do in 1,000 wild boar and red Manchurian deer, around 200 elk, a few more than 500 roe deer and 300 musk deer.

If the ungulates were to suddenly stop reproducing, then the abundant predators and hunters would completely empty the taiga in 2-3 years. But nature looks after things. Could it really be that she didn’t sense our economic crisis, or the collapse of the state hunting industry, or the inability of protection agencies to maintain order? As estimates show, for the majority of species, the balance between use and reproduction is either just hanging on or is declining. As a result, there is a slow but steady decline in the number of wild ungulates, the main prey for predators.

The picture, to be blunt, is pretty sad. And this information is grist for the opponents of tiger conservation. But don’t rush out and grab yourself a club. Kill off the tigers, and wolves will immediately fill the tiger’s niche. Wolves, provided there is prey, will multiply very quickly; a typical birth might produce five to seven cubs is typical. Wolf packs currently hang on the edge of the habitat of a tiger that is being mercilessly wiped out. Thus persists the ageless conflict between cat and dog.

Wolves have gotten smart enough to figure out when a tiger has retreated to the edge of its habitat so that the wolf may safely cut across the territory without risk. Hunters often find ripped-up red Manchurian deer and elk on the ice along rivers. A wolf is much more frightening a predator than is the tiger. People in the taiga have fought with them since time immemorial. And not only have humans been unable to wipe them out, but attempts to limit their numbers have also been ineffective. It has been calculated that if more than 27% of their spring population survives, wolf numbers will increase because the young from litters cover losses.

Earlier the Krai’s reindeer industry used every means possible to fight wolves, from poisoning them to shooting them from helicopters. Huge amounts of money were spent on this. There were also seminars, competitions for the best wolf hunter, and other measures taken to limit wolf numbers. But the efforts fell far short of the intended results. Now almost no effort is being made to deal with wolves. They have moved in like a flood, from the shores of the Pacific Ocean to the Urals, where there are reports of huge numbers of wolves the likes of which have not been seen since the Second World War.

And this is not just happening in the north where conditions are favorable for wolves (a taiga without people, domestic reindeer on the loose). Once the tiger retreated a bit, the gray bandits were immediately observed in traditional tiger habitat in the Matai, Sidime, Durmin and Khor River watersheds. Yet the tiger can deal with the wolves without too much of an effort. So it's better to let the tiger eat its share of the common pie if we don't want wolves to gobble up everything themselves.

Predators never destroy their prey populations, and a certain balance is always maintained. Tigers are dependent upon their prey, and so tiger numbers will increase and decrease in direct relation to the number of prey. Predators don't die of ennui. Offspring decrease in number as a result of starvation, young die more often, and adults begin to migrate more extensively. Tigers take on domestic animals and more and more often fall victim to a bullet. Such rises dips in the predator populations take longer than a year to happen, but over the years have certainly borne witness to the general trends. Our elders still remember how much damage wolves caused after the war.

But if we have some clarity on wolves, the situation with brown bears is not so clear. The brown bear is mostly an herbivore, and its problem is that our winters are long.

If a bear can't store up enough fat for five long winter months, it might as well not bother to hibernate. You can't just suck nourishment out of your paw! When the taiga was wild and Korean pine forests and walnut groves provided stable harvests, bears encountered fewer problems. Now a bear is sometimes forced, before sacking out, and during the spring famine, to go for higher calorie victims. And so it begins to sneak up on wild boar, red Manchurian deer, and elk; it attacks the helpless newborns.

What results is a noticeable, heightened competition with the tiger for food. Adults of both species are equal in strength. We heard one story about how a large "brown," having taken on a wild boar and covered it with scat and brushwood to make some "stewed boar, bear style," suddenly got paid a visit by a hungry tiger. Oh how much blood got shed! The owner of the kill died from terrible wounds and the disfigured tiger, moving off like a drunk, didn't even bother with the fresh spoils of the kill. Snow covered the tiger's tracks, and the king of the jungle was never seen again in those lands. Apparently, both animals finished their fight in the world beyond.

There is another story of a brown bear that went after two tiger cubs left by their mother near a red Manchurian deer that she had killed. When she returned after several days, the female tiger found only clumps of fur.

In a word, the tiger issue is not that simple. To somehow keep things under control means to try and grasp all the nuances, to approach the issue with the precision of a surgeon. We might get by without a surgeon if everyone would green up a bit, turn in their weapons to the proper authorities and become vegetarians. Then the animals might be able to work things out for themselves. But that kind of happy ending is still a long way off in the future; at the moment, there aren't any visible signs of progress. First of all, we don't live in California and we need more calories. Secondly, from the very start, the Far East has been settled by hunters whose heritage is based in the use of wildlife. It is in our "blood," in our genes. And as for the native peoples, hunting is not merely a tradition; it is a way of life.

Historically, our people, trying to feed themselves, have ventured into the forest, treating it as if it belonged simultaneously to everyone and to no one. Out there, the only rule that applies is one's own conscience. The idea of the commons has been corrupted for us and that is why there are so many problems. So we had better try to solve them together.

We need to take a look around and realize that the wildlife manager, the scientist, the hunting inspector are not enemies. They aren't going to go without work; the less wildlife there is in the forest, the more work there is going to be for them. They'll have to breed, distribute, prohibit, close down and protect large territories.

But even if they are successful in their efforts, our generation is not going to enjoy the benefits; the gains will be for future generations. Restoring what has been destroyed is a lengthy and involved process.

Our story on census work will hopefully inspire people living in the forest to take a more active role in tiger protection. We hope they will improve their understanding of the issues and will take the responsibility to make an impact on problems about which we have written in this chapter. As you must already understand by now, saving the tiger is not just to benefit the tiger alone. Large predators are always the first to react to a deteriorating environment, and the tiger's predicament merely mirrors that of its environment. If we can provide for the tiger's survival, that means we have successfully resolved the challenge of overall biodiversity conservation in the Ussuriiskii taiga and that we have moved closer to protecting at least one oasis of life for the indefinite future.

We hope that people out there do not just think that what comes after us, well, that is the concern of some future generation, that it is not our problem. Whose fault is it that there is so little time to travel, to relax, to lead a normal, civilized life? We've spent our entire lives on the road! On the road to socialism, on the road to communism, and now, on the road to capitalism... And entirely too much time has been spent looking merely at the commercial potential of everything that is around us: how much can I sell it off for? But concepts of profit are relative.

