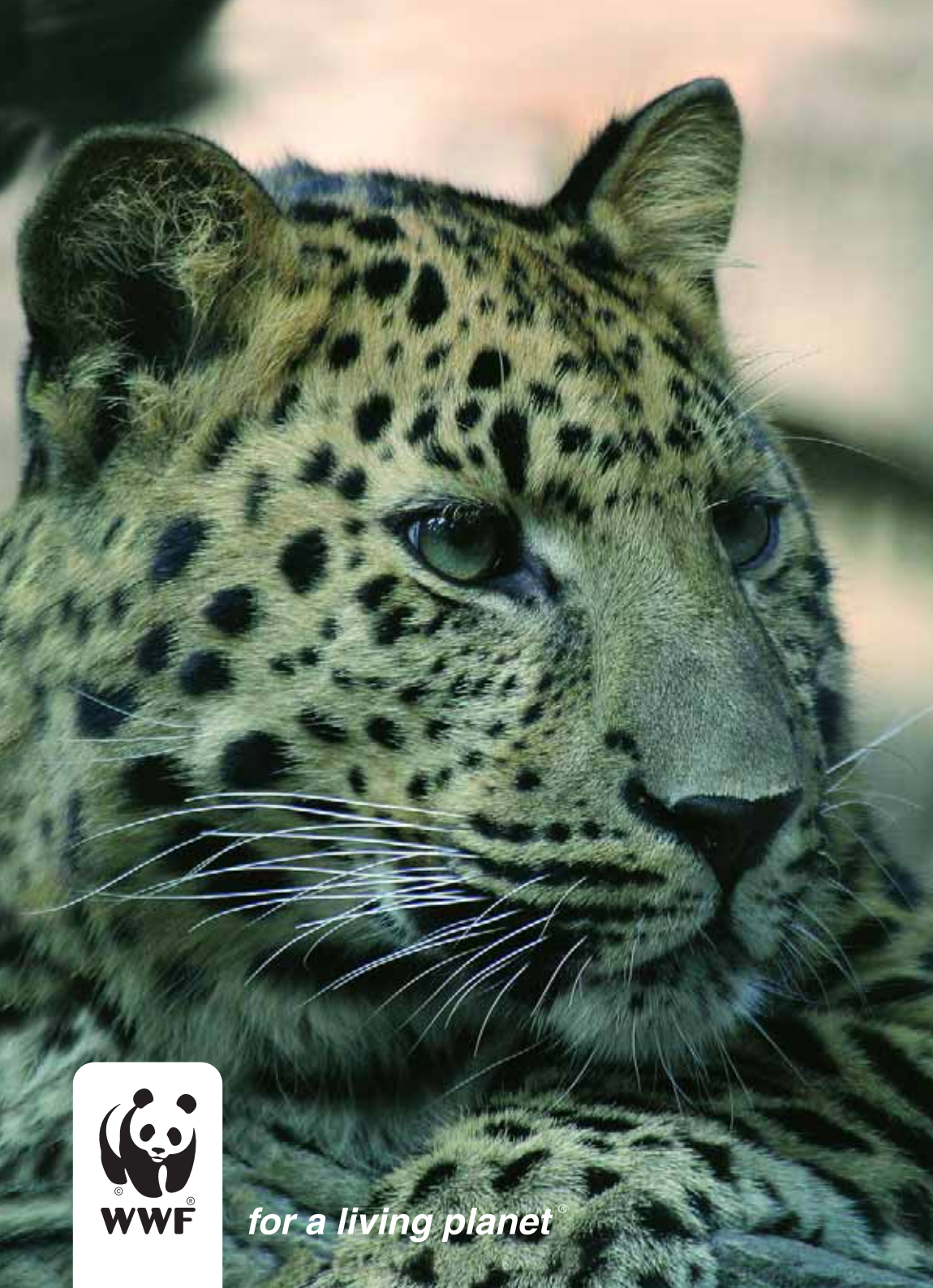




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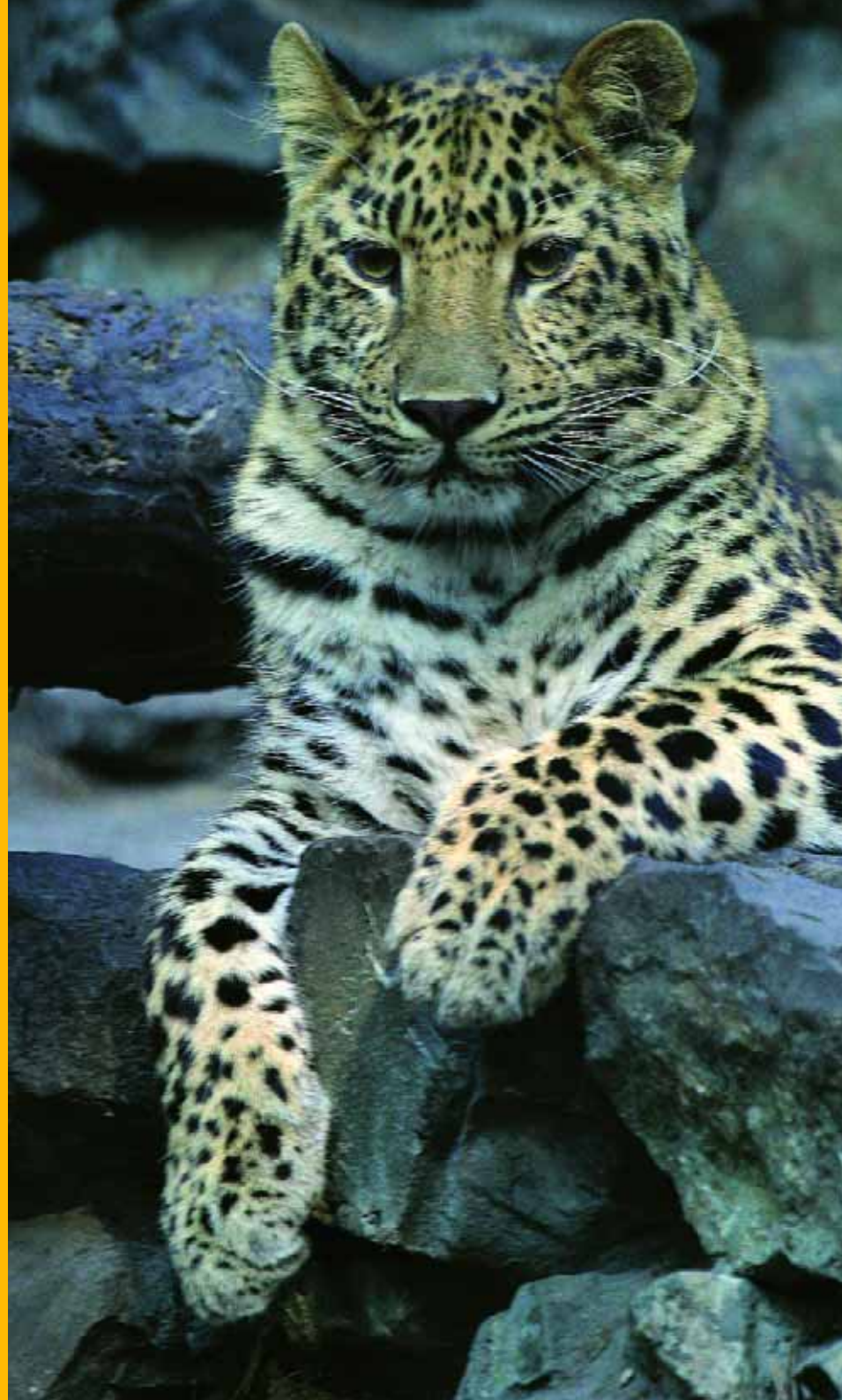
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THE FAR EASTERN LEOPARD: LIFE ON THE EDGE

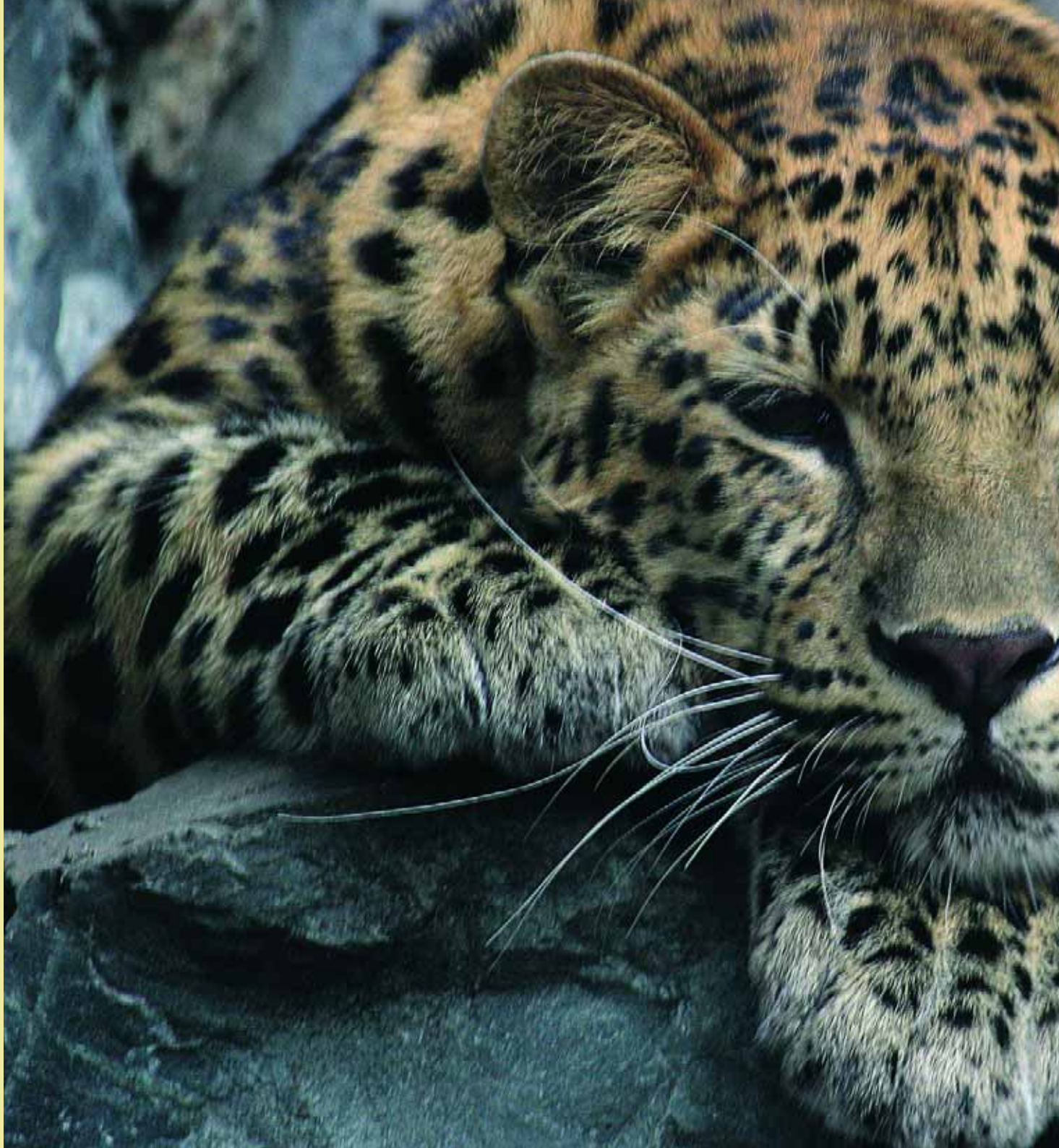




Vladivostok,
2006

THE FAR EASTERN LEOPARD: LIFE ON THE EDGE

Photograph — V. Salin



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If the history of the rescue of the tiger reminds one of a well-written thriller that is being confidently «guided» to a happy ending, the history of the leopard's existence in the Russian Far East reads more like a drawn out detective novel. And its conclusion is not nearly so obvious...