Certainly it won't be soon when we can say that all the money invested in the tiger has been justified. But the longer we wait, the higher the price is going to be.

For many decades to come, tourists will continue to stand in awe and admiration as they gaze at a fresh tiger print left in the wilds of the Ussuriiskii taiga by this most ancient of animals. These people will remember us and will be grateful for the few brave souls who took the time and made the effort to save this miracle of nature.

Man can create material good, fantastic means of travel to get from place to place, mind-boggling robots to do boring tasks. But humans will never bring back to life an extinct species. So why are they so intent on stealing from the pockets of future generations?

There are dedicated people out there who are ready to travel half-way around the world, to put up with our modest service just to get a chance to take a walk on the wild side down a tiger trail. The borders have but barely opened and already the first stabs at tourism, an industry by which entire countries flourish, are being made. There will come the day when a hunter who has wiped out the tigers on his territory watches, in bitter envy, as his colleagues take in guests and earn more as guides than he could ever imagine by marching up and down his exhausting hunting trails.

"For some reason the tourists seem to be a long time getting here; when is all this going to happen?" you might feel inclined to ask.

Yeah, in Russia, the first try is always a flop. There was a rush of tourists at the beginning of the 1990s, and then it stopped. The fact is that the tourist business the world over is fine-tuned engine. Impeccable service, intelligent, charming guides that speak nearly every language in the world, instantaneous communications, medical insurance, camping, five-star hotels, transportation - one can't list all the things that a limitless number of tourists agencies engage to attract clients. It begins with marketing and management, with investments in creating a reliable infrastructure, and only then can you offer your tours at the tourist shows annually conducted around the world. And it is advisable to work with firms that have a reputation.

Here in Russia things were done just the opposite. At the first sight of "green backs," people rushed to saddle this "eco-tourism" horse. Half-drunk guides, barely able to speak Russian (to say nothing of the languages of their clients), dirty huts with mice turds on the table, bed bugs and ticks.

And instead of the specialists and sensible, quality information, what the tourist got was a lot of beating around the bush, huge quantities of vodka and unfamiliar food of dubious quality, high costs and unreliable transportation. Some people managed to pull this scam with the foreigners, but then the entire world heard just how bad the service was and the competition used it to attract people away from Russia. That's the whole secret. Now the potential clients are going to stay away until we have learned some things, until people quit getting killed on the streets, until the prices are more reasonable. Even so, they are going to come! They'll come when we clean up the trash piles "in the wild" and when we hold to the motto of our foreign visitors: leave the place better than the way you found it!

And so, we have our tiger. We have counted him. Now what remains is to go around the world and see where and how many tigers there are beyond our borders.

The hottest information on this issue is right here on the table, in a magazine called "CAT NEWS." In this magazine, the very same Peter Jackson that we mentioned earlier wrote a review of the tiger situation around the world, based upon the results of a 1997 conference held in Dallas, Texas and that was dedicated to the year of the tiger. Here is what we found out from Peter:

Besides the Amur tiger, there are four other subspecies of tigers in the world today. The most numerous are the Bengal tigers - between 3,159 and 4,175. They are found in Bangladesh, Bhutan, Myanmar (Burma), Nepal and India. There are a few of them in each of these countries. India has the most - 2,500-3,750, and China has the fewest number of Bengal tigers - 30. But for some reason, after our recent research expedition to China, it is hard to believe that there are still any tigers left there at all. And not too long ago, the number of tigers in India reportedly exceeded five thousand.

Next is the Indo-Chinese subspecies that numbers between 1,227 and 1,785. This tiger is spread throughout almost all of Cambodia, Malaysia, Myanmar (Burma), Thailand, Vietnam and China. Most of them are in Malaysia (491-510) and once again, the fewest are in China (30-40).

Next is the Sumatran tiger (400-500) that lives only in Indonesia.

Our Amur tiger is next (360-406) and last is the most unfortunate of all, the South China tiger (20-30, if there are any left at all).

And here is the sad list of subspecies that have vanished into extinction already:

-- the Bali tiger that disappeared by 1940

-- the Caspian tiger that disappeared by 1970

-- the Javan tiger that disappeared by 1980

One shouldn't fool oneself into believing that there is safety in the mere fact that several subspecies still persist in the wild in several countries. Although this is some insurance, it is weak indeed. Originally the Caspian tiger lived not only in the meadow and river valleys of the Caspian lowlands; at one point in the past, it was also common in Afghanistan, Iran and Turkey.

Only five to seven thousand tigers are left in the wild on the planet. The Amur tiger, on the scale of endangerment of potential extinction, follows only the South China tiger.

## CHAPTER IV: Let's live in harmony!

After all that has been said and done, there is not much doubt that we need to protect the Amur tiger in the wild. That means we will have to live side by side with the animal for a long time. But will the coexistence be peaceful? It's misleading to say that the animal is not dangerous. All large predators present certain dangers. A female tiger will attack to protect her accidentally discovered offspring. Always possible is that chance meeting with an old or sick predator, driven by hunger or pain. There is the animal that, in its own way, has taken to living around people. Where the tiger lives, it is always best to be careful and attentive and careful where tigers live.

So what do you do if you run into a tiger anyway?

First of all, don't lose your cool. Of course, that is a lot easier said than done. Try to keep your wits about you, for your life may depend upon it. Viktor Yudin, a well-known scientist in the Russian Far East who studies the behavior of large predators, considers a tiger a threat when it makes its presence known to people. A tiger has phenomenal hearing, and like all cats, has the capacity to be quiet and unseen, so it probably has already been watching you for a while, deciding whether you present a real danger. But why would it just step out and block your path? The tiger is not likely to attack; and when that "is" its aim, you will have only an instant to think about it. Either the animal is just studying you, or it is out to show who is boss.

It could very well be that the predator has a kill near the trail or there is a female tiger in the vicinity. These circumstances increase the danger ten-fold. The most reliable approach is to move backwards, trying not to make any sudden moves. It's useless to try to run away from a tiger; it'll catch up to you in just a few leaps. And besides, that kind of behavior only increases the danger of attack - running away from any predator awakens the instinct to follow. Don't ever turn your back on a predator! According to Yudin's research on predator behavior, will pounce only on those whose backs are turned, sinking their teeth into the neck vertebrae.