Since the very early days of the Russian environmental movement, the Amur tiger has been that movement's poster child. Everything about this huge, self-confident predator is satisfying: from its physical beauty and power to its almost samurai contempt for its own destiny. No matter what's been done to the tiger, its numbers remain relatively stable, at least over the time that we've seriously committed to counting those numbers and not just making pro forma attempts at such.

Amur Tiger

Everyone loves the tiger. Moscow has its Kremlin. Kamchatka has its bear. And Primorskii Krai has its tiger. These have been the popular images in Russia since the beginning of the 1990s.

But only a few specialists and lovers of large cats seem to remember that in the Russian Far East, in the shadow of this powerful comrade, there is yet another exotic carnivore — the Far Eastern leopard. And in the sad hierarchy of large, rare cats that are under threat of extinction, while the Amur tiger ranks seventh, the leopard ranks first.

To understand what is going on with this animal, you have to imagine for yourself the backdrops in which it lives.



Far Eastern leopard

The Far Eastern leopard: Manchurian taiga

The Manchurian taiga, or more precisely, that little corner of taiga that we call the land of the leopard, is mainly a land of low hills and a plateau less than six hundred meters high. The slopes of these hills are steep and all are strewn with half rotten, gray cliffs. The leopard finds shelter, makes its den and gives birth to its kittens in the honeycombs and caves that are eaten into these cliffs.

The mountains and plateau are covered with a thickly woven blanket of forest. These are crooked oak forests with virtually no understory, an atmosphere that is a lot like strolling in a city park. Just that here no one rakes up the leaves that cover the ground in a thick, quaintly rustling carpet.

Korean pine broad leaf and oak broad leaf forests grow on the hills, along the slopes and in places further away from where the forest has already been cut. The leopard's favorite forest type is gloomy, thinly stocked, 200–300 year old virgin timber: oaks, Korean pine and abundant grass – everything that ungulates need – this is where our hero seeks out its basic prey. Sika deer and wild boar feel at home in these conditions. Roe deer roam along its edges. Badgers set up their dens here. In a word, the leopard can make a full meal of it. These abundant crags, cliff facings and canyons are ideal habitat for the leopard.

In winter the leopard, all the more its kittens, keeps a limited home range, leaving behind its trails and so called «scrapes», the markings its claws make in the bark of trees. During the surveys and research conducted in southwest Primorskii Krai in recent years, no sign of leopards was found in agricultural areas, in reed swamps and in sparsely growing broad leaf deciduous forests with shrubs.



Photograph — V. Solkin

Racoon dog – the key small predator in the Land of the Leopard



Photograph — V. Solkin

Siberian roe deer – one of the Far Eastern leopard's prey



Photo M. Illarionova

Олень-цветок –
пятнистый олень

This small corner is indeed an isolated island of taiga in southwest Primorskii Krai. The only route for making contact with its former habitat in the southern Sikhote-Alin mountains is via a narrow strip of forest between Terekhovka and Banevurovo, the so called Baranovskii Corridor that is part of the Baranovskii military range from which the corridor takes its name. But human pressure on this area is increasing and the gap between the cities of Vladivostok and Ussuriisk is narrowing and the future of this corridor could be in jeopardy.

¹По названию Барановского военного полигона, благодаря которому он и сохранился.

The Korean pine –
the father of all that
is the Land of the
Leopard



Photograph – V. Solin

Broad-leaved forest
is one of the major habi-
tat types for the Far
Eastern leopard



Photograph – V. Solin

Leopard encounters in different habitat types

(Pikunov, Korkishko, 2002)

- Leopard
- Korean pine broad leaf forests with black fir
- Broad leaf forests (oak)
- Thin leaf forests (birch)
- Valley forests
- Grasslands and shrubs
- Agricultural lands, commercial / industrial use lands
- Wetlands and bogs



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The Far Eastern leopard:

Cities, villages and military ranges

Leopards live in the most heavily populated corner of Primorskii Krai: in parts of Khasanskii Raion and in the southern reaches of two other administrative units – Ussurriiskii and Nadezhdinskii Raions.

Its habitat is located among villages, settlements, small towns and military ranges. These are sites where, in an earlier era, pitched battles with the Japanese army occurred, battles that for the Soviet Union were the precursor to WW II.

There are three active military ranges in leopard habitat where tanks rumble and where cannons blast.

Fortunately for the leopard, settlements in southwest Primorskii Krai are mostly concentrated near the coast's convenient bays. Humans have thus far left the animal the relatively untouched ridges and plateaus along the Russian-Chinese border.

Still, there are plenty of people and in Khasanskii Raion alone there are nine villages dotting one thousand square kilometers.

The land of the leopard is less than a three hour drive from Vladivostok. It is even closer by sea: just thirty kilometers across Peter the Great Bay.

The construction of summer residences, dachas, and recreation zones that move the gradually «expanding» Vladivostok to the south – toward the Korean and Chinese borders – is an additional kind of human pressure on the land of the leopard. And not just the people from Vladivostok are



Photograph – G. Shalikov

Local resident

building summer residences; people in Slavyanka, Zarubino and Pos'et are also building dachas.

The land of the leopard is separated from the sea by two large transport corridors, the Vladivostok–Slavyanka highway and a railway. In the future, given economic development plans, a major highway and possibly several pipelines could cut off a third of the animal's potential habitat.

If at some point leopard density exceeds its maximum carrying capacity in the current range (and we sincerely hope that this will occur), the leopard could disperse to the north and east – onto the Pogranichnyi ridge and into the south-

Sunset over the railroad leading to Khasan



Photo O. Kufayeva



Photograph – V. Solkin

Agricultural activities in the Land of the Leopard

ern Sikhote Alin mountains, areas where it lived not so long ago. Today some relatively untouched landscapes that unite the land of the leopard with the Ussuriiskii Zapovednik remain intact. These areas are linked to the southern flanks of the Sikhote-Alin mountains by a narrow corridor of intact forest that is found on the Baranovskii military range. But alas, dacha development from Ussuriisk and Vladivostok along the road dissecting this forest could make it impossible for the leopard to travel these corridors.

More critical to the fate of the leopard than road building and dacha construction is the economic plight of local residents in dozens of villages immediately adjacent to protected territories. Deprived of work, with no funds to move in search of employment, dozens if not hundreds of people head into the taiga to look for food and for a means to survive. And by default, the Far Eastern leopard is their victim.

Human tracks in the Land of the Leopard



Photograph – V. Solkin

The Economy of Southwest Primorskii Krai

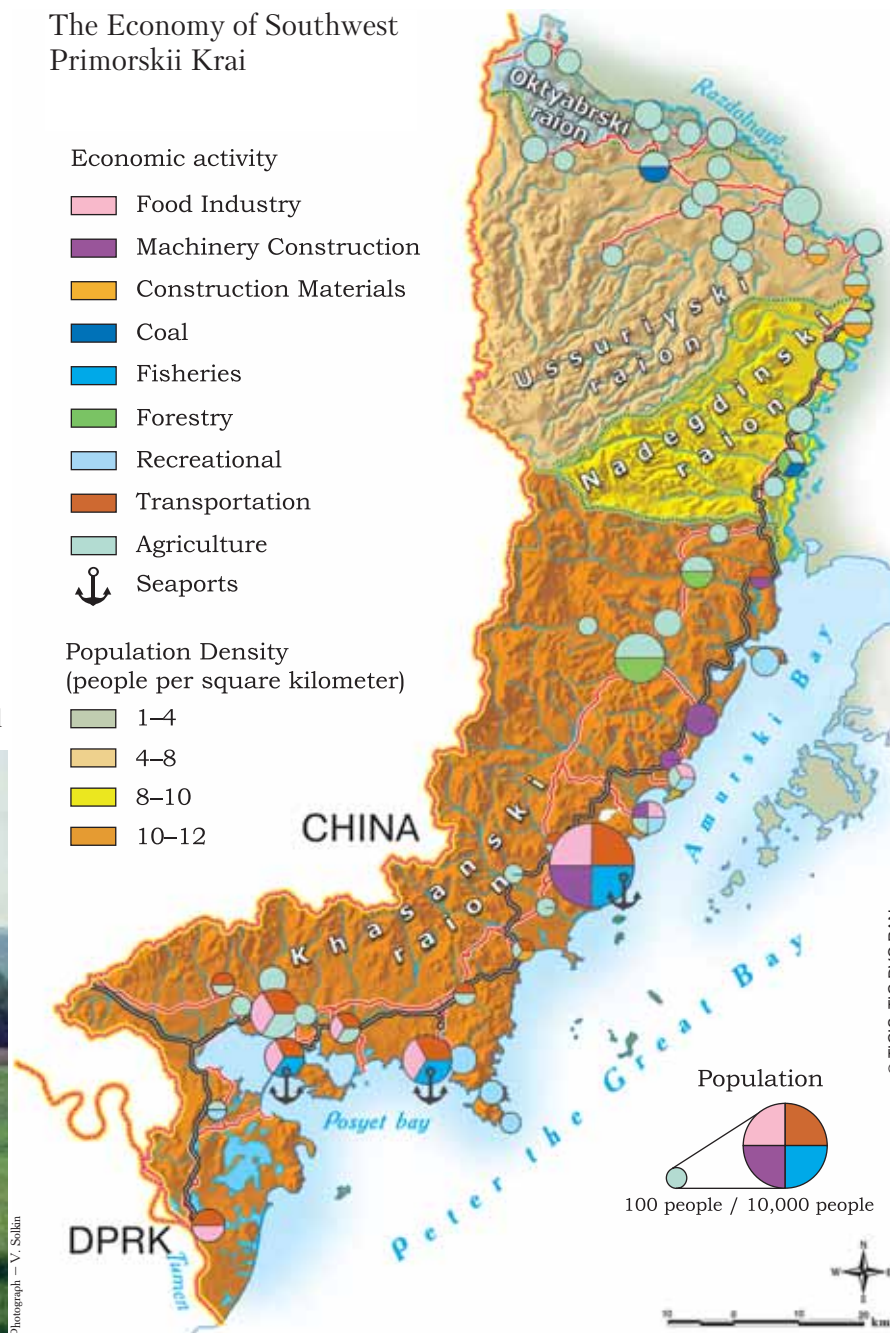
Economic activity

- Food Industry
- Machinery Construction
- Construction Materials
- Coal
- Fisheries
- Forestry
- Recreational
- Transportation
- Agriculture
- Seaports

Population Density

(people per square kilometer)

- 1–4
- 4–8
- 8–10
- 10–12



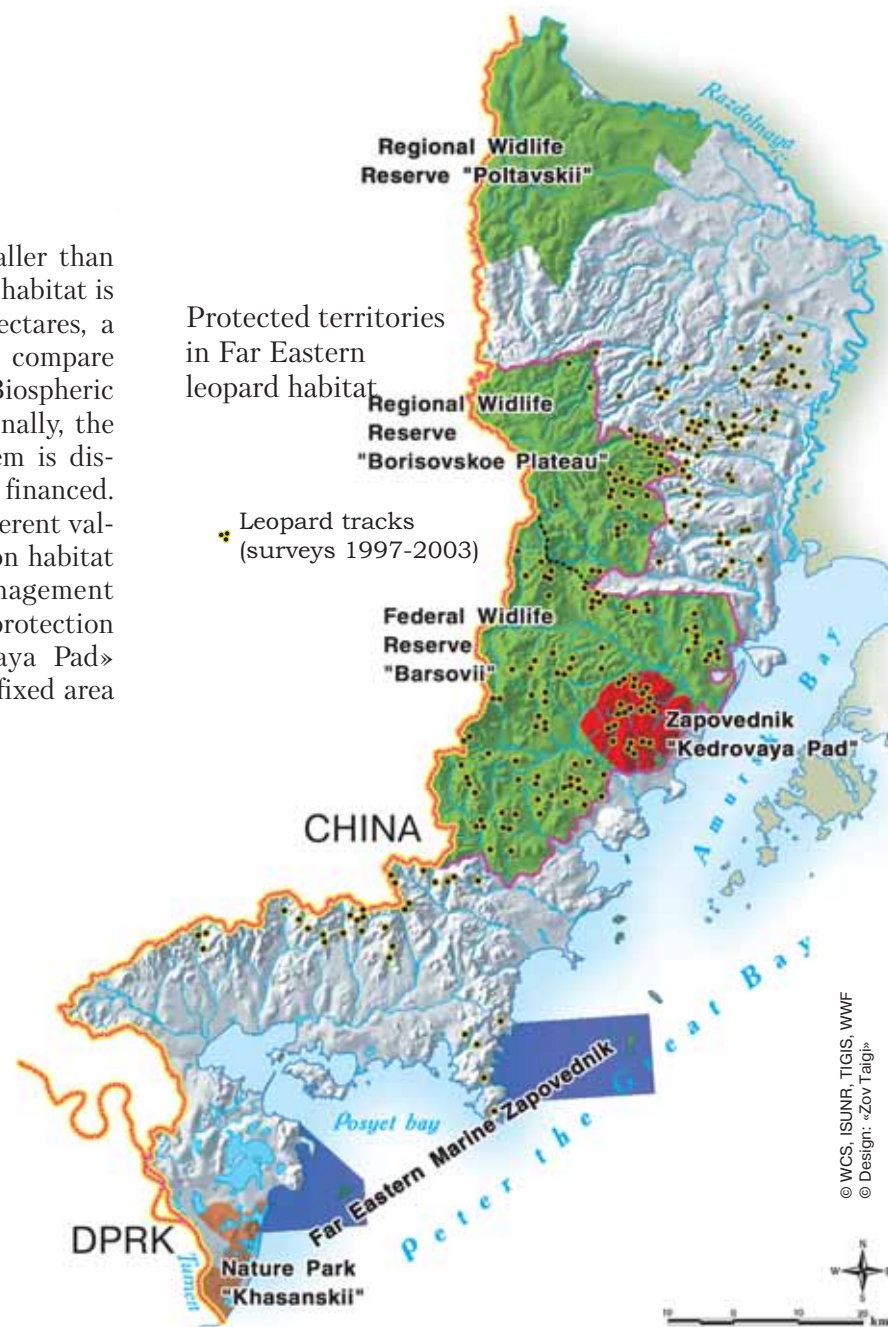
The Far Eastern leopard: Protected territories

The system of protected territories in Far Eastern leopard habitat consists of one small highly restricted reserve («zapovednik») that is under the management of the Soil And Biology Institute of the Far Eastern Branch of the Russian Academy of Sciences, and two wildlife refuges («zakaznik») that are under the management of the Primorskii Krai Department for the Protection, Monitoring and Managing of Hunting Resources.

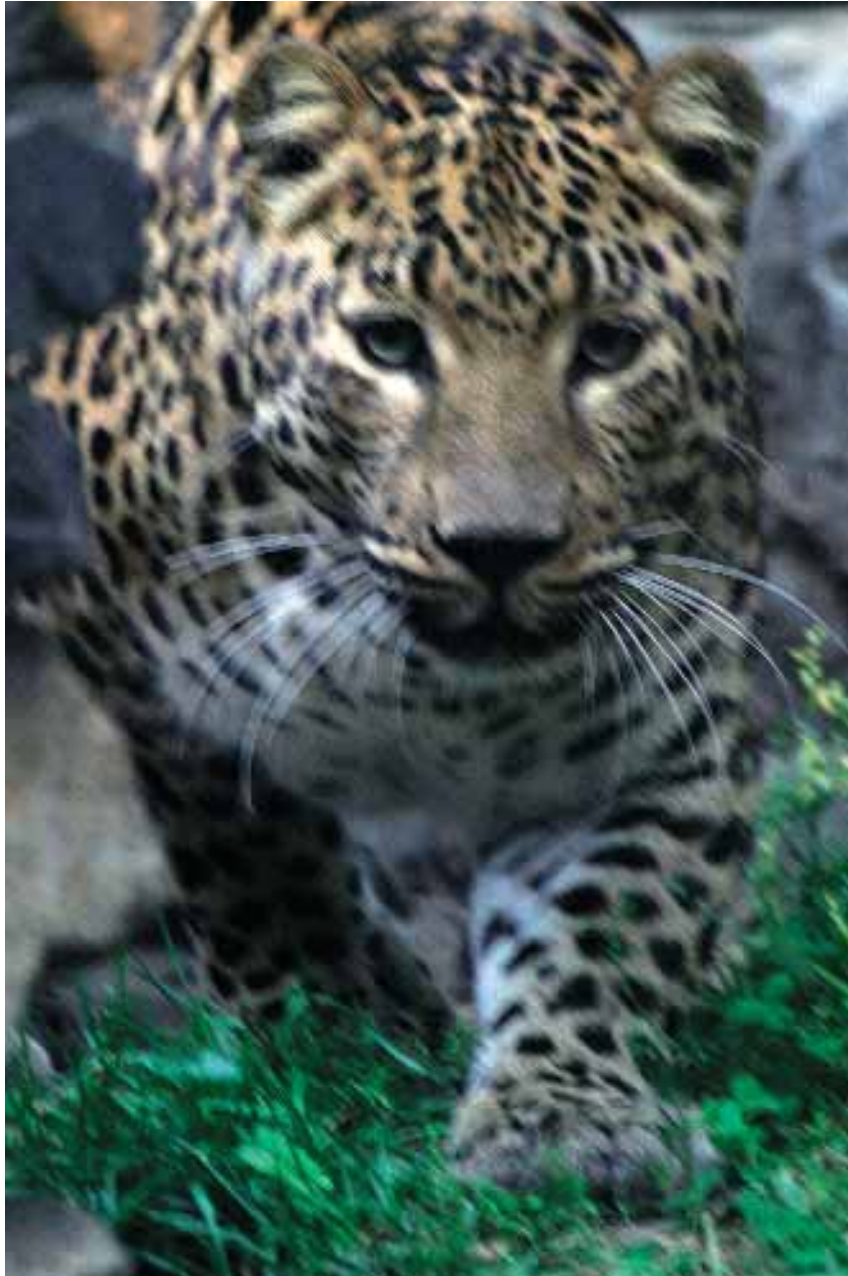
These two wildlife reserves and the Zapovednik «Kedrovaya Pad» cover only a small area, about forty percent, of current Far Eastern leopard habitat. This figure is deceptive, however. For one, the leopard's

current range is significantly smaller than its historic range. Secondly, total habitat is between 250,000 and 400,000 hectares, a small area that doesn't begin to compare with the size of the Sihote-Alin Biospheric Zapovednik, for example. And finally, the existing protected territory system is dispersed, is poorly organized and financed. The protected territories offer different values for the leopard, that depend on habitat conditions, the standing management regime and the effectiveness of protection activities. Only tiny «Kedrovaya Pad» Zapovednik acts as a permanent, fixed area of leopard habitat.

Type and Name of Protected Territory	Year Created	Area, hectares
Zapovednik «Kedrovaya Pad»	1916	18,000
Federal Wildlife Refuge «Barsovii»	1979	106,900
Regional Wildlife Reserve «Borisovskoe Plateau»	1996	63,400
Total Area	188,200	