On May 2, 1987, the newspaper Sovetskaya Rossiya ran an article entitled "An Hour Alone with a Tiger." It's the true story of a person who meets up with a tiger in the wild. The then young scientist Viktor Korkishko spent an hour backing away from a tiger that crept up to within a step or two of him and that was ready to spring. It's tough to say why the animal went to all this trouble: maybe to shove this "invader" out of its territory. Looking back on the incident, wildlife specialists unanimously agree that Korkishko came out of this alive because he kept his cool. He gave the animal his backpack to tear to pieces, his hat, his vest, all the time trying to talk the predator out of attacking. Suppressing, as best he could, any sign of fear, he slowly moved backwards, analyzing the situation, acting as experience and instinct dictated.

If you have a weapon, you can try to drive the animal off by shooting into the air. But before doing so, make sure you've calculated the time it will take you to load another shell since that could be a key moment. There have been a number of such incidents when people have miscalculated. Not all tigers associate a shot with danger; shots are numerous in the taiga these days and tigers have grown used to them.

People on expedition in areas where they might encounter a large predator are best to carry a flare; the flame will force any animal to take to its heels.

Here is an interesting rule of thumb: with rare exception, all tiger attacks on people have taken place when the latter has been armed. Possibly an armed person is exceedingly bold and is less vigilant. An animal is an animal. It has strong nerves. If you screw up, warn those who have been there, then you never get a second chance. It's worth noting that tiger attack survivors recall noticing that the tiger's black pupil filled the entire eye socket. This is apparently one sign by which to gauge tiger behavior. If the animal's pupils are not dilated, you still have time to get to safety, for the predator is not planning to attack.

As it stands, we are the ones who have entered the tiger's home and so it's our task to find some common ground with the animal. This is nothing new to hunters. Their line of work is not for the faint-hearted. Hunters set out to take on animals, and are, in general, prepared for the chance tiger encounter. This, however, is not always true of tourists, mushroom and berry pickers, and others spending time in the wilds

Nothing is gained by wandering around alone or by trying to be brave and fearless. To avoid accidental meetings with a tiger, it is best to go out only in groups and to make a lot of noise to avoid any accidental meetings. If the encounter nonetheless occurs, the best thing to do is to climb a tree. When a tiger is around, everyone manages to do this just fine. If climbing a tree is not an option, try to persuade the animal, only without excessive hysteria. People are known to have lost their voice. That's really the pits, but that doesn't mean you are a goner. Now, try to imagine the situation if your legs give out - what would you do then? Drop to the ground, cover your neck and face with your hands, and hope for the best.



There are tales of strong-spirited people. For example the guy who was cunning enough to ram his fist down the throat of the animal, to the stomach, just as the animal was about to swallow him up in its maw. The tiger, the story goes, ran away in confusion. It seems to us that these stories are merely the product of an active imagination. Flip off a tiger and what you'll get in return is a bloody stump! The animal's jaw is its weapon. It catches flies on the run, so waving your hand in front of its nose puts you in even more danger. There's one story of a person, who hearing the voices of some nearby rescuers, got it into his head to be brave and hit the tiger on the head. He ended up in surgery with shattered fingers.

We have another story that probably won't cheer you up much, but it might teach you a thing or two. We'll tell it in some detail.

A group of hunters has gathered in memory of a friend who had died before his time. There's plenty of booze, and the deceased, once remembered with a few kind words, is already forgotten as alcoholic blather fills the room. The guys are telling hunting stories, bragging about their sharp shooter skills, about their bravery in one-on-one fights with bears and wild boar. In a word, they are in "fine shape" and are ready to get it on with anyone.

They don't have to wait long. Suddenly a young kid flies into the room, all out of breath: "There's a tiger out back of the village!"

The silenced crowd looks around at one another.

"What do you mean, a tiger. There hasn't been a tiger around here for thirty years!"

"Out along the ridge, in the forest next to the field. I saw him myself!"

"Maybe it was a dog! Or maybe a cow!"

"It's a tiger, a tiger, I saw it myself!" repeats the little guy, all worked up.

"A big one?"

"No, a small one, but maybe a big one."

The hunters make for the door in a rush to get a look at the ridge where the animal is hiding.

Hey, Stepan, you're younger, go out and take a look at the tracks and see what's up with this tiger!" an older guy barks out.

And Stepan sets off in a flash.

"Hey guys, it's a tiger, that's for sure, a two-year old. Hey, let's bag him, what do you say? They say there's a zoo that will pay a cool million for him. Then we'll make a party of it! There's nowhere for the cat to run with fields all around!"

The timid doubts of simple people are instantly overcome by a wave of boozed-up daring, and before long, an armed band is ready to go. Someone runs to the outskirts of the village and cuts a forked tiger pole, someone else brings a rope, and even snowmobile sledge is dragged up to bring in the take. They get their dogs.

The guys decide to break up into two groups. One group would move as a chain to drive the animal into a tight area and while a second group waits with their forked tiger poles press the animal to the ground and tie it up. The hunters joke, the dogs do their thing, but during the pauses, people are casting incredulous glances at the instigator of the affair. "What kind of an outing is this, anyway?" Their muffled discussion comes to a halt when the dogs catch the scent of the terrible cat. The dogs instantly lower their tails, and as if on command, shamefully turn their heads away from their owners and take off for the village where they raise an awful wail right there on the edge of town. The dogs bark, howl and wail right by the gates and it looks like the ardor of our tiger trappers is about to cool down a bit. The doubts of the weak-willed are confirmed when they see the tracks, which obviously don't belong to a yearling.

Even so, no one follows the lead of the dogs.

"Guys, you could tie down a mammoth with this crowd! Sasha alone could handle this one, one whack with those sledge hammer fists of yours, and zap, you've knocked it out...", all this to just throw some fuel on Stepan's fire. "By the way, I grabbed a pint to keep the buzz going!"

While the hooch makes the rounds, the toughest of the tough are chosen to make the grab. Everyone voluntarily and proudly moves along with sparkling eyes, and Sasha, all pumped up by the compliments, lunges his forked tiger pole into the ground, testing it out as if he is pinning the animal's neck to the ground. He even grits his teeth, either out of anger or for show.

So as to not tempt fate, the guys have not taken along their guns. The ones who are supposed to drive the animal to the capture point are armed with clubs. The crowd is reminiscent of a bunch of rioting peasants during the times of Emelyan Puchachev.

"Sasha, make sure no one gets cold feet!" commands the old fellow who prudently gets in with the group that is to drive the animal towards its captors. The hunters push on into the forest, waiting while the capture group takes up its position.