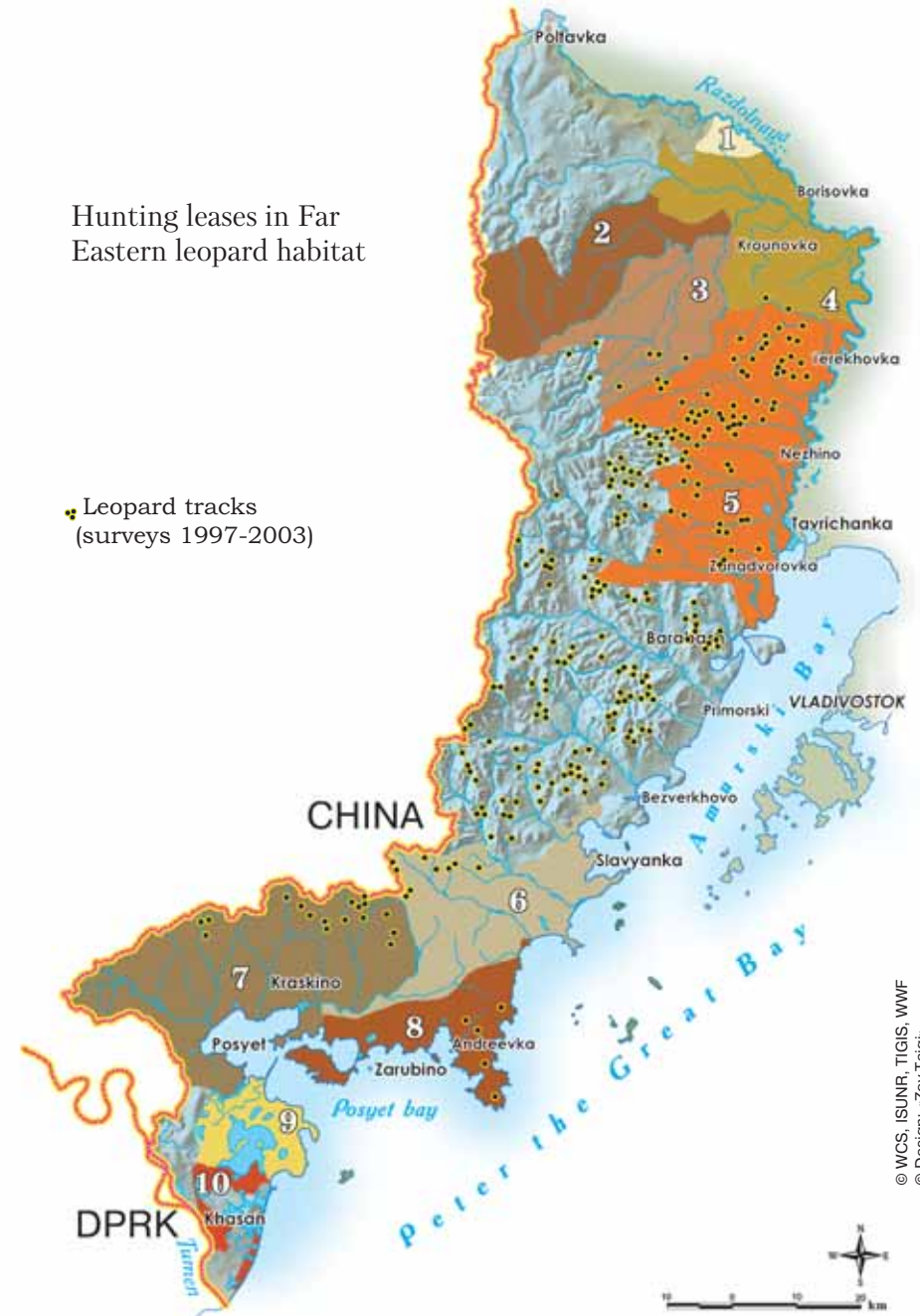
Photograph – V. Solkin



The leopard is forced to be crafty in its own territory

Hunting leases in Far Eastern leopard habitat

Leopard tracks
(surveys 1997-2003)



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The leopard as it really is

Distribution of the leopard in the recent past

Apparently the leopard was never especially numerous in the Far East. There was a time, however, when the Far Eastern leopard lived almost everywhere in Primorskii Krai and even showed up in the middle drainage of the Amur River watershed, in the mountains of the Malyi Khingan. Nikolai Przhevalskii, who observed the leopard in the 19th century and who called the leopard by the term of the day, «bars», writes that the animal was very thinly dispersed:

«The bars (in Chinese tsin-tsen-pau) is everywhere in Ussuriiskii Krai but is found comparatively less frequently than the tiger. At that, it lives in the wildest of locations and with rare exception, even in winter time, it refrains from



Ancient leopard illustrations



approaching peoples' dwellings. In general the bars is more frequent in southern Ussuriiskii Krai than in the Ussuri itself, although at both locations it is very rare. Only twice during my stay in Ussuriiskii Krai did I see this animal's tracks and only once was I able to take a skin and that one was completely disfigured. The average price for a leopard skin in these parts runs from 15 to 20 silver rubles. Like the tiger skin, Manchurian merchants willingly buy them and send them to China.»

As late as the 1970s the leopard occupied three, interconnected sites in southern Primorskii Krai. Seventy years ago, aside from the current population's range, the leopard lived in the southern Sikhote-Alin and on the Pogranichnyi Ridge. Even so, judging by sporadic records, we know that its numbers in the two northern areas were never especially high. But in southwest Primorskii Krai, according to Vladimir Arsenyev, the number of leopards was comparable to tiger numbers.

Far Eastern leopard habitat at the beginning of the 20th century (Rakov, 1968)



Far Eastern leopard habitat in mid 20th century (Pikunov, Korkishko, 1992)



Yurii Yankovskii with a dead leopard, 1936 (Archive, Arsenyev Museum)

Photograph – M. Krechmar



Pavel Fomenko, Coordinator,
Biodiversity Projects, WWF,
standing next to a tree marked
by a Far Eastern leopard

A leopard
marking a tree

Photograph – V. Solkin



Photograph – D. Pikunov



Cliff faces in Borisovskoe Plateau, the northern boundary of the Far Eastern leopard

Current status

In reading modern scientific works, it is difficult to imagine what the Far Eastern leopard looks like. Its color scheme is not as contrasting as any of the African leopards and it is rarely black like Indian leopards. In captivity it has a maximum weight of 90 kg for males and 60 kg for females. Other sources, however, put the limit at 43 kg for females (Gao et al. 1987) and 60-75 kg for males (Ognev, 1935). Leopards of all subspecies are approximately the same size, the exceptions being the leopards in the rainforests of Gabon (males weigh, on the average, 40 kg) and South African leopards (around 100 kg).

Russian geneticist Olga Ufyorkina has research that demonstrates that the Far Eastern leopard is an entirely independent subspecies and is the most far removed from the race-prototype: the leopards of central Africa which modern researchers consider the «source of all leopards».

The leopard is a solitary animal. Only the female spends significant time with kittens. Leopard males live and die in solitude. And like all solitary souls, they are intolerant of others in their home range. Fights among males sometimes take on a totally desperate character.

Leopard females are rather easy going with one another. That they put up with their own kids in their habitat is something not characteristic of large predators.

Photograph — M. Kuchmar



Photograph — Yu. Derman



WWF UK representative Callum Rankine (on the left) and Sybille Klenzendorf, WWF-US representative (on the right) study a leopard den

Current Far Eastern leopard habitat
(Pikunov, Korkishko, 1992)





The depths of the Land of the Leopard

Photograph — O. Kalashnik

The leopard's children

Children are not just our future. They are the future of any animal population, irrespective of systematics, feeding habits or reproduction patterns.

According to the Russian researchers Dmitri Pikunov and Viktor Korkishko, the litter size for leopards dropped from 1.9 kitten per female in 1973 to 1.7 in 1984, then 1.0 in 1991. Based on the 1999–2000 field survey, the portion of young in the population was only 11%, given the presence of at least nine to twelve adult females (Pikunov, et al, 2000). A female leopard can have four to five litters, or five to ten kittens, over the course of her life. The children of the Far Eastern leopard stay with their mother for just over a year and are fully mature at the age of two or three. But not a single young was accounted for among the Far Eastern leopard during the 2002–2003 field survey season!

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Where and how many

The key questions for which we seek answers when speaking about any resource are: Where? and How many? In an attempt to answer questions that, on the face of it, would appear easy, we encounter a mass of incomprehensibilities and contradictions. These contradictions make up the many details of the leopard «conundrum» which, at its base, begs the question: «How has it managed to survive?

Today, according to official data, the entire leopard population is concentrated in a small «rectangle» along the Chinese border in southwest Primorskii Krai. Nevertheless, we from time to time come across reports that the leopard is sometimes seen in the southern Sikhote-Alin, in Terneiskii Raion, or even in central Priamure. These reports are questionable but checking them out is one of the priorities in monitoring this animal's population.

But, in the bigger picture, the Far Eastern leopard has been cornered between the Chinese border, the sea and the Vladivostok–Ussuriisk urban zone.

The question of how many leopards exist in the Russian Far East is simultaneously the saddest and most essential one. Different researchers use different figures but their conclusions set the figure between 15 to 45 animals. But no matter how many they are in fact, there are sadly too few! These low numbers are a clear indication that the leopard could be on the road to total extinction in the wild!

Photograph – V. Solkin



A leopard at rest

No one believes that there are more than 50 Far Eastern leopards left in the wild. But even the highest figures provide very few chances for the survival of this subspecies. If we trust the researchers of the Far Eastern taiga, Viktor Korkishko, Dmitrii Pikunov, Dale Miquelle and many others, the leopard population has maintained its current population status for more than a quarter century. And the longer this situation prevails, the more opportunities there are for some irreversible event to occur right as you read these lines.



Leopard tracks

LEOPARD SURVEYS

Six leopard surveys have been carried out between 1997-2003 using three different methodologies. These surveys present the following data on leopard numbers in southwest Primorskii Krai:

- | | | |
|---|--------------------------------------|--|
| ■ | Frontal survey – 1997 – 25–31 | |
| | (Pikunov, et. al, 2001) | |
| ■ | Simultaneous survey – 1998 – 40–44 | |
| | (Aramilev, et. al, 2000) | |
| ■ | Frontal survey – 2000 – 22–27 | |
| | (Pikunov, et. al, 2001) | |
| ■ | Simultaneously survey – 2000 – 48–50 | |
| | (Aramilev, et al, 2000) | |
| ■ | Photo Trap survey – 2003 – 28–32 | |
| | (Kostyrya, et. al, 2003) | |
| ■ | Frontal survey – 2003 – 28–32 | |
| | (Pikunov, et. al, 2003) | |

The Wildlife Conservation Society (WCS) and the Pacific Institute of Geography (Far Eastern Branch, Russian Academy of Sciences (TIG, DVO, RAN), carried out two surveys in China and one in North Korea together with local specialists. These surveys provide the following data:

- Winter survey in Jilin Province (1998) confirmed the presence of 4–7 leopards in areas adjacent to the Russian border.
- Winter survey in Heilongjiang Province (1998–1999) did not find the presence of leopards. Nevertheless, based on local reports, there is a possibility that 3–5 leopards live in that province.
- Research in the area of Pektusan of Lyangan Province of North Korea (1998) failed to detect the presence of leopards although local reports speak to leopards attacking domestic animals.

Leopard distribution
(based on censuses
for 1997–2000)



How does one count a leopard?

Three methods are used to estimate the number of Far Eastern leopards. One method (expedition) is to place a small group of professional surveyors in the field during January–February to count leopards at model areas that, in fact, cover almost all leopard habitat. Tracks are recorded as belonging to different animals if the distance between tracks of identical freshness exceeds 15 km for males and 5 km for females. A second method is a simultaneous (frontal) survey that records tracks in a relatively short time frame (ideally, in one day) by using a large group of mobile counters who can cover large distances. In contrast to the expedition method, where counters travel and walk leopard habitat over the course of a month, the simultaneous survey gives a «cross section» of the existing situation at one specific time. Leopards are not going to travel a significant distance in two days.

A leopard survey using tracks in the snow (more precisely, imprints of those tracks) has the drawback that it is not always possible to precisely determine the origin of tracks of similar size and shape, especially if the animal's boundaries repeatedly overlap. Also, southwest Primorskii Krai is very inconvenient for this kind of survey work because snow cover is very unstable. So as soon as there is a continuous blanket of snow, even for a short period, leopard counters rush to their vehicles and head for the forest. The accuracy of this survey method, however, is reduced considerably as soon as the survey extends beyond five days. Also, steep slopes, rocky slopes and

cliffs make searching for tracks and following fixed trails difficult.

A third technique used by the Wildlife Conservation Society (WCS) and the Institute for Sustainable Use of Natural Resources (ISUNR) is to rely upon automatic cameras set up in leopard habitat. Picture quality makes it possible to identify different animals with a confidence that track survey methodologies do not always provide. Nevertheless, one must recognize that a truly scientific based survey methodology for counting the Far Eastern leopard has yet to be developed.

Photograph – V. Solkin



Sergei Bereznyuk (Fund «Phoenix»), Dmitrii Pikunov (TIG DVO RAN), Yurii Darman (WWF), above; Aleksei Kostyrya (BPI DVO RAN / WCS) and Vladimir Aramilev (TIG DVO RAN / ISUNR), below; at a meeting on the results of a leopard census

Photograph – V. Solkin





Leopard research

European culture first showed an interest in leopards during the Roman Empire. Emperor Commodus, during the infamous gladiator games, put as many as fifty leopards into the arena. Fortunately, our hero, the Far Eastern leopard, was not among those who entered that arena.

Marco Polo brought Europe its first reports of leopards in the Far East. He told about tamed leopards that lived in the court of Kubala, in eastern Mongolia and Peking.

F. Schlegel, in his 1857 manual for hunting deer, was the first to identify the Far Eastern leopard as a subspecies, this based on a skin and skull from Chosen (North Korea). Later, in 1935, the Russian scientist Sergei Ognev refined its systematic status and the subspecies has not undergone any

substantive changes since. Field research on leopard ecology began only in 1960s; prior to that, zoologists showed no interest in the most beautiful cat in the Far East. Scientists began gathering data on our hero with the first leopard survey conducted in 1971–1972. In 1976 Dmitrii Pikunov defended his dissertation on the biology of the Far Eastern leopard and ten years later Victor Korkishko generalized, in his dissertation, observations of this rare predator in the Kedrovaya Pad Zapovednik. In a joint effort, these two researchers produced a monograph entitled the «Far Eastern Leopard» that was published by the Far Eastern Branch of the Russian Academy of Sciences in 1992.

Today the bibliography of scientific literature on this subspecies totals about eighty titles. If summaries, spotting guides and endangered species lists are excluded from this

Photograph — A. Panichev



Dmitrii Pikunov doing field studies of the leopard

Photograph — A. Petrov



list, there are no more than sixty titles. Of these, twenty have been published recently, after the problem of preserving this species in the wild became a concern for international conservation organizations like WWF and WCS.

In the period immediately following the lifting of border restrictions in the Far East and during the subsequent rise of interest abroad in the problems of conserving large predators in Russia, several attempts were made to radio track leopards. But subsequently the leopard took a second seat to its larger comrade, the Amur tiger.

A new push to study the leopard appeared in 2001 when an international conference entitled «Conservation of the Far Eastern Leopard in the Wild» was held in Vladivostok.



Photograph — V. Solkin

Simultaneous leopard survey in progress



Photograph — A. Skovrdlov

Aleksei Kostyrya (BPI DVO RAN / WCS) during a photo trap census

Winthrop Staples (Hornocker Wildlife Institute, USA), Vladimir Aramilev and Vasilii Solkin (TIG DVO RAN) during the collaring of the leopard named Leopold in 1993. The latest survey of the Far Eastern leopard, using a photo trap methodology devised by WCS and ISUNR, shows that the leopard still exists!

Photograph — D. Piskunov



Biologists working in leopard habitat

Leopard genetics

Despite what might appear to be the case at first glance, questions of Far Eastern leopard genetics are not just an abstract academic issue. The population's small size speaks directly to the possibility of degeneration, of a reduced capacity for individuals to survive in the wild and of an increased likelihood for pernicious hereditary deviations. The most disturbing research results indicate that the current wild population is actually genetically depleted. The Northern Chinese leopard is systematically the closest to the Far Eastern leopard, something that Sergei Ognev wrote about in 1935.



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© WWF-Canon / Martin Harvey



Photograph – V. Solkin

The Far Eastern leopard has «relatives» the world over but they are unable to affect the genetic well being of our leopard's population

© WWF-Canon / Frederick L. Weyckhauser





The leopard and humans

In practice the leopard has suffered more from humans than humans have suffered from the leopard. Humans have killed leopards in the forest and along the roads that are more than abundant in leopard habitat. Humans have killed leopards in and near deer farms. Humans have captured them for zoos.

Leopards frequently kill deer that humans raise for their antlers. They drag off dogs and take animals from the less than numerous domestic livestock. At the same time, and as best as we can tell, leopards have not killed a single human being in Primorskii Krai since the mid 1930s. Analysis of the extremely rare cases of leopard attacks on humans show that it has been injured animals that have attacked hunters and there is not a single case when the hunter died.

The leopard world over is confidently included in a list of the five most dangerous large animals. Such authoritative researchers as John Hunter and Jim Corbett assertively include the leopard among the most dangerous cats that humans can encounter. Despite these ample warnings, the Far Eastern leopard appears to be an extremely peaceful being. The general opinion is that the Far Eastern leopard never attacks humans. Przhevalskii writes that «...local natives are more afraid of the leopard than the tiger because you can't escape by climbing a tree... However, I have never heard of a leopard killing anyone in Ussuriiskii Krai, while tigers do this every year.»



Photograph — M. Krechmar

Villages located in Far Eastern leopard habitat long ago were given the almost official, but sad status of «poaching villages»



Photograph — M. Krechmar

As research indicates, today most of the Far Eastern leopard population lives not in the backwoods depths of the taiga, as is given to think, but in fact lives in one of the most heavily populated and economically developed areas of Primorskii Krai. As such, the animal demonstrates an enviable capacity to adapt to a life next to humans, something similar to the behavior traits of its American cousin, the puma. It also has the skill to avoid the eyes of the huge mass of people who use its territory. A person who accidentally spots a leopard will remember the meeting for a lifetime! And it is no exaggeration to state that the number of people who have seen a leopard in the wild more than five times can be counted on one hand.

The best proof of its skill to adapt to surrounding conditions is its use of the Nezhtinskii Hunting Society grounds that

Photograph — M. Krechmar



Photograph — M. Krechmar



The Far Eastern leopard's
main enemy is the extreme
poverty of regional
rural communities

Photograph — O. Kalashk



Photograph — P. Fomenko



Federal wildlife reserve «Barsovyi» is home for the leopard

belongs to the Pacific Fleet. Despite hundreds of hunters who use the Societies' grounds on a regular basis, leopard density remains stably high.

The leopard is much easier to kill than a tiger. Especially if that's the plan! The leopard, like most other large cats, is uncomfortable in areas where there is a permanent snow pack; the exceptions being the lynx and to a certain extent, the tiger. Owing to the low snow levels in what is the leopard's current range, this is also the most densely settled part of the Russian Far East and it is an area where the probability of it encountering a human is tens times higher than in other areas of Primorskii Krai.

Traps and poisons are among the dirtiest of tricks that a human can play on a leopard. But the meanest of instruments to kill a leopard has been and remains a braded wire snare.

The leopard keeps to a very limited territory and if it is taken into account that its range is hundreds of times smaller than that of the tiger's, two to four persons are all it could take to move this animal's entire population to the brink of an extinction in the wild from which there is no return. Thus, the leopard is immeasurably more vulnerable than the tiger, which has a much large range and that is capable of moving a fair distance in the event that it is hounded by dogs or other nuisances. Though the leopard can climb a tree, in a tree it becomes an easy target for a poacher.

The leopard in the Russian Far East has, by and large, three enemies.

The spotted cat's first enemy is the ruthless, inventive and impoverished Russian poacher. The poacher in Primorskii Krai has no moral compunctions about the rights and wrongs of killing things. You can kill anything as long as it brings in some cash. And the Russian



Photograph — A. Yurchenko

Weapons confiscated in the Land of the Leopard



Фото П. Фомин

Hunting inspector checking a local resident



Фото П. Фомин

Hats made of leopard skins

poacher in southern Primorskii Krai, in contrast to the region's indigenous peoples, has no moral taboos. None at all! Neither a female with young nor a stressed animal has any guarantee that such a person will pursue it. He could care less about the animal being on the endangered species list. He also doesn't limit himself in his choice of hunting tools. Everything is an option: dogs, stealthy snares, home made guns and a lot of other things also!

Hand in hand with the ruthless, inventive and impoverished Russian poacher goes the greedy and unscrupulous Chinese buyer. These two are in constant contact. Even when there is only a faint hope of demand, the Chinese buyer is there prodding the Russian poacher, pushing him, «... let's go, let's go...»

The third and most dangerous enemy of the Far Eastern leopard, one uniting under its authority all the rest, is the scandalous poverty of Far Eastern rural communities.

A gate to the wildlife refuge that has suffered the «attention» of local residents



Photograph — M. Krichmar

Photograph – D. Kuchina



Chinese poachers detained at the border

Photograph – D. Kuchina



Weapons used by Chinese poachers. These kinds of collections can be found at every border guard post in Khasanskii Raion

Joint anti-poaching raid with border guards and local residents in Khasanskii Raion

Photograph – D. Kuchina



Photograph – M. Kechmar



Inspection «Tiger», Viktor Paletskii; WWF's staff, Yuri Darman and Pavel Fomenko, with a confiscated leopard skin

Claws are one of the Far Eastern leopard's main «instruments»

Photograph – M. Kechmar



Far Eastern leopard skin

Photograph – M. Kechmar



Snow and fire

Unfortunately, the rich Far Eastern environment is also not especially kind to its son, the Far Eastern leopard. The region's natural features present at least two threats: snow and fire.

The leopard, less than other Far East predators, is poorly adapted to a life on snow. In winter it tries to use other animals' trails. It moves along ski trails and tramped down roads. These conditions only make things worse when harsh winter conditions with abundant snow squeeze sika deer and roe deer out of their ranges and the region witnesses massive die offs. Because the leopard is territoriality and has a limited habitat, we can expect an increase in population only by increasing ungulate density, the leopard's main prey.

Photograph — G. Shalikov



An adult sika deer in winter conditions



Rescuing deer in a heavy winter snow at the Federal Wildlife Reserve «Barsoyii»

The remains of a deer that died in heavy winter snows



Photograph — P. Fomenko



Leopard tracks in the snow



Photograph – V. Solkin

The leopard's home on fire...

The land of the leopard burns almost year round. Fire is the biggest natural threat to the Far Eastern leopard in southwest Primorskii Krai. Almost year round a grayish smoke spreads above fields and the sparse forest land of Khasanskii Raion. Local people burn the forest using rhetoric like: «the grass will grow better» or «the tics will get wiped out» or «the ferns will be more dense and we can earn more money» or «scrap will be more visible and we can collect metal» or «what burns doesn't rot».

Intentionally set fires are especially characteristic in fields and along the railway, this despite the fact that most of the region is declared to have a high fire danger.

Fire causes the forest to retreat, reducing the area of quality leopard habitat. And autumn fires destroy the shrub and vegetation in meadows, fating wild animals to hungry winters.