The tiger remains calm, and only its retreating tracks admit its apprehension for the rushing, howling, tree-beating crowd. He walks from one end of the forest to the other, gradually moving closer to his "captors."

The circle grows smaller. The situation moves to a head. The spot where the tiger was supposed to pass is narrow and the hunters, concealing themselves behind tree trunks, stand several steps apart. The bravery and intoxication has worn off when, suddenly, out from the bushes swims the shadow of the striped beast. It moves soundlessly, like a phantom. Only its tail shows any concern, twisting and jerking. The tiger still doesn't suspect the dirty trick that lies ahead; all its attention is focused on the that band of guys making much more noise than necessary, apparently to maintain their nerves.

When the tiger makes its appearance, some twenty steps away, the captors suddenly sober up. They are about to be attacked by a tense bundle of muscles rippling under a striped “coat.” And when the tiger puts its ears back, tensing up as if to spring onto the closest of the attackers, bodies stiffen and many begin to have their doubts. To break the spell, Sashka hoists his huge fist, giving notice to the men who have been hypnotized by the intense stare of the mighty cat.

The animal picks up on the trap about five meters away. He quickly looks back, and then quickly squats, instantly tensing up as if ready to leap, but he does not get the chance. Spasmodically stretching the forked tiger pole out in front of himself, Sashka bounds onto the animal with a wild howl.

What follows happens in a matter of seconds. The animal’s roar blasts the attackers out from behind the trees like corks exploding from a bottle and the crowd takes off in every direction. The animal chasers and their helpers alike are alarmed by a human scream resembling a noise that a hare or a wild boar might emit. Everybody madly rushes out of the forest in the direction of the village, frantically looking around behind them, sprinting off to get their guns.

In several minutes the crowd is once again assembled, and, like a bunch of knights, blast off back to the scene of the confrontation. But their rescue mission stops short when Sashka shows up at the edge of the forest. He is wobbling like a drunk, pressing an injured hand to his chest. He is a bloody mess. Rather than answering his rescuer’s questions, he mutters a bit, and uttering some throaty sounds that don’t sound quite like words.

They examine his chest injury at the hospital. It doesn’t at all look like tiger claw wounds. A week later, when Sashka regains his ability to speak and tells what happened.

“I went to hold him down with the forked tiger pole, but then his paw was on it like a cannon blast. He poked me in the chest with it, and I wound up on my back. But I had no time to figure it out. I opened my eyes and there is this wild animal standing with its front paws on my chest, its claws all the while extending and contracting. One twitch, I thought, and he’ll rip me in two. “Get lost, you crawling cur,” I say to him. He winks his nose in my direction, comes up even closer to me, roars and I go deaf. Fangs, like sables, yellow, and oh, the stench. I pretend to be dead. I lay there, quiet, listening, things get better. Then he removes his paws. A couple of more roars, and I open my eyes. He is gone. And you numbskulls, it was like the wind blew you all away.”

“It wasn’t the roar that freaked us, it was your scream,” Stepan defends himself. “It was like you were being cut in half with a saw!”

“What do you mean, my scream!? I didn’t even out even a pip. As if enough wasn’t happening to me already! It’s good thing that I guessed to splash vodka on myself; at least he didn’t try to eat me.”

Sasha liked to tell that story, usually with hiccuping, and with each retelling the story became a bit spicier with embellishment.

So what happened next to this tiger? It darted across a field and ran into an old man in a fur coat, fishing an opening in the surface of a near-frozen lake. The old man glanced around, saw the devil and dove straight into the water. And, still dressed in his fur coat, he swam across the unfrozen portion of the lake. Naturally, his old lady didn’t believe a word of it.

Then the tiger ventured out onto the road, where oncoming traffic forced him to take cover behind a clump of grass. An avid nature lover sitting behind the wheel noticed something alive, moving in the bush. He grabbed his gun and took out after his game. So the tiger faced yet another captor, one, who, two hours later, was barely drug out from underneath his car by some people who happened to pass by.

The tiger's next moves we do not know. He probably figured that there was no peace to be had with these two-legged creatures and went back into the forest.

This story of a tiger's sojourn into unfamiliar territory is not something we made up just to add some color to a generally sad story about rare predators. One of the authors was himself involved in the investigation of the incident, and all the participants in this episode were thoroughly questioned first-hand.

Another story with a "moral" is told by an old Udege guide who came face to face with a tiger.

"I said to him, go away. I have a gun. I'll crack your skull. I called him everything in the book! I said to him, you're breaking the law of the taiga, we can live peacefully!"

"I quietly moved backwards. Amba just wrinkled his nose. We were on the bank of the river. There was nowhere to go. I lay down on the ground and Amba squatted down next to me. Then I covered myself with a dugout canoe. I hid under it for a long time. I peaked out - Amba was gone. He had left. That was a bad wild animal. He really scared me..."

When asked why he didn't shoot the tiger, the old man answered:

"It's forbidden, a taboo. He is a hunter too. You kill him, and his kind will roundly punish you!"

These two particular stories had happy endings. But there are also the horrifying tragedies. Some will remember the ugly scene in Ulchskii Raion, the one that began with a warning in the local newspaper: A tiger that finds itself in unfamiliar surroundings is dangerous. Don't shoot, for a wounded tiger is even more dangerous. And despite all this, someone shot it, leaving a 34-caliber bullet in its leg.

From here, things escalated rapidly. The animal hid its tracks, moving along a road, resting under a broken bridge where a bus with workers soon got stuck in the mud. People got out. One of them for some reason walked off to the side of the truck, and suddenly yelled "Wolves!" and ran back. Illuminated in the glare of the headlights, a huge cat jumped after him and killed him in one blow. All this took place within just a few steps from the truck.

Then the real war started. Armed field groups were unable to find the tiger even from helicopters. He calmly slept the days away under spruce trees tilted over the road; at night he walked to the village to escort a dog to breakfast and didn't leave a trace until he met an inebriated old lady on the street. She screamed to her old man, who fired his shotgun, and, to his own amazement, missed. In the morning they set up a cordon, but the tiger was able to break through the death circle. Only this time, he left tracks that spurred along a chain of pursuers. According to Sergei Anokhin, a wildlife manager and the first person to see the tiger and to open fire, the scene was eerie. The tiger, just like a lion, fur standing on end on its mane and head, made enormous leaps with a roar that shook the surroundings. There were dozens of shots, but only two shots hit the mark.