Photograph – V. Solkin



Photograph – O. Kabalik

The leopard and deer farming



Photograph – G. Shalkov

Sika deer at a deer farm

Deer farming is a very specific, Primorskii Krai form of land use that confines several hundred or thousand sika deer within large, fenced territories. Each year these deer have their antlers cut for the velvet that is then used for medicinal purposes.

An abundance of deer that cannot escape from their enclosures will of course attract Far Eastern leopards. The predators use these parks as a regular, guaranteed source of prey. Therefore, these facilities are an endless point of conflict between the Far Eastern leopard and humans.

According to survey and research data, leopard density is higher in and near deer farms. Moreover, they prefer to breed near these facilities. At the end of the 1990s, a female with a kitten was discovered near the «Kedrovskii» deer park. In past years, a different female with two kittens was found five to six km from this same deer park. A female with a kitten was found near the «Peschanyi» deer park and an entire leopard family has lived close to the «Bezverkhovskii» deer farm. The importance of deer parks



Photograph – V. Solkin

A leopard on a kill

to the preservation of leopards is now difficult to overestimate. Cooperative approaches to work with park owners are needed, for instance, the introduction of a compensation and insurance program for owners who loose animals to leopards. Conservation organizations need to buy out deer farms to breed deer for feeding leopards and to provide them convenient places to breed and raise young.

There are seven deer parks in Far Eastern leopard habitat with a total population of less than three thousand deer.



Photograph – G. Shalkov



Photograph – G. Shalkov

Sika deer are gregarious animals



Photograph – G. Shalkov



Photograph — G. Shalikov

Deer in the snow

Leopard protection

The leopard is listed in the Red Data Book of the Russian Federation. Hunting has been forbidden since 1956 and in 1966 all capture of live animals was halted. The animal is also listed in Appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora – CITES.

Since the beginning of the 1970s, Russian scientists have repeatedly raised the issue of the critical status of the Far Eastern leopard and they have achieved certain successes in protecting this subspecies. In 1979, by the decision of the First All Union Meeting on Rare Mammal Species, the Barsovii Federal Wildlife Refuge was created on 106,000 hectares to protect the leopard. In 1990, the Far Eastern Branch of the USSR Academy of Sciences developed, and in 1992 the Council of Peoples' Deputies passed a «Long-Term Program for the Protection and Rational Use of Natural Resources of Primorskii Krai for the Period until 2005 (Environmental Program)». The basis for passing additional measures to protect the leopard is the decision of the Government of the Russian Federation dated August, 7, 1995 № 795 on «Protection of the Amur Tiger and Other Rare and Endangered Animals and Plants in Primorskii and Khabarovskii Krais». However, the effectiveness of these measures is low and entirely inadequate to guarantee protection of the leopard.

In 1996 the Borisovskoe Plateau Regional Wildlife Refuge was created, the latest wildlife refuge to be created in Primorskii Krai. Vladimir Aramilev, a well known Primorskii wildlife biologist, developed the rationale for this wildlife refuge. Mr. Aramilev created the Institute of Sustainable Natural Resource Use and here research on the Far Eastern leopard continues.

Through a WWF initiative that was financially supported by WWF / USAID in late 1996, an international confer-

ence was held in Vladivostok at which a working group to develop a national strategy to protect the Far Eastern leopard in Russia was established. This working group produced a document entitled «A Strategy for Conservation of the Far Eastern Leopard in Russia» (<http://wwf.ru/resources/publ/book/eng/35/>). This Strategy considers the full spectrum of threats listed above. The Russian Federation Committee on Ecology approved this document in 1998. Unfortunately, government inertia leaves its key recommendations largely on paper.

Economic development plans for the Tumen River watershed and southwest Primorskii could so substantially disturb or degrade leopard habitat that its future survival in the wild could be compromised. Only an integrated program to protect these areas, one that incorporates leopard protection into the region's economic development plans and that includes creating a reserve population in the southern Sikhote-Alin mountains, will make it possible to preserve this subspecies from extinction.

The Far Eastern Branch of WWF Russia is developing and promoting such a program with government officials and business structures.

In collaboration with the Wildlife Conservation Society (WCS), Fund «Phoenix» and the Center for the Protection of Wild Nature «Zov Taigi», a Conservation Action Plan for the Russian Far East Ecoregion Complex has been developed and approved to coordinate the activities of civil sector organizations. Part 1 of this plan contains a detailed description of the issues in the region and Part 2 describes the measures planned to protect the Far Eastern leopard (<http://wwf.ru/resources/publ/book/eng/47/>).



Conservation Action Plan for the Russian Far East Ecoregion Complex (fragment)

MEDIUM TERM TARGET BY 2020	SHORT TERM TARGETS BY 2012	IMMEDIATE ACTION BY 2007
The protected areas network in south-west Primorskii Krai supports at least 50 leopards by 2015  Photograph – O. Kabalik	Create large, unified protected area (Barsovyi National Park) based on existing zapovednik and wildlife refuges by 2005	Establish and support coordination unit for administration for Kedrovaya Pad Zapovednik, Barsovyi Federal Wildlife Refuge and Borisovskoe Plateau Wildlife Refuge by 2003
		Grant federal status to Borisovskoe Plateau Wildlife Refuge
	Launch international transboundary protected area for leopard conservation in border region of Russia, China and North Korea by 2007	Establish an environmental corridor along the Russian Chinese border by 2005
		Work out scientific justification for transboundary protected area in leopard habitat in collaboration with scientists from North Korea and China by 2004
Cooperative efforts of ranger services control poaching, forest fires, and unsustainable land use in all leopard habitat by 2015  Photograph – M. Krechmar	Strengthen protection measures in border areas by 2006  Photograph – D. Kuchina	Formulate agreements with relative government agencies in all three countries by 2005
		Organize effective protection service in existing reserves, wildlife refuges and hunting estates in leopard habitat
		Coordinate anti-poaching operations among all reserves, refuges and ranger services and carry out joint raids
		Carry out training courses for border guards
	Create fire prevention system in leopard habitat by 2006	Sign agreement between border guards and ranger services for joint protection of leopards behind boundary fences
		Work with customs agencies and border guards to halt poaching and transport of illegal leopard skins and derivatives
		Elaborate fire prevention management plan for all land users in leopard
	Create a mobile fire fighting in Barabashevskii Forest Management Unit	Change local land use practices of local land users to prevent forest fires by 2007
		Create and maintain a system of mineral belts used for prescribed fires

Defenders of the leopard

A significant effort is being made to protect the leopard. Its fate is the concern of numerous international and regional conservation organizations: WWF, WCS, Tigris Foundation, Fund «Phoenix» and «Amur». The hunting inspection services of the Primorskii Krai Department for the Protection, Monitoring and Managing of Hunting Resources, including its well know «Leopard» group, the Inspection «Tiger» team from the Ministry of Natural Resources, wildlife rangers from the Society of Hunters and Fishers of Primorskii Krai and the Pacific Fleet are all involved in the effort to protect the leopard.

The effort to protect rare and commercial animal species in southwest Primorskii Krai goes on year round, irrespective of holidays or weekends. This effort uses different methods and means. 400–450 raids have been carried out by government services in southwest Primorskii Krai in the last three years, with an equal number carried out by hunting societies. Around 300 infractions are uncovered annually, and 30–40 weapons are confiscated. Violators pay nearly 100,000 rubles a year in fines and an additional 60,000 rubles is sought through the courts.

Locals, whose economic conditions leave much to be desired, are involved in illegal hunting and capture of animals. Most of the poaching is done either on foot or with a horse. Such cases are difficult to identify and it is not a simple task to detain violators.

A new, dangerous trend has emerged in recent years: leopard hunting to meet on order demand in China. This has led to the shooting of at least three leopards in the Barsovii



Photograph — M. Krechmar

Everyone together! Inspection «Tiger» team, State Hunting Inspectors and police before journalists



Photograph — A. Yurchenko

Weapons and Far Eastern leopard skins confiscated from poachers by members of Inspection «Tiger»



Photograph — A. Yurchenko

Federal Wildlife Refuge. According to different sources, in 2002 five leopards died at the hands of poachers and this amount to almost fifteen percent of the total population. And leopard poaching continues in China.

The work undertaken in the last few years to stop poaching has reduced the number of leopards shot near deer farms. Thanks to the work of the field teams «Leopard», under the direction of Anatolii Belov, and «Red Wolf», under the direction of Nikolai Agapov, the sentencing of a poacher to five years imprisonment for shooting a leopard let the local population know that the government is enforcing environmental laws and that punishment awaits those who violate those laws.



Photograph — Yu. Darman

Anatolii Belov, chief wildlife manager at the Federal Wildlife Reserve «Barsovii» with a detained poacher



Photograph — V. Solkin

Foresters, staff members at Kedrovaya Pad Zapovednik and the Barsovii and Borisovskoe Plateau Wildlife Refuges, the special forest fire prevention team at the Khasanskii Society of Hunters and Fishers are working to combat fire.

Photograph — D. Kuchma

Round table: Confiscating a Leopard Skin. Poachers Must be Punished



Annual fire-prevention activities in the land of the leopard include:

- Ground patrolling and timely fire suppression;
- Creation of fire-prevention barriers, breaks, mineral strips;
- Control of spark fires along the railway;
- Restriction of military maneuvers at military ranges during periods of high fire risk;
- Maintenance of fire-prevention roads;
- Establishing smoking and rest areas;
- Construction of parking lots;
- Hanging of information posters.

Environmental education

Until each resident in the land of the leopard recognizes the uniqueness of southwest Primorskii Krai and the threat their behavior poses to the security of the leopard in the wild and thus begins to work to protect the environment, the Far Eastern leopard will remain in danger. Efforts have been made in the last three years to significantly improve environmental awareness among the population. Numerous publications and handouts have been produced and distributed: calendars, posters, booklets, training manuals. People have learned about the leopard and have come to like him. Children have had the opportunity to use the virtual world of the computer to «rescue the leopard» and to increase its numbers. Special educational programs for «green schools in Primorskii Krai», lecture tours at border posts, regular publications in the local and regional media, all these instruments are part of a communications strategy developed by WWF, Fund «Phoenix», the Center for the Protection of Wild Nature «Zov Taigi» and the Tigris Foundation to expand public awareness about the leopard. Public awareness efforts also include staging a festival called «Land of the Leopard». This festival is held the last Sunday in August in Khasanskii Raion, in the very area where the last thirty Far Eastern leopards on the planet live.



Photograph — O. Khablik

More and more «leopards» show up each year at the «Tiger Day» festival held in Vladivostok



Photograph — O. Khablik



Photograph — P. Fomenko

«Land of the Leopard» Festival in Khasanskii Raion



Photograph — P. Fomenko

«Rescue the leopard»

Grigorii Mazmanyants of WWF Russia and Vasilii Solkin, editor of the magazine «Zov Taigi» came up with the idea for this game. The idea is to challenge computer game players worldwide with a complex and fascinating problem.

The well-known company «Nikita» was contracted to develop the game. The game is played on the true topography of the land of the leopard and real people are represented, including the staff at WWF.

The game is in the genre of «strategy creation». One can lose the game but you can win if you come up with the right combination of socio-economic, educational and environmental protection components.

Winners of the 2003 competition received a prize: WWF organized a trip to the land of the leopard: Khasanskii Raion of Primorskii Krai where they were able to see with their own eyes how our hero lives.



Фото А. Чуряевой

Winners in the «Rescue the Leopard» competition at a reception in the WWF office

Start of the contest in Vladivostok. The contest's authors, Vasilii Solkin («Zov Taigi») and Grigorii Mazmanyants (WWF), answer journalists' questions



Фото Е. Старостиной



Photograph – Е. Starostina

International cooperation to protect the far eastern leopard

The frontier character of Far Eastern leopard distribution, given its extremely small range and low numbers, makes international cooperation especially important to protect this subspecies. Maintaining stable transboundary contacts for leopards are key to the survival of this subspecies. Without united Russian and Chinese and North Korean efforts to foster transboundary migration of the leopard, it will be difficult to maintain the Russian population. The ideal situation will be to create an international nature protection reserve that includes all suitable leopard habitat in Russia, China and North Korea. A trilateral agreement is being prepared to protect and preserve the unique biodiversity of this area and its very rare cat subspecies.

With the assistance of WWF and WCS, the Hunchun Provincial Reserve has been created in Jilin Province of China along the border with Khasanskii Raion, and negotiations are underway to convert this to a national Chinese wildlife reserve. Chinese foresters are actively preparing the infrastructure to service tourists. There are joint programs to study predators and ungulates, to train Chinese specialists and to hold training sessions for Chinese specialists in Russia.

International cooperation is needed to restore the areas of the leopard's historic range that have been lost to other forms of development. A program to reintroduce this subspecies into former range, one that calls for captive breeding, will not be possible without the assistance of foreign zoos. The suite of activities to preserve the leopard in Russia requires financial investment, and foreign and international conservation foundations are necessary for this to be a successful effort. Only in Russia has the Far Eastern leopard survived and only the Russian government is in a position to save it.



Photograph — Archive WWF, Russia

Presentation in Great Britain of the WWF Leopard Protection Program. Yurii Darman, Director of the the Far Eastern Branch of WWF Russia and Her Majesty Queen Noor of Jordan.

Photograph — D. Pikunov



One of the first leopards to get a radio collar as part of the international tiger and leopard protection project



Leopard Protection Working group: Upper row (left to right): Vasilii Solkin, «Zov Taigi», DVO RAN; Dale Miquelle, WCS; Michiel Hotte, Tigris Foundation; Pavel Fomenko, WWF; Yurii Darman, WWF; Mikhail Krechmar. Lower row: Vladimir Aramilev, ISUNR/TIG, Olga Ufyrkina, BPI DVO RAN, Sergei Bereznyuk, Fund «Phoenix»

Captive breeding of the far eastern leopard

The wild population of Far Eastern leopards in Jilin Province of China is small and extremely vulnerable. Thus, special attention must be given to preserving this subspecies in captivity. Leopards in zoos will be used to both expand the existing wild population and to provide animals for reintroduction into its former range. Far Eastern leopards have been in captivity since 1961 and an international studbook has been kept since 1974. There are 195 Far Eastern leopards (104 males and 91 females) in zoos and private collections and all these animals have come from ten founders captured in the wild. However, European zoos hold only ten individuals (six males and four females) that are considered thoroughbred Far Eastern leopards. Six of these are in the Moscow zoo.

The international breeding program is aimed at producing thoroughbred leopards, at eliminating the genes of other subspecies in the genotypes of future descendants, and at decreasing inbreeding to maintain a stable and genetically sound reserve population of the subspecies in captivity. The is not an easy task since there are so few leopards. It is complicated by the problem that leopards are now observed to give birth to defective kittens.



© WWF-UK



Photograph – V. Solkin



© WWF-UK

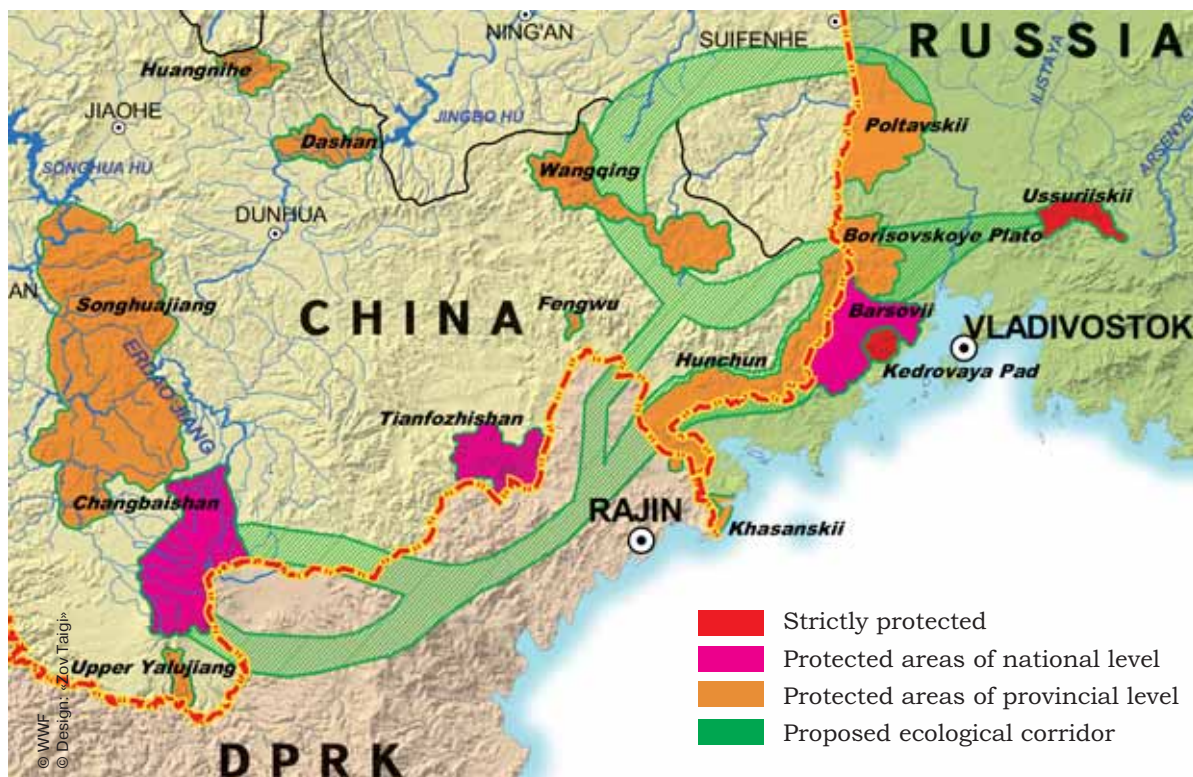


What can be done?

Some specific steps are necessary to rescue the leopard. The first step is to declare all the land in its current range a national park with a uniform protection system and a unified management infrastructure. This is the simplest step, requiring but a series of executive decisions by federal authorities.

An effort should be made to increase the effectiveness of the protected territories, to raise their status, to improve interaction, and to expand their material

Proposed system of trans-boundary protected territories



base. An effort must also be made to unite these protected territories into a single unit, a national park that will make up the central core of an international Russian–Chinese reserve. The status, size and management structure of the reserve require developing a series of international agreements.