The stuffed tiger is now in the Bogorodskoe village museum to remind us that our relationship with our "little brothers" is a serious affair.

In another incident, our colleagues were forced to investigate the circumstances surrounding the death of a staff hunter in the Samarga River watershed. The tiger stalked him like game. Came in from the side, let him move past and overtook him in three leaps, killing him instantly. Then the tiger dragged the guy up the slope of the mountain and ate most of him. This animal was not injured. He was simply hungry.

A no less terrifying story took place in the headwaters of the Bolshoi Ussurka River watershed. A couple of hunters left their cabin to pick up their traps, each moving along an individual trap line. By evening, one of them hadn't returned. In the morning, his troubled comrade took off along the other's track in a search that soon led him to the site of the tragedy.

The snow was crushed down and bloodied and on the trail was the gnawed leg of human. In terror the hunter hoisted his gun, fired a shot into the air and took off from the horrifying site. This shot saved his life - the tiger-killer heard the person approaching and was stalking him at the moment, waiting for a chance to spring when the shot rang out.

The investigation revealed that the hunter did not provoke this encounter. At the time of the attack he was looking at a squirrel in a Korean pine tree, and the predator, sneaking upon the scene, was crouching not very far from the trail. The gun, so it seems, was in the hunter's hands. He probably saw the tiger lung like a yellow streak of lightening, and most likely he didn't even have a chance to shoot.

Then there is the noisy 1997 history of the man-eating tiger in the Bikin River watershed. This incident began with a guy hunting the rare animal with the help of snares and traps. The fellow was probably not the type to be easily scared, since the first thing he did was to shoot the tiger with a shotgun and then take off after the wounded animal. The second shot did not hit the mark; the tiger leapt at his offender, killing him on the spot.

The tiger, however, was seriously injured, no long in any condition to hunt red Manchurian deer or wild boar. He had also caught on that humans were easy game. His second victim was a young guy who was guilty of nothing, a fellow out checking his father's traps. After the funeral of his son, the father, unable to cope with the loss, committed suicide. A special team of hunters shot the tiger after what turned out to be a long search. If the search had been initiated earlier, then the second tiger victim would still be alive.

There are several other well-known incidents that, when investigated, reveal direct or indirect human culpability. Sometimes there are no explanations. Dozens of stories have been collected in the last fifty years about people who have been killed by tigers. This is not Afghanistan. Nor is it like getting run over by a car. Nor is like tangling with a bear; the archives are full of bear attacks. This is the tragic price of working where there are tigers. People know that they are in high-risk areas and they are perfectly aware of the dangers. More people have died from rabies than from tiger attacks and yet we don't go around shooting all the dogs in retaliation!

Yes, we have intentionally tried to scare you. Forest mice and cats are not just characters in happy fairy tales, and so there is nothing wrong with having some modern armory when out hiking: compressed air pistols, pepper spray canisters, smoke bombs, electrical stun guns, signal rockets. It's true, this kind of stuff is probably of more use in fighting off aggressive humans in cities than wild animals in the taiga, but such is our modern, urban lifestyle. However, even in the woods you never know what pranks the devil might have up his sleeve. What IF you just happen to be the unluckiest person in the world?

As an endnote, we would like to wish you many happy, enjoyable hikes in the Ussuriiskii taiga. It remains a remarkable place. It offers many, simple, down-to-earth pleasures. Pure mountain streams. Sleepy spruce forests. Enormous, park-like Korean pine cathedrals. Low shimmering stars. Fresh morning fogs. To say nothing of the clean air that gives city slickers a headache. Is it really possible to list all the wonders? But one can experience all this at in many other places on our planet.

You must be thinking: what is so special about the Ussuriiskii taiga that it attracts foreigners who have never lived behind an "iron curtain", and who would find it a lot easier to travel to an African jungle than to come and visit us in Gvasyugi? After all, there are marvelous little pockets of nature in America that make a joke of our ravaged taiga.

We had the opportunity to spend some time in Yellowstone National Park. My god, the things we saw there! Dense herds of wapiti and buffaloes crossing the road but five meters from passing cars; elk strolling in the fields, paying no attention to humans. There are coyotes earning their living, enormous grizzly bears, white-and-yellow tail deer, and on the cliffs, atop long drop-offs, herds of goats stand dizzily above the crowds below. One is awe struck - how is it that a newborn billy goat can move along a wall a hundred meters high?

But it does just that, stepping along the cliffs, cleverly sliding in under its mother's belly for some milk.

To use the scientific terminology, the wapiti population density at Yellowstone is 90 head per ten square kilometers (3.9 square miles). Even in our best habitat in Russia, maximum red Manchurian deer density is only six to eight animals for a similarly sized area. The average density in Khabarovskii Krai for that many square kilometers is only one deer!

"But you're talking about a national park," you'll say. True, but oh how many of these parks there are in America! In the state of Idaho alone, a territory ten times smaller than Khabarovskii Krai, we discovered 24 parks! And then there are the reserves and the private lands.

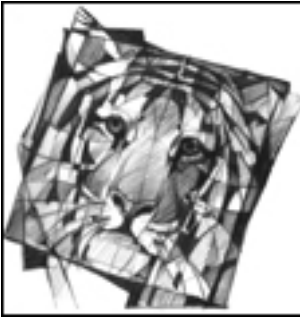
Yes, there is rather intensive hunting industry in America. Yes, there is plenty of poaching though it is not very highly thought of. And even so, we spotted animals everywhere, in empty fields, on the sides of busy roads. But we didn't see anyone running after them with a club.

"But that's America, and not perpetually hungry Russia!" you will object. True again. But the very same kinds of people live in America. What has happened there is that people have learned to work hard and to think about the future, and most importantly, they have found ways to appreciate the great outdoors and its wildlife. We point this out to try and cool the hot heads that claim that we can get instantly rich if only we could organize a red Manchurian deer hunting industry. A hunting license costs fifty dollars in the States and to bag the animal of your choice is as simple as pie. And if all you want to do is just look at the animals, then there is plenty of opportunity to do that also. The situation with the tiger is another matter altogether.

Our local people are still accustomed to seeing wild tiger tracks, and any excursion into the wild leaves an impression that lasts a lifetime. So let's do what has to be done to make sure that we won't have to cover over the last tiger tracks with a piece of plywood!