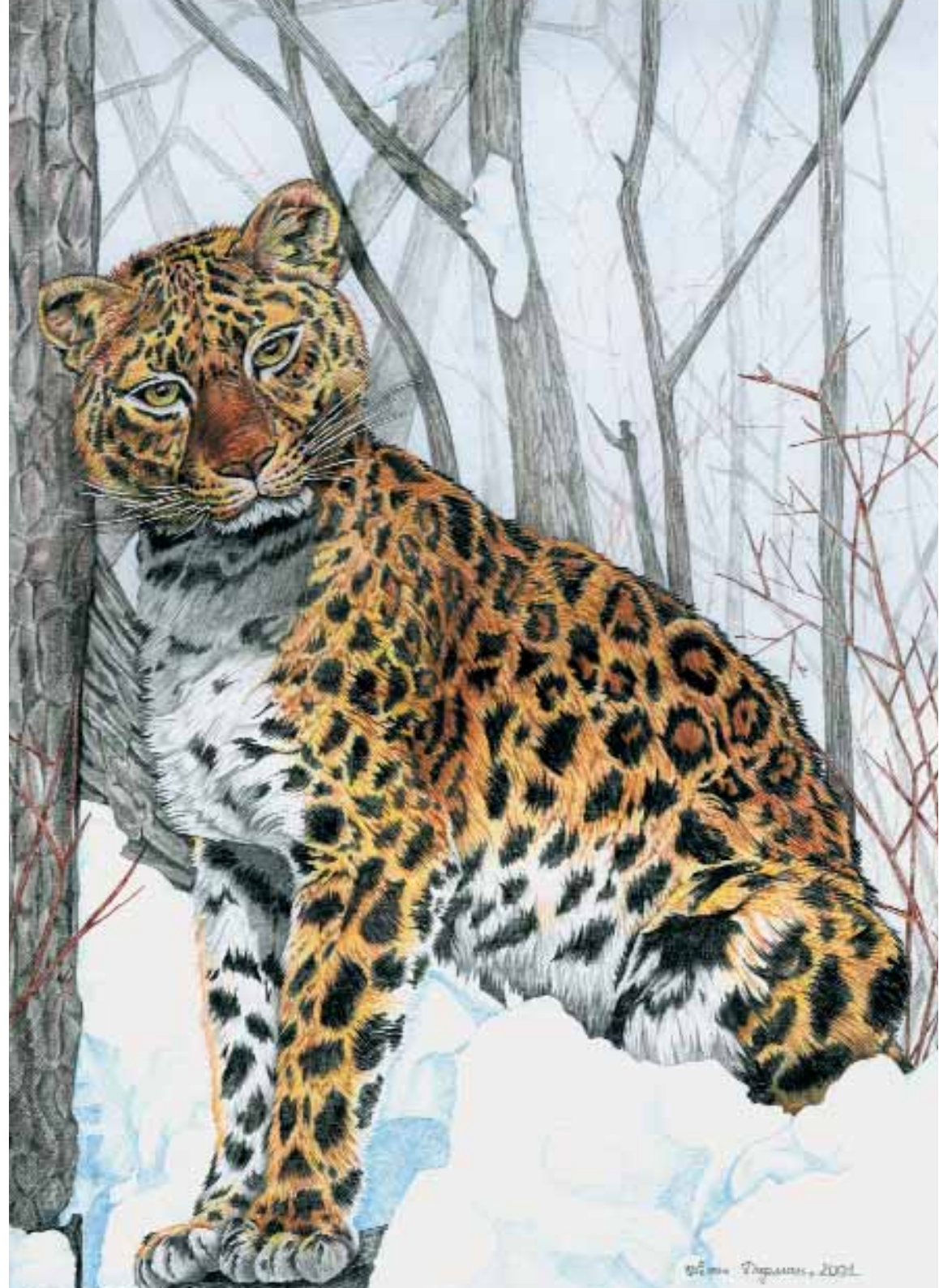
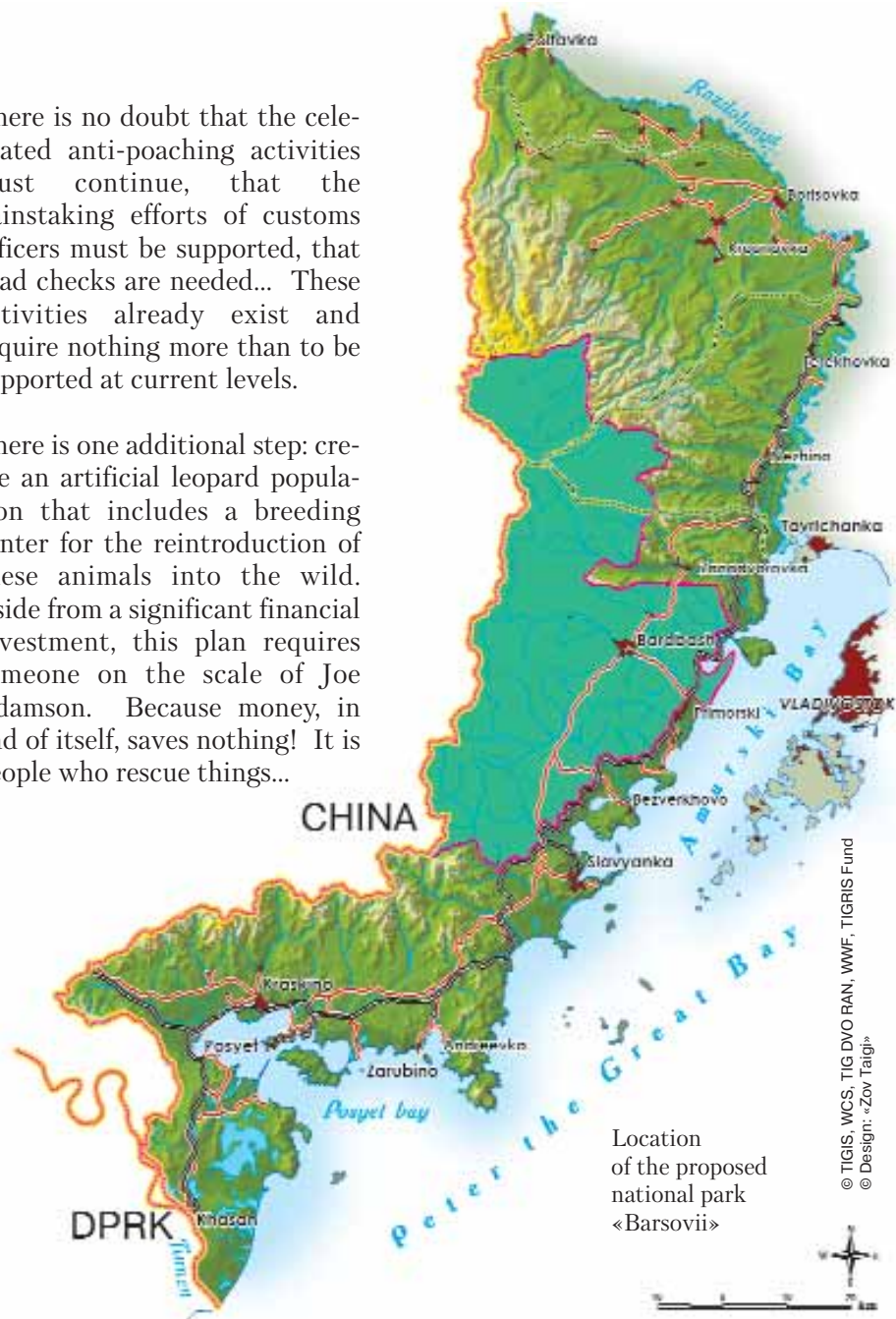
The second step is to increase the number of ungulates to provide the leopard with plenty of prey. According to the ample research data, ungulate density could increase ten fold. This is also an easy step requiring only a few, simple actions at the regional level and a certain amount of investment.

The third step is to change the attitude of local residents. They need to understand that the leopard is a «sacred cow» for southwest Primorskii Krai and that the presence of the leopard is to everyone's advantage. And those who think that they can live here by killing and selling leopards will have to learn the punishment for such behavior. This is the most difficult element in the operation to rescue our hero.

One should not forget that the attention paid by nature lovers, by the environmental community, by the international community to the fate of the Far Eastern leopard will grow not by the year but by the month. One should also remember that countries and regions in which rare species live use these animals not just to obtain funding to support environmental protection efforts but to also raise awareness of their local economic problems and to attract real investments that stimulate the economy.

There is no doubt that the celebrated anti-poaching activities must continue, that the painstaking efforts of customs officers must be supported, that road checks are needed... These activities already exist and require nothing more than to be supported at current levels.

There is one additional step: create an artificial leopard population that includes a breeding center for the reintroduction of these animals into the wild. Aside from a significant financial investment, this plan requires someone on the scale of Joe Adamson. Because money, in and of itself, saves nothing! It is people who rescue things...



They are not sure of the existence of this animal

These days there are three players on the «leopard field». One player is the specially authorized nature protection agencies, organizations that have the authority to directly interdict poachers. A second player is the Russian Academy of Sciences that wants to study the leopard and to receive money for doing that research. And the third player is that group of environmental organizations that has access to the funding to finance this work. Their main goal is to draw the local population, regional authorities and local business into their orbit of activities.

The leopard has the misfortune of living in a region where one can mine poor quality brown coal and harvest fine timber, and where there is a need to protect a state boundary. All these circumstances irritate territorial authorities and the business structures closely connected to these authorities.

And there is one final player and that is the federal government. Naturally, for a structure with an operating budget counted in the billions of dollars, the problem of thirty or forty animals pushed up against a barbed wire fence that separates Russia from China is not just insignificant, the problem simply doesn't exist. Federal authorities are worried about fires at nuclear waste storage sites or shifts in the price of crude oil, about terrorist strikes or the through capacity and wear and tear on oil pipelines... «So does that Far Eastern leopard really exist?» – a federal official living in Primorsky Krai recently asked. And you get the feeling that his question isn't some kind of a joke! These officials aren't even sure that such an animal exists!

So in the end, the fate of the most beautiful Far Eastern cat actually depends on more than a casual glance from Moscow.



Photograph – D. Kuchina

The Far Eastern leopard exists! And the leopard is trying to survive in a small strip of land between the Chinese border and Russian civilization

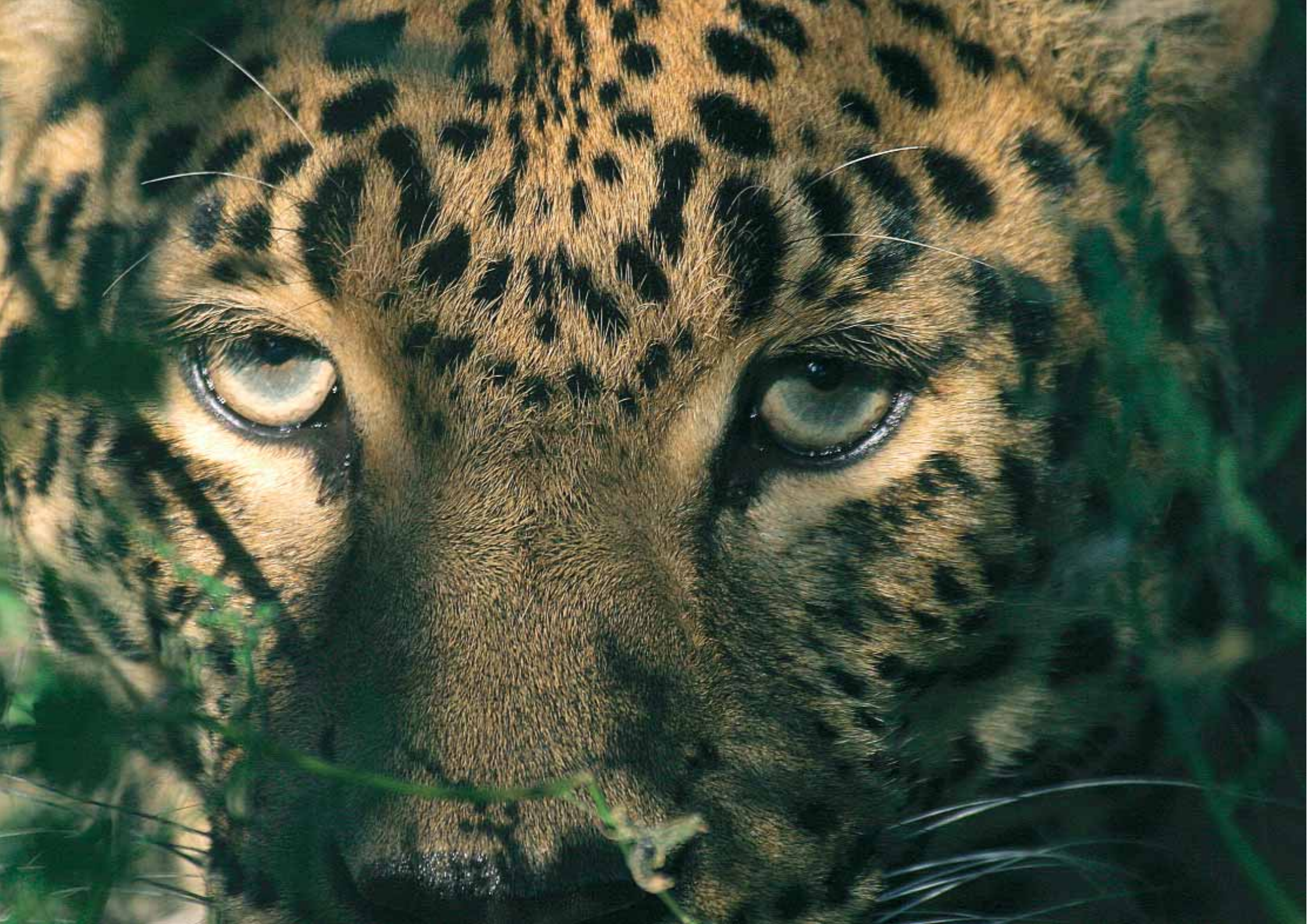
The fate of the leopard depends on the people in this building!



Photograph – M. Kuchmar

Photograph – V. Solin





The price of the leopard's fate

The price is known: about seventeen million dollars invested in various activities in southwest Primorskii Krai. This is for deer farming, tourism, hunting societies and their support structures. This is funding for education activities and to support protected territories, anti-poaching teams, customs services and the media. And for the cost of the land where the leopard lives.

«We have an opportunity to preserve the Far Eastern leopard but only in the event that we take urgent measures right now» says William Eichbaum, vice-president WWF-US.

Photograph — V. Sillén