## CHAPTER V: How can we save the tiger?

We all seem to agree that the tiger needs protection. And to get this process moving, representatives of the international community met in Khabarovsk in March 1993 to develop a plan. Many of these same people had met previously in India, in Great Britain, in the USA, in Nepal, in Japan. Resulting from these meetings were joint tiger conservation action programs that in rough outline are made up of several components.



The first and most immediate measure for tiger conservation is to find a way to fight poaching. A number of approaches have been suggested: improving the legal aspects of tiger conservation; strengthening customs control and hunting inspection services, including the formation of specially trained, mobile units; determining the responsibilities of those who manage wildlife resources. Programs have also been developed to defend people from the tiger's actions. These programs often include creation of procedures regulating the removal of tigers that threaten human life; compensation payments for losses caused by tigers; and the

identification of locations where the coexistence of humans and tigers is undesirable or unacceptable. As it stands, the outside world realizes that the Russian government is not especially concerned about the tiger; it has enough of a problem trying to feed its hungry masses.

But even when we were fat and sassy in Russia, we didn't give much of a hoot about the tiger. The Russian government has never been much of one to fund tiger conservation. But there are caring people on the planet and they are providing funds to implement specific parts of our tiger program. Some things have already been done to provide some protection. International funding is supporting field inspector teams in Primorskii Krai. New reserves and zapovedniks are being planned. Books and pamphlets are being written and published. The World Wide Fund for Nature (WWF) has spent almost a million dollars on tiger conservation. The US National Fish and Wildlife Foundation, the Tiger and Rhino Fund, the Hornocker Wildlife Institute and other international organizations are also providing generous assistance in the name of tiger conservation. Everyone is helping out as best they can, that is, with the exception of the Russian government.

However, dear jurors, even with the Russian government the ice has been broken! A national strategy for conserving the Amur tiger population has been developed and approved, a similarly entitled government proclamation has been issued, and a federal program has been developed, promising sizable funding to ensure implementation of tiger protection measures necessary to protect the tiger. In reality, there is no money for the program, and where it is going to come from is anyone's guess. This is Russia and it has a government that is not even willing to pay people their hard-earned wages.

We need to admit that it's impossible to post an inspector behind every hunter. Tiger conservation will be effective only when everyone recognizes that a live tiger is more valuable than a dead one. When this happens, the road to reckless adventures will be blocked once and for all. A good hunter can easily spot a snare set in his territory. He can read road tracks better than any criminologist. But for the time being, we cannot take for granted that every hunter will voluntarily contribute his share to tiger conservation; we'll have to pay for the strict control ourselves. If we don't, and the current threats continue to grow, it may soon be too late to do much of anything. That's the issue!

A second component of the tiger conservation program is dedicated to habitat protection and to improving natural conditions that will ensure the tiger's survival. This component incorporates a very broad range of strategies: there is a need to increase the number of wild ungulates; to create wildlife refuges and reserves; to develop special natural resource use zones. Additionally, an integrated economic development program must be created for the areas that are currently recognized as tiger habitat.

This will be a tough thing to do in Russia. In America it's easier to resolve such matters: "greens" can use the environmental impact assessment process to demonstrate that a timber harvest will degrade the habitat of an endangered spotted owl. What follows is a lawsuit against the timber industry. While the courts consider the case, all harvest is halted in the habitat of this poor owl. A year, maybe two years pass before the court is-

sues a ruling and reach an agreement on compensation measures. If you were to try to argue in the American fashion here in Russia, then you'd be in for a good laugh. That is why achieving habitat protection will be a long process. For the time being, there isn't even money to develop certain parts of the tiger program. It is true that United States Agency for International Development has promised to provide some support. And to provide it more quickly than our government could ever dream possible.

Of course, protecting tiger habitat on a regional scale is beyond the capacity of individual hunters and nature lovers. Each of them is in a position, however, to put out a single forest fire or to go out to save a stand of trees. It's not just the timber companies that are creating problems; it's also the individuals who work in the forests. A guy sitting at the controls of a bulldozer is positioned to fight the power of nature in equal terms! He can grind his way up the channel of a forest stream, turning it into a lifeless current for dozens of years. He rips open a path on a steep slope for a skid trail and, for years to come, rains will wash away trees that had been growing on there for hundreds of years. To make an opening for a lower log deck, he uses his blade to level out a meadow that happens to be a natural salt lick, once and for all depriving local animals a source of mineral supplements that they have used for millennia. No one orders the bulldozer operator to act carelessly, If the command was something stupid, senseless, without any consequence to himself, the he could have changed it, corrected it. But he didn't do either of these things. Why?

But this is a rhetorical question. Since time immemorial, every effort has been made to extinguish forest fires in Russia. As soon as a forest sparked, the entire village, young and old, would rush to put it out. That was just thirty or forty years ago. What is happening with us? Who are we now, a bunch of "new Russians" who might at any time can split the scene with our cash, just to pump up the economy of some other country? But most of us are going to have live here on the ash pile on this trashed-out and scalped landscape. This "to hell with it" attitude has really gotten out of control. We were struck by a lot of things in America, including their love of their country and their national pride. Americans too have done their share of damage over the years, which they are now spending colossal amounts of money to correct. And in general, there are more than enough examples in the world of how not to do things. When are we going to figure out that learning from the mistakes of others might be a lot less expensive than cleaning up the mess?

Tiger habitat - this is our habitat too, the place where we breath, from which we drink, where we work and play -- and we need to relate to it the way that we relate to our homes and our backyards. True, many of our homes and yards have themselves have been trashed and spoiled. As if what people were doing there was not quite living, but instead enduring a sort of sentence for punishment as everything around us is maliciously destroyed.

In the endless fields of the state of Washington, we saw buildings that had been erected by what were probably the first settlers to the region. These buildings have been left unattended for decades; it is time, not people that is degraded them. Even the windows are still intact! That's those greedy capitalists for you! And we, with our socialist, Pioneer-Komsomolsk-party upbringing, have responded to our new found "democratic freedom" by turning into barbarians and con artists, ready to rip up a thousand trees with a tractor just to get at a single ash tree worth a hundred "bucks."

Prince Philip, the Duke of Edinburgh and the honorary president of the World Wide Fund for Nature (WWF), came to Khabarovsk two years ago as volunteer for the "Living Planet" campaign. Important symbols of this campaign are the tiger, the African rhinoceros and the panda.

A brochure about the "Living Planet" campaign reads as follows:

"We stand before a colossal challenge here on the edge of the new millenium. The destructive heritage of the "human footprint" has grown by two thirds in the last three decades, while all over the world forests, wetlands, oceans and coastlines are being degraded as a rate never before observed. The world's forests are being destroyed more quickly than ever: each year we cut down or burn 17 million hectares, an area four times the size of Switzerland."

By joining the international “Living Planet” campaign, Khabarovskii Krai obliged itself to increase protected territories to ten percent of the total area of the Krai. The Krai needs to expand its system of zapovedniks, national parks and reserves, connecting them with ecological corridors that support animal migration. These obligations, in the form of a Gift to the Earth, were presented to Prince Philip by the governor of Khabarovskii Krai, Viktor Ishaev, during the Prince’s visit to Khabarovsk in March 1997.

Chukenskii and Mataiskii nature reserves, which enjoy Krai level status, have already been created. Work continues to create the first national park in the Russian Far East, in the Anyuskii River watershed, as well as other protected territories. The international community has recognized these efforts. A specific example of this international recognition is inclusion of Khabarovskii Krai into the International Club “Protectors of the Earth.”

The people of the Russian Far East can provide real and effective help in protecting tiger habitat. Hunting clubs can carry out forage enhancement measures: sowing and planting fodder grains in forest openings, setting up salt licks (but not just with the intention of shooting the animals!), and feeding animals during the deep, spring snows. Farmers can leave small amounts of grain in the fields during harvest. Even individual hunters can try to find ways to compensate these animals for what has been expropriated by humans. Feed, refuges, human impact and climatic conditions all help to determine the number of animals that can be supported in a given area. But the main factor is food. When there is enough food, even heavy snows are not too destructive, just as long as animals are not forced to shift from one spot to another or are mercilessly shot next to the road.

International donors will provide funds to restore the tiger’s prey, but only if they are convinced that their contributions will do more than to merely ensure that people have more deer and wild boar to shoot. That is it is critical that hunters need effectively manage their own hunting territories.

The tiger conservation program also contains provision for scientific study. Here is where the skeptically inclined reader might sardonically grin: Just how much time can be spent studying the tiger; everything from the tip of its nose to the end of its tail has been studied! It is ironic that this perception exists. In reality, no one in Khabarovskii Krai has ever received any pay to study the tiger. So, how that tiger really lives in its dark forest is a cloudy subject. A few scientists, as an ancillary project to their primary areas of academic research have managed to spend some free time out in the field and to gather some general data on the tiger. So when you read books by Far Eastern authors regarding how much a tiger eats in a day, a month, in a year or how much distance it might cover in a certain period of time, or other subtleties of the tiger’s nature, well, don’t take it as the final word on the topic. These are projections, ideas and hypotheses that might reflect the truth only in a very relative sense. These are the results of many different people’s scattered tiger studies, and the fact is, we don’t know how much of the data is valid.

The first carefully gathered, accurately compiled data on the physiology of the tiger’s food habits was gathered by Viktor Yudin during his observations of tigers in captivity. But a tiger pen, even when every possible attempt is made to ensure natural surroundings, can never resemble conditions present in the wild. The American staff of the Hornocker Institute are taking tiger study in the wild to a new level. They catch tigers, put them to sleep, measure and weigh them, take blood samples for genetic analysis, put radio collars on the animal’s neck, and then follow them with the help of radio triangulation. That is, until such a time as the life of the animal is ended by a poacher, as has already happened on two occasions. Soon it will no longer be necessary to crawl up and around mountain cliffs with hand-held triangulation equipment, as satellites begin to pick up the collar’s signal and to transmit the exact location of the animal to a computer, day and night. This is not just an experiment; radio tracking work has been going on for many years and with many species of animals, from polar bears to large birds. Naturally, this technology is used in many different countries. Now it is helping us to fill in the gaps in our understanding of tiger behavior during the snowless months,

But this radio tracking is only one part of the research that needs to be carried out. We need to know the

animal's reproduction potential, its dynamic structure, the optimal number of animals to guarantee the survival of the species while at the same time not adversely affecting humans. We have to determine the territory that is optimal for an individual tiger.

In addition, we need to develop programs to guarantee the safety of humans and domestic animals, and to look into the tiger's interrelationships with potential prey populations, with enemies and competitors. There is a long list of questions that scientists need to answer in order for the tiger to be satisfied and for the lambs to be safe.

As you can see, right now the scientists are zeroing in on those research questions that shed critical light on the conservation issues at hand. Other less pressing questions, for instance the relationship of the length of the tail to the caloric value of food, can be studied later. Professional hunters and local specialists directly assist the tiger research by keeping detailed notes in their field diaries. Provided that the information is logged without any "nonsense" or embellishment.

Another component of the tiger conservation program is even more expansive and complex. It is dedicated to the issues of developing sustainable natural resource use in the mountain forests of the Sikhote-Alin. The fate of these landscapes, in an historical perspective, fully determines the fate of all of its inhabitants as well, not least of all the tiger. The proposition is that forest-use and other economic activities should be under the control of ecologists, that the ecologists develop and implement types of production that, while not reducing the economic potentials of the territory, will make it possible to protect this gem of the Russian Far East.

In Khabarovskii Krai, we are talking about the middle portion of the Khor River watershed and its tributaries. These particular waterways form ecological corridors along which the entire tiger population is connected as a whole. Questions of employment and increases in the standard of living of people living in forest villages must be given special attention. Local value-added production facilities, gathering of non-timber forest products, bee-keeping and safe forms of ecotourism are proposed as alternatives to timber harvest. If we are to get serious about this, then the start-up capital, the equipment and technologies could be obtained in the form of investments into the region. The rest will depend upon the people living on the land.

Scientists and the interested public who discuss the tiger issue have no quarrel with the value of environmental education. That bulldozer operator that we mentioned earlier was raised as a child on newspaper articles with headlines like "Attacking the Taiga" and "The Taiga is Being Rolled Back". The taiga has been attacked like a dreaded enemy. And it is attacked according to the rules of war. Without any common sense or basic understandings; illegally and cruelly, and with great success. View it from an airplane and you'll be convinced that this endless sea of forest has been damaged to the breaking point. As Felix Shtilmark, the well-known popular science writer, wrote: "There is no longer any taiga; it is a sea of everything but wilderness." And amidst this sea all that remains are a few pitifully small islands to remind us of a once great abundance."

People have yet to give any thought to the fact that we are cutting our feet out from under us. And yet, we continue to do this; we continue to cut.

In our work for the Amur tiger, we seem to spend a lot of time out on our forest roads. And oh how barbarically we have treated Mother Nature! No matter how many times you see these hellish pictures, there is simply no way to get used to the scenes. In many areas of the Krai gullies are laid out with neatly stacked piles of huge Korean pine trees; you'd be hard pressed to find trees of this size growing anywhere nowadays. They were cut to specific lengths and then were left to rot; trees grow on them in a shameful attempt to cover over the results of the madness of an accelerated attempt to build socialism. Millions of cubic meters of logged timber are scattered throughout the forests of the Russian Far East, hundreds of millions of trees cut down to meet a plan. Now the size of the trees is smaller; you can't squeeze out as many "cubic meters" as before, and yet still there are new stacks out there in the forest, feeding the bark beetles and the other forest pests.

And yet, right near by, people are cutting down even more trees, and they're moaning and wailing about not getting paid; that there is nothing on which to haul the trees out; that there is no one out there to buy the timber they are felling; and on and on and on. But they keep cutting! Is it a hobby? Is it indifference? Is it environmental ignorance? It's as if someone needs to explain to people just how long it takes for a tree to grow, how difficult and expensive it is to reforest a harvest site that otherwise will be instantly overgrown with raspberries and tall grass. They have to be told that the enormous volume of timber left in the field and then pounded into the ground by tractor treads, is now a dangerous tinder box. In these circumstances a forest fire will burn all living matter down to the bedrock, leaving us with a lunar landscape.

All this is being done by people, local people, not just by the Moscow and Khabarovsk city bureaucrats. That is the manner in which we decided to build a new capitalist society.

That's why, starting with kindergartens, and the earliest grades and continuing all the way through high school, everything must be done to introduce students must urgently be exposed to these issues. We must try to instill in them a deeper understanding of nature so that those who come after us will be zealous protectors of this place we call planet Earth. This kind of education process has been going on in other civilized countries of the world for a long time. In Russia, environmental education is a great challenge - we still have to teach the teachers. Naturally, you aren't going to reorganize public education just for the tiger; neither the funds nor the opportunities to do this exist. But much can be accomplished using resources already at hand. Almost every village has a literate biologist or a wildlife manager or a forest engineer. These people have a wealth of useful information that can be shared with both children and adults! There are plans to develop new teaching methodologies and a textbook for teachers. Substantial funds, hundreds of thousands of dollars, are needed for environmental education in Russia.

So there you have it, five strategies for tiger conservation that each require sponsors. The Americans are probably correct to draw in NGOs to handle these issues. As a rule, these specialized NGOs, which combine scientific specialists with activists, are free of partisan or business pressures. This approach means that the funds won't just completely disappear into the vortex of the ever-emaciated government budgets.

Unfortunately, our new crop of Russian capitalists and government officials have a long way to go before they can be expected to sympathize with the situation. We often hear from the foreigners: "Yes, but what has your government budgeted?" One tries to look to the side, embarrassed, mumbling something about the difficult economic times in the country. Although the truth is that just the revenues from the sale of the vodka that despairing people in forest villages drink would be enough to get the work started. That is, if the vodka was not sold on the "sly," and if the regional government were to earn something from it.

As we said earlier, the Amur tiger is listed on rare and endangered species lists the world over. And not in vain. Our generation has borne witness to the loss of the Caspian tiger - it no longer exists on the Earth. We are now witnessing the agony of the South China subspecies: just a few are left in the wild. Or maybe they're gone already.

Officially, the government Committee on Ecology is responsible for the fate of the tiger in Russia. But since the Committee does not have police powers, its responsibility remains purely symbolic. The Hunting Inspection Agency deals with the tiger as if they are merely a side project. Sometimes this agency does nab tiger poachers. But hunting organizations are not very interested in having the wild animals that they protect and breed eaten by the tiger. That is why the agency's guardianship of the tiger in Khabarovskii Krai is rather halfhearted.

The Far Eastern Branch of the All-Russian Scientific Research Institute for the Study of Wildlife Resources (VNIIOZ) studies the rare predator, that is, when there is funding to do such studies. It is true that since 1997 monitoring work has been going on in the context of the Federal Target Program, but the funds to support this work have derived solely from the local budget and from WWF, and so, unfortunately, there is no assurance that this work will continue. And nevertheless, since 1990, for better or worse, much new, interest-

ing information has been gathered on the Amur tiger, information that makes it possible to seriously correct what has been written to date.

In general, the world long ago lost its indifference to wild nature, and even in China a flurry of activity is taking place to once again fill the forests with wild animals. In the developed and “underdeveloped” countries, hundreds of foundations conduct project competitions to try to find ways to conserve rare animal species. Grants are awarded to assist the governments themselves to solve environmental problems. Such organizations are now appearing here in the Russian Far East. The Khabarovsk Wildlife Foundation, organized by a group of scientists in the Krai, has gained international acclaim. Once we were surprised when, visiting a remote community in the US, our introductory remarks about our region were met with the response, “Oh, Khabarovsk, the Wildlife Foundation!”

But unlike foreign funds, our Foundation does not have its own funds - the government doesn't provide us a kopeck of support. The Foundation is a volunteer organization. The situation overseas is a bit different. Governments and individual people concerned for the planet provide money to large international and local foundations that hold competitions to provide yet other funds with modest funding. Upon receipt of a grant, these latter funds then hold competitions to find groups and individuals capable of carrying out programs that are in accordance with the funds' objectives. The lucky ones who receive grants use the money to carry out their work. This grant making process assures multi-level control of the funds and inappropriate use is practically excluded.

Are we going to save the tiger? If you judge by what is being done right now, there is some basis for optimism. The tiger isn't going to disappear in a single year, and it might even last a couple of decades, maybe three, but then again, maybe not that long. We could gather a bit more material on the tiger, set up a mathematical model, and predict, with an indifferent machine, exact date when people will catch their last glimpse of the tracks of the last tsar of what, by then, will be (please forgive me for the expression) no longer a wild jungle.

But if we turn the words into deeds and we implement even a part of all that has been designed and planned for tiger conservation, then the time left for the Amur tiger in the wild will be counted in centuries. One would like to believe that common sense will win the day.

In a word, everything depends on us, the simple people who neighbor this mighty cat and who are helping to determine its fate. Each shot in its direction reduces by years, if not decades, the life of the tiger population.